Implementing Sustainable Low And Non-chemicals Development in Small Island Developing States (ISLANDS)
-Caribbean Child Project
GEF ID 10279

GEF-7 REQUEST FOR CEO ENDORSEMENT / APPROVAL
CHILD PROJECT – MSP ONE-STEP

PROJECT TYPE: FULL SIZE PROJECT
TYPE OF TRUST FUND: GEF TRUST FUND

Part i: project information

Project Title: Implementing Sustainable Low And Non-chemicals Development in Small Island Developing States (ISLANDS) - Caribbean Child Project			
Country(ies):	Antigua and Barbuda, Barbados, Belize, Dominican Republic, Guyana, Saint Kitt and Nevis, Saint Lucia, Suriname, Trinidad and Tobago	GEF Project ID:	10279
GEF Agency(ies):	UNEP, FAO	GEF Agency Project ID:	01727
Project Executing Entity(s):	Basel Convention Regional Center for Training and Technology Transfer for the Caribbean (BCRC Caribbean)	Submission Date:	4 December 2020
GEF Focal Area (s):	Chemicals and Waste	Expected Implementation Start	February 2021
		Expected Completion Date	January 2026
Name of Parent Program	Implementing Sustainable Low and Non-chemicals Development in SIDS (ISLANDS)	Parent Program ID:	10185

A. Focal/Non-Focal Area Elements

Programming Directions	Focal Area Outcomes	Trust Fund	(in $)	
			GEF Project Financing	Confirmed Co-financing
CW 2-3	Sound management of chemicals and waste addressed through strengthening the capacity of sub-national, national and regional institutions and strengthening the enabling policy and regulatory framework in these countries	GEFTF	11,000,000	47,141,860
	Total project costs		11,000,000	47,141,860

B. PROJECT DESCRIPTION SUMMARY

Project Objective: To prevent the build-up of material and chemicals To prevent the build-up of materials and chemicals in the environment that contain POPs and Mercury and other harmful chemicals in SIDS, and to manage and dispose of existing harmful chemicals and materials in SIDS						
Project Components/ Programs	**Component Type**	**Project Outcomes**	**Project Outputs**	**Trust Fund**	**(in $)**	
					GEF Project Financing	**Confirmed Co-financing**
1. Preventing the Future Build-Up of Chemicals Entering SIDS	Technical Assistance	Countries have adopted environmentally sound policies and control the import of chemicals, materials and products that	1. The legislative and institutional framework is developed to support the environmentally sound management of hazardous	GEF TF	3,848,702	2,788,160

		lead to the generation of hazardous waste	chemicals in materials, products and wastes at national and regional levels in the Caribbean 2. Sustainable training programme is developed to assist countries with implementing the Chemicals and Wastes MEAs at a national level 3. National, institutional and technical capacity to reduce/control the current and future trade of chemicals and products containing hazardous chemicals is strengthened 4. Increased capacity for the development and implementation of national and regional chemicals and products standards including GHS 5. Sustainable Procurement is promoted to key stakeholders to reduce the manufacture/import of products containing hazardous chemicals			
2. Safe Management and Disposal of Existing	Technical Assistance	Harmful chemicals and materials present and/or generated	1. Capacity for environmentally sound management of	GEF TF	3,802,000	13,396,900

Chemicals, products and materials		in the countries are being disposed of in an environmentally sound manner	SC POPs and MC Hg products strengthened, and obsolete pesticides and chemicals, PCBs and DDT eliminated 2. Capacity to manage other hazardous waste streams specific to the Caribbean improved			
3. Safe management of Products entering SIDS/Closing Material and Product loops for Products	Technical Assistance	Build-up of harmful materials and chemicals is prevented through establishment of effective circular and life-cycle management systems in partnership with the private sector	1. EPR and Regional Approach to manage WEEE pilot tested in three participating countries 2. Capacity built for the ESM of ELVs 3. Improved management of plastics (including PVC) through the life-cycle approach and coordination with the public and private sectors	GEF TF	1,588,950	17,300,000
4. Knowledge Management and Communication	Technical Assistance	Knowledge generated by the project is disseminated to, and applied by, SIDS in all regions	1. Caribbean communities are informed and engaged with in the sound management of chemicals and waste 2. Programme reports on project activities developed and disseminated	GEF TF	777,431	10,750,000
Monitoring and Evaluation				GEF TF	459,117	700,000
			Subtotal		10,476,200	44,935,060
			Project Management Cost (PMC)	GEF TF	523,800	2,206,800
			Total project costs		11,000,000	47,141,860

For multi-trust fund projects, provide the total amount of PMC in Table B, and indicate the split of PMC among the different trust funds here: ( )

C. CONFIRMED SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE

Please include evidence for co-financing for the project with this form.

Sources of Co-financing	Name of Co-financier	Type of Cofinancing	Investment Mobilized	Amount ($)

Beneficiary Government (Government of Antigua and Barbuda)	Ministry of Health, Wellness and the Environment	In kind	Recurring expense	1,100,000
Beneficiary Government (Government of Barbados)	The Environmental Protection Department, Ministry of Environment and National Beautification	In kind	Recurring expense	264,100
Beneficiary Government (Government of Belize)	Ministry of Fisheries, Forestry, the Environment and Sustainable Development	In kind	Recurring expense and other projects	737,500
Beneficiary Government (Government of Dominican Republic)				tbc
Beneficiary Government (Government of Guyana)	Environmental Protection Agency	In kind	Recurring expense	323,500
Beneficiary Government (Government of Saint Kitts and Nevis)	Solid Waste Management Corporation, Saint Kitts	In kind	Recurring expense	925, 000
Beneficiary Government (Government of Saint Kitts and Nevis)	Saint Kitts and Nevis Bureau of Standards	In kind	Recurring expense	112,400
Beneficiary Government (Government of Saint Lucia)	Ministry of Education, Innovation, Gender Relations and Sustainable Development	In kind	Recurring expense	619,500
Beneficiary Government (Government of Saint Lucia)	Ministry of Education, Innovation, Gender Relations and Sustainable Development	In kind	Recurring expense	558,300
Beneficiary Government (Government of Suriname)	Cabinet of the President, Coordination Environment/National Environmental Authority	In kind	Recurring expense and other projects	2,310,000
Beneficiary Government (Government of Trinidad and Tobago)	Environmental Management Authority	In kind	Recurring expense	3,720,500
IGO	BCRC Caribbean	In Kind	Recurring expense	600,000
IGO	Organization of Eastern Caribbean States (OECS)	In kind	Other projects	3,000,000
Private Sector	Carnival Cruise Line	Grant	Investment mobilised	20,000,000
NGO	International Union for the Conservation of Nature (IUCN)	In kind	Other projects	1,500,000
GEF Agency	FAO	In kind	Other projects	11,371,060
Total Co-financing				47,141,860

Describe how any "Investment Mobilized" was identified.

Co-financing from the countries: Recurrent expenditures spent on the management of chemicals and waste as well as direct external budget support for the issue.

Co-financing from Carnival Cruise Line: Costs of global food waste discharge/landing reduction program (a significant portion of this is destined for ships principally sailing in the Caribbean region).

Co-financing from OECS and IUCN: Grants received from Norway on the management of plastics.

Co-financing from USAID: waste management projects in the Dominican Republic.

D. TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES), FOCAL AREA AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country Name/Global	Focal Area	Programming of Funds	(in $)		
					GEF Project Financing (a)	Agency Fee (b)	Total (c)=a+b
UNEP	GEF TF	Caribbean SIDS	Chemical and waste	POPs	5,500,000	495,000	5,995,000
				Mercury	2,000,000	180,000	2,180,000
				SAICM	500,000	45,000	545,000
FAO	GEF TF	Caribbean SIDS	Chemical and waste	SAICM	3,000,000	270,000	3,270,000
Total GEF Resources					11,000,000	990000	11,990,000

E.1. PROJECT PREPARATION GRANT (PPG) *[Skip this section if PPG has previously been requested (as child project)]*

Is Project Preparation Grant requested? Yes ☐ No ☐ If no, skip item E.1.

PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country/ Regional/Global	Focal Area	Programming of Funds	(in $)		
					PPG (a)	Agency Fee (b)	Total c = a + b
				(select as applicable)			
Total PPG Amount							

E.2. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? No

(If non-grant instruments are used, provide in Annex D an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF Trust Fund).

F. PROJECT'S TARGET CONTRIBUTIONS TO GEF 7 CORE INDICATORS

Select the relevant sub-indicator values for this project using the methodologies indicated in the Core Indicator Worksheet provided in Annex F and aggregating them in the table below. Progress in programming against these targets is updated at mid-term evaluation and at terminal evaluation. Achieved targets will be aggregated and reported any time during the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCF.

Project Core Indicators		Expected at CEO Endorsement
1	**Terrestrial protected areas** created or under improved management for conservation and sustainable use (Hectares)	
2	**Marine protected areas** created or under improved management for conservation and sustainable use (Hectares)	
3	Area of **land restored (**Hectares)	
4	Area of **landscapes under improved practices** (excluding protected areas) (Hectares)	
5	Area of **marine habitat under improved practices** (excluding protected areas) (Hectares)	5.3: 150,000 t
	Total area under improved management (Hectares)	
6	**Greenhouse Gas Emissions Mitigated** (metric tonnes of CO2e)	
7	**Number of shared water ecosystems** (fresh or marine) under new or improved cooperative management	
8	Globally over-exploited **marine fisheries** moved to more sustainable levels (metric tonnes)	
9	**Reduction**, disposal/destruction, phase out, **elimination** and avoidance of **chemicals of global concern** and their waste in the environment and in processes, materials and products (metric tonnes of toxic chemicals reduced)	9.1: 382.6t 9.2: 69 t 9.6: 157,785 t

10	Reduction, avoidance of emissions of **POPs to air** from point and non-point sources (grams of toxic equivalent gTEQ)	319 g TEQ
11	Number of **direct beneficiaries disaggregated by gender** as co-benefit of GEF investment	2,901,636 (50% male, 50% female)

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided.

The following table indicates the quantity of materials and wastes that were expected to be avoided at the onset of the PPG Phase, compared to the updated quantity of materials and wastes that are expected to be avoided at the close of the PPG Phase.

INDICATOR	QUANTITY EXPECTED AT START OF PPG PHASE	QUANTITY EXPECTED AT END OF PPG PHASE
Marine Litter	**150,000**	**150,000**
Products, materials, etc. that the project is addressing (MT)	**9,008**	**157,785**
Reduction, avoidance of emissions of POPs to air from point and non-point sources (g TEQ)	**84.2**	**319**
Toxic chemicals reduced (broken down below)	**419.22**	**451.67**
DDT (MT)	0	0
PCBs (MT)	17.79	152
PFOS (MT)	146	3.7
PentaBDE (MT)	2.422	6.9
HHPs (MT)	220	220
Liquid mercury for ASGM (MT)	30	30
Mercury in products (MT)	3	39

POPs

The 10279 ISLANDS Caribbean child project seeks to manage and reduce the quantity of POPs and HHPs in the Caribbean region by an estimated 383 metric tonnes.

The project will seek to manage and reduce POPs and HHPs primarily through the prevention of the future import and build-up of POPs-contaminated EEEs and ELVs. EEEs and ELVs were indicated by the baseline assessments to be large contributors to the Caribbean region's POPs-contaminated waste. This will be achieved through the assessment and implementation of legislation and waste management policies, as well as capacity building. This will result in an estimated 52,595 metric tonnes of POPs- and Hg-contaminated material avoided each year during years 2-4 of the project, totalling 157,785 tonnes of contaminated materials avoided overall (as indicated in the table above). This figure is just over 17 times the initial quantity of products and materials which was expected to be avoided at the start of the PPG Phase.

Regarding PCBs, it was estimated during the PFD stage that 17.79 metric tonnes of PCBs could be disposed of or destroyed in the region. However, based on the most recent inventory for the Dominican Republic and Guyana, at least 134 metric tonnes of additional PCBs-contaminated equipment and oils are expected to be in use or storage in the region. Therefore, the project now seeks to support the elimination and disposal of approximately 152 metric tonnes of PCBs (as seen in the table above), as well as to promote the phase out of PCBs by 2025. Under the project it is anticipated that further inventories will be made to identify the remaining quantities for disposal and/or decontamination.

Additionally, an estimated 3,694 kg (3.7 metric tonnes) of PFOS exists in the Caribbean region, according to data provided during the baseline assessments for Antigua and Barbuda, Barbados, Belize, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname and Trinidad and Tobago. Though the quantity expected at the start of the PPG phase was much greater (146 tonnes), this did not take into account reduction of PFOS under GEF project 5558. The ISLANDS project will seek to further quantify the use of PFOS/PFOA in the region to include the Dominican Republic and Guyana, in order to identify and promote suitable alternatives for the phase out of PFOS. The project will similarly seek to address alternatives to other POPs chemicals categories: PFAS, SCCPs, PCBs/PCNs.

Furthermore, the use of HHPs has been identified in 7 out of the 9 project countries. The annual import of pesticides into the region is estimated at approximately 10,000 tonnes. The project seeks to reduce by 220 tonnes the use of HHPs and promote the use of suitable alternatives through the development of tools and awareness raising. This figure did not change during the PPG phase.

Finally, based on the National Implementation Plans for all nine (9) project countries, the project also seeks to reduce and avoid the emissions of 319 g TEQ of POPs to air from point and non-point sources (as seen in the table above). During the PFD stage a quantity of 84.2 g TEQ was identified for reduction and avoidance, but this has since been updated, most notably with information for the Dominican Republic and Guyana.

Mercury

In addition to POPs, it is expected that a total of 69 tonnes of mercury will be avoided through this project, as opposed to the 33 tonnes which were initially projected to be avoided at the initiation of the PPG Phase. This can be broken down into: 30 tonnes of liquid mercury imports prevented over 3 years of project implementation, and; an additional 39 tonnes of mercury reduced regionally through the avoided import of mercury added product as well as the environmentally sound management of mercury wastes.

Data from the most recent inventory conducted for Guyana and Suriname indicated that 28 tonnes of mercury are released collectively per year to the environment, mainly due to gold production with mercury amalgamation. It is anticipated that through the development and implementation of legislation, institutional strengthening and customs capacity building to support the control and phase-out of mercury, the import of at least 5 tonnes of liquid mercury per year will be avoided during the last 3 years of the project. This accounts to the 30 tonnes of liquid mercury imports prevented mentioned in the previous paragraph.

In addition to the implementation of legislation, institutional strengthening and customs capacity building, the development of management and destruction/stabilisation strategies to eliminate selected mercury added products will also be conducted. Collectively, these activities are expected to eliminate the additional 39 tonnes of mercury releases in the region. This value was estimated from the most recent inventory data available on the use and disposal of mercury-added consumer products and intentional products and processes. This data was provided during the baseline assessments for Antigua and Barbuda, Dominican Republic, Guyana, Saint Kitts and Nevis, Saint Lucia and Suriname.

During the PFD stage, it was estimated that 3 tonnes of mercury from these products would be avoided (hence 33 tonnes avoided in total). However, following the inclusion of data for the Dominican Republic and the update of mercury inventories for Antigua and Barbuda and Suriname, it was found that an extra 36 tonnes of mercury are being released per year from these products and processes. Under the project, estimated releases will be managed and future releases will also be avoided.

Marine Litter

In addition to avoidance and elimination of POPs and mercury, the project will prevent an estimated 150,000 tonnes of plastic pollution throughout the five-year execution phase, which is equivalent to the quantity predicted at the initiation of the PPG Phase. The baseline information for this reduction was initially linked to the efforts by the participating countries to ban and phase out the use of plastic bags and polystyrene products, which form a large part of the marine litter that is generated in the Caribbean Sea.

The following table highlights the present status of these bans in each of the participating countries.

Country	Plastic Bag/Food Containers Ban Status
Antigua and Barbuda	January 1st, 2016
Barbados	April 1st, 2019
Belize	April 22nd, 2019
Dominican Republic	Under discussion
Guyana	January 1st, 2016
Saint Kitts and Nevis	Under Discussion
Saint Lucia	December 1st, 2018
Suriname	Under Discussion
Trinidad and Tobago	Under discussion but on Polystyrene only

From the baseline that was collected it was clear that project countries were taking measures to recycle certain plastic waste streams and increase efforts to ban single use plastics which would contribute to the reduction in marine litter.

However, there were gaps in the management of certain key plastic waste streams that are not typically recycled in the region nor disposed of in an environmentally sound manner. These include PVC, a halogenated polymer which when burnt produces dioxins and furans and is a contributor to marine plastic litter and plastic waste from the cruise ship industry. The reduction of uPOPs, through the management of PVC plastic waste, will be examined by conducting an inventory to understand the existing situation and propose informed options to manage PVC waste in an environmentally sound manner and in coordination with the private sector.

Additionally, several sectors such as the healthcare, tourism and disaster management sectors, contribute significantly to the hazardous waste generation of the region and there is limited incorporation of these into the national waste management plans,

policies and strategies. To address this issue in the tourism sector, the plastic waste flows from the cruise ship sector in the Dominican Republic will be assessed. The project seeks to provide recommendations on the environmentally sound co-management of plastic waste with municipal waste management stakeholders. It is envisaged that this pilot project will be replicated in at least two additional countries.
Finally, the project seeks to better manage end of life vehicles and waste electrical and electronic material through BAT/BEP and this will concomitantly contribute to a reduction in marine litter.

Population:
It is expected the project will positively impact 20% of the population of the participating countries through direct demonstration sites, improved control mechanism and dissemination activities in component 4.

G. **PROJECT TAXONOMY**

Fill up the table below for the taxonomic information provided at PIF stage. Use the GEF Taxonomy Worksheet provided in Annex G to find the most relevant keywords/topics/themes that best describe the project.

See Annex G

part ii: project justification

DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN WITH THE ORIGINAL PIF

The request for CEO endorsement below is in line with the original child project submitted as part of the ISLANDS Programme Framework Document (PFD) (GEFID 10185), approved by the GEF Council on 11 June 2019. Consultations with partners at the national and regional levels and site investigations carried out during the Project Preparation Grant (PPG) phase confirmed the initial findings presented in the PFD. The baseline analysis assisted in refining the proposed activities under this project.

The project is being submitted in the context of the ongoing COVID-19 pandemic. As such, the proposal has been adapted to reflect the potential impacts of the pandemic. The COVID-19 pandemic has affected every economic sector in Caribbean SIDS and all segments of society, however with differential impacts depending on age group, gender, disabilities, socioeconomic status and geographic location. Furthermore, the Child Project was expected to be completed in June 2020. However, due to the impacts of the COVID-19 pandemic, which materialized in March 2020 during the key development phases, a six (6)-month extension to the PPG Phase was granted by the GEF to accommodate delays in the finalization of the alternative scenario and the CEO Endorsed Document.

COVID-19 related impacts in SIDS include (but are not limited to): impact on human health; reduced economic growth; significant decline in tourism and remittances, that have led to reduced foreign exchange earnings; reduced income from major income contributing sectors (e.g. tourism, fishery, agriculture, services, etc.); job losses, especially in the informal sector; reduced access to basic services; household food insecurity (often worsening as a result of a decline in the economy and a breakdown in supply chains); fragile healthcare systems that will be stretched further in the short run but could emerge stronger in the medium- to long- term; and women and girls more adversely affected.

Caribbean SIDS' governments have responded to the crisis through rolling national lockdowns and the enforcement of social distancing practices and in some cases, the wearing of facemasks. The impact of COVID-19 has been considered and included as part of the risk analysis for this project. Risks and their mitigation measures have been described in detail in the risk table completed under Section 5.

1a. Project Description.

1) Global environmental and/or adaptation problems, root causes and barriers that need to be addressed

1.1 Global Environmental Problems

The sound management of chemicals throughout their lifecycle and waste is crucial for the protection of human health and the environment. Globally, in 2016, municipal solid waste (MSW) generation was estimated to be 2.01 billion

tonnes, and this figure is expected to rise to 3.4 billion tonnes by 2050[1]. In terms of global waste composition, 44% of all waste is food and green waste, 17% paper, 12% plastics, 5% glass, 4% metal, and 18% other types of waste. In developing countries, organic waste accounts for the largest fraction of all waste. With increasing wealth, the shares of paper, plastic, glass and metal rise; solid waste in OECD states consists mainly of recyclables, followed by organics[2].

Due to their small size and narrow resource bases, SIDS are import-dependent economies. Limited landmasses mean SIDS also often have very high population densities, for example the Maldives ranks 11th globally with 1,102 individuals per square kilometre[3] but with a landmass placing it at the 187th position. On a per capita basis, waste generation in SIDS is rising. In 2014 it was slightly lower than in OECD countries (1.29 kg/capita/day, compared to 1.35 kg/capita/day), but as of 2019 it is 2.3 kg/capita/day, 48% higher than that of OECD countries[4]. However, the large number of tourists often skews the per capita waste generation of the permanent population.

In common with the Pacific and Indian Ocean SIDS, the Caribbean SIDS lack the infrastructure to manage the wide variety of wastes generated by imported products. The disposal of non-biodegradable materials and industrial and agricultural chemicals pose an increasing challenge[3].

As SIDS progress so do their import-dependent development pathways. As a direct result, the quantities and variety of products that are being imported (ranging from mercury containing thermometers to plastic packaging, from second hand electronic products to motor vehicles, from agricultural chemicals to industrial chemicals) is rapidly increasing. This is leading to the generation of a large variety of different types of hazardous and toxic wastes which SIDS, including those in the Caribbean, do not have the installed capacity or required treatment facilities to address alone[5]. Waste volumes are also increasing due to changing consumption patterns, and the disposal of growing levels of imports of non-biodegradable materials.

The disposal of non-biodegradable materials, industrial and agricultural chemicals pose an increasing challenge[6]. Furthermore, the excess amount of waste produced by tourism[7], an important economic sector for most SIDS, is posing additional burden on existing infrastructure. In the Caribbean for example, the approximately 75 million-night stays per year, are estimated to generate as much of 166 million tonnes of waste annually[6]. This places additional stress on already limited and often basic landfill/open dumping infrastructure. Additionally, the complexity and hazard of waste streams such as e-waste, pesticides, asbestos, used oil, items containing heavy metals and biomedical wastes is adding pressure and complexity to local waste management systems, since facilities for their treatment and disposal are often not in place[7]. This has led to action in Indian Ocean SIDS, like Mauritius, and Caribbean SIDS like Antigua and Barbuda where important investments have been made in the establishment and operation of municipal waste management systems and related infrastructure, however more complex and hazardous waste streams (HCWM, e-waste, Hg containing wastes, pesticides) still pose challenges and systems for their recycling, treatment and disposal in-country or abroad need to be set up urgently.

In many Caribbean countries, like in the SIDS of the Pacific and Indian Ocean, collection services are inadequate, or nonexistent, and open burning of accumulated waste is widely practiced, or wastes are disposed of in water sources. In many cases the most prevalent method of disposal is open and uncontrolled dumping, which leads to human health problems, as well as risks to the marine ecosystems, and other sensitive land areas and watercourses. The health

[1] Kaza, S., Yao, L., Bhada-Tata, P., Van Woerden, F. (2018). What a waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development Series. The World Bank Group.

[2] Mohee, R., Mauthoor, S., Bundhoo, Z., Somaroo, G., Soobhany, N., Gunasee, S. (2015). Current status of solid waste management in small island developing states: A review. *Waste Management, 43*, 539-549. https://doi.org/10.1016/j.wasman.2015.06.012

[3] http://worldpopulationreview.com/countries/maldives-population/

[4] UNEP, IETC. (2019). Small Island Developing States Waste Management Outlook. http://wedocs.unep.org/bitstream/handle/20.500.11822/27683/SIDS_WMO.pdf?sequence=1&isAllowed=y

[5] Cleaner Pacific Strategy. https://www.sprep.org/attachments/Publications/WMPC/cleaner-pacific-strategy-2025.pdf

[6] UNEP. (2014). Global Environment Outlook: SIDS Outlook

[7] UNEP. (2018). Global Waste Management Outlook. https://www.unenvironment.org/resources/report/global-waste-management-outlook

problems are compounded by the additional risk to human health as a result of the informal waste removal undertaken by waste pickers in the region. Moreover, uncontrolled burning is also typical in uncontrolled dumping sites, resulting in the emission of harmful chemicals such as mercury and dioxins and furans.

There is an urgent need in SIDS, including Caribbean SIDS, to move to integrated waste management. Extensive evidence shows the costs of inaction in SIDS are significant in terms of the economic costs of impacts to health, environment, tourism, and fisheries. In Palau for example, poor solid waste management results in pharmaceutical costs, time in hospital and lost labour costs of over US$700,000 per year, or US$36 per individual, per year[4]. The SIDS Waste Management Outlook 2019 suggests that waste reduction can save SIDS municipalities between US$35 and US$400 per tonne, depending on the location and the waste management technologies used[4].

SIDS' environments are particularly vulnerable to pesticides (including POPs and Highly Hazardous Pesticides (HHPs)) damage[8]. The close physical and cultural relationship of the islands with the marine and mangrove environments makes these countries even more susceptible to the adverse effects of pesticide run-off. SIDS are rich in biodiversity hotspots including primary rainforests and coral reefs. Pollution and sedimentation negatively affect the marine environments by smothering coral reefs, killing fish and reducing the recreational value of beaches. For instance, in 2010 coastal sediments in the Caribbean with high concentrations of chlordecone (a POP used for 30 years in banana production) were identified as the source of contaminated fish and lobsters that local communities depend on. The Global International Waters Assessment[9] pointed out that the use of agro-chemicals within the agricultural sector is a source of significant damage to both surface and groundwater resources and highlighted the indiscriminate and improper disposal of agricultural wastes (including stockpiles of obsolete pesticides as well as empty pesticides container) as a priority issue.

1.2 Root Causes

1.2.1 Global Root Causes

International economic development in the past decades has improved the livelihoods of many people across the world, including in SIDS, but has also given rise to resource-intensive societies that are not sustainable in the long term. In particular, SIDS globally share a number of characteristics that can be identified as root causes for chemicals and waste issues. Consequently, SIDS governments have recently started dedicating themselves to finding solutions for the most pressing development issues, including the root causes listed below. A sustainable chemicals and waste management programme will serve to alleviate the pressure on SIDS by tackling waste management barriers to sustainable development, and thereby help create the socio-economic room needed to find solutions for these root causes.

4. **largely import-dependent economies:** Due to limited resources, SIDS economies are defined by high imports and relatively low exports. This has led to limited economic opportunities for SIDS and a high dependence on volatile economic sectors such as tourism.
5. **located remotely from global markets and commonly with outer islands spread across vast distances:** SIDS are characterised by a high degree of isolation, sometimes located hundreds of miles from the nearest neighbouring country. Additionally, SIDS are often comprised of tens, hundreds or even thousands of islands which may also be located distantly from each other. This leads to high transport costs not just internationally, but also within SIDS, to ensure all islands benefit from development opportunities. This has led to some internal migration in SIDS in recent years from outer islands to inner islands.
6. **limited available landmass to manage wastes:** Excepting European micro-states, almost all of the world's smallest countries by area are SIDS. Given generally high population densities, this means SIDS have very limited access to land for waste management infrastructure. Paired with geographic isolation and high transport costs, SIDS-generated wastes become a particularly difficult and costly waste stream to manage[10].
7. **high economic vulnerability to exogenous shocks:** Due in part to their largely import-dependent economies (see above), and their dependence on volatile economic sectors, SIDS economies are highly vulnerable to exogenous shocks. This has been

[8] http://www.fao.org/3/ca5170en/ca5170en.pdf
[9] GIWA. (2006). Regional Assessment 3a – Caribbean Sea/Small Islands Assessment
[10] United Nations Environment Programme (2019). Small Island Developing States Waste Management Outlook. Nairobi

particularly visible during the COVID-19 pandemic, as various SIDS—especially those reliant on tourism—have experienced considerable falls in GDP in 2020, some dropping by as much as 15% or more[11].

8. **lack of critical mass of people, infrastructure and investments:** Many development solutions are dependent on reaching a critical mass of people, infrastructure and investments. Likewise, waste management solutions are often dependent on a critical mass of waste. Due to their small size, SIDS are unlikely to be able to reach the critical masses needed for conventional development and waste management solutions.
9. **economic migration of qualified individuals (brain drain):** Due to limited opportunities in SIDS, educated individuals will often leave their countries at a young age for higher education or career opportunities, and not return at least until old age. This creates a void of qualified individuals in SIDS to solve pressing development issues. This has been a point of action for many SIDS in recent years with the establishment of regional universities and the diversification of SIDS economies.

1.2.2 Regional Root Causes

During the project preparatory period, the root causes have been further analyzed and the following regional root causes were identified.

10. **Economic dependence on tourism:** The Caribbean region is one of the most tourism-dependent regions in the world. The region caters to tens of millions of visitors every year both through land-based tourism (mainly hotels) and off-shore tourism (cruise ships). The high presence of tourists has led to a sharp increase in waste generation for the region and partially explains the above-average per capita waste generation of Caribbean countries. Furthermore, high dependence on tourism as a volatile economic sector increases the region's sensitivity to exogenous shocks.
11. **High sensitivity to environmental disasters:** Hurricanes, earthquakes and to a lesser extent volcanic activity are a common occurrence in the Caribbean region. Hurricanes are a yearly occurrence and are particularly devastating; large storms have the capacity to cause hundreds of millions or sometimes even billions of dollars worth of property damage in a single year. Additionally, hurricanes are becoming more destructive financially due to increases in population and infrastructure concentration, and the frequency and intensity of storms is increasing due to climate change. All of these environmental disasters tend to cause high amounts of disaster waste which can overload Caribbean countries' waste management systems. The economic cost of environmental disasters also decreases countries' capacities to effectively tackle long-term development issues.

1.3 Barriers to be Addressed

1.3.1 **Global Barriers – Common to all SIDS:** According to the Global Waste Management Outlook (2015)[12], waste management is recognized as one of the areas for priority attention for SIDS. Despite SIDS economies ranging from least developed country status to middle income, the following barriers to improved chemicals and wastes management are common to all SIDS:

a. **Lack of regulations and limited capacity at customs level to manage and monitor imports of chemicals contained in products:** Most SIDS lack comprehensive regulatory frameworks and standards to adequately curb and control the influx of products that are challenging to dispose of when they become wastes. As well as improved regulations, institutional capacity building is required to effectively implement and enforce these policy and regulatory frameworks effectively.

b. **Lack of technical capacity and infrastructure to manage, safely store and dispose of hazardous substances:** Generally, the only disposal option available for SIDS is export, which is expensive and often unfeasible. SIDS therefore require assistance to avoid and minimize the import of products that cannot be treated with the local constraints, while at the same time introducing best practices and technologies fit for SIDS settings to improve the systems, capacity and physical infrastructure to properly manage, isolate, store, dispose and (occasionally) export toxic substances, wastes and products containing hazardous and toxic substances. Improved disposal of hazardous waste, including chemical, medical and electronic waste as well as lead-acid batteries, asbestos and used oil is critical for SIDS, should be considered a top priority requiring coordination between SIDS[4].

[11] UN Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (2020). World's most vulnerable countries lack the capacity to respond to global pandemic.
[12] UNEP, ISWA. (2015). Global Waste Management Outlook. United Nations Environment Programme, Nairobi, Kenya

c. **Limited adequate landfills and poor solid waste management systems:** Many SIDS lack engineered landfills and, in these instances, rely on "dumps" where uncontrolled burning, resulting in releases of unintentionally produced Persistent Organic Pollutants (POPs), is common. In atolls particularly, space available for landfills is extremely limited. While some SIDS do not have functioning waste collection systems, in others, particularly within the Caribbean region, the public administration provides for a municipal waste collection system to transport household wastes to landfill sites. However, this is often hampered by lack of financial resources and/or limited accessibility of remote villages, and is further compounded by inadequate waste treatment and disposal systems.

d. **Limited recycling opportunities in SIDS:** Due to small population sizes, geographical isolation and associated high shipping costs, economies of scale cannot be reached. Segregation of waste streams in is still uncommon, meaning that a high percentage of potentially recyclable waste (e.g. compostable material, plastics, paper, glass) is dumped, or ends up in a landfill. Limited human capacity and lack of incentives to encourage recycling, including the absence of legal and regulatory provisions for recycling, economic instruments for citizens and businesses or voluntary agreements with the private sector, are additional constraints to recycling.

e. **Lack of awareness:** of the broader community of the need to manage wastes, in order to prevent adverse health and environmental impacts. SIDS populations are often unaware of the potentially hazardous nature of many consumer products, and what "proper" disposal constitutes. There is very little public information available in SIDS aimed at educating communities on improved waste management practices.

f. **Waste generated by the tourism, hotel, agricultural and cruise industry:** For many SIDS, tourism, agriculture and the cruise industry are very important in terms of job creation and GDP. However, the waste generated by the agriculture, cruise industry and the tourism and hotel sector places a significant burden on SIDS' limited infrastructure and makes it even harder to improve the management of chemicals and wastes. For example, Antigua and Barbuda accepts an average of 360 tonnes cruise waste per year and Saint Lucia accepts approximately 1,786 tonnes cruise waste.

g. **Additional burden of waste generated by natural disasters:** these include disasters such as cyclones, hurricanes, tsunamis, volcanoes and earthquakes. These events add additional waste burden to already fragile waste management infrastructure. In a matter of seconds, a disaster can generate the equivalent of decades of waste[4], and SIDS require strategies, procedures, methods and facilities to deal with this. Recovery from disasters also diverts public funds from planned investments to emergency response.

h. **Climate Change and rising sea levels:** In many SIDS, climate change is considered one of the greatest threats to the livelihoods, security and wellbeing of their people. Areas of the Bahamas, Barbuda, Cook Islands, Federated States of Micronesia, Maldives, Kiribati, Marshall Islands, Tonga, and Tuvalu are only a few metres above present sea level and may face serious threat of permanent inundation from sea-level rise. SIDS lack the resources to adequately address vulnerability to climate change. This presents a significant barrier to the sound management of chemicals and wastes as landfills and dumpsites also risk inundation. In addition, poor waste management leads to greenhouse gas emissions, with between 8-10% of annual greenhouse gas emissions in SIDS attributed to poor waste management[4].

1.3.2 Region-Specific Barriers to the Sound Management of Chemicals and Wastes: Caribbean SIDS face these and several other unique barriers to improved chemicals and waste management. These include:

a. **Limited information collection and exchange**: Detailed information on the quantities and flows of chemicals and products that may be harmful throughout their lifecycle is seldom collected and analysed by relevant authorities in Caribbean SIDS. There is limited ability of decision makers, for example, and private enterprises to gather, exchange and access information required to drive the reduction in use of chemicals and the resulting wastes. In the agricultural industry, there is also limited technical capacity for pesticide risk assessment and monitoring of highly hazardous pesticides.

b. **Lack of private sector engagement:** The inability to form economies of scale has always proved to be a deterrent to engaging private sector stakeholders in recycling activities. With regards to e-waste and end of life vehicles (ELVs) this is compounded by a lack of treatment capacity and storage space that leads to inadequate final disposal of this waste stream.

c. **Lack of chemicals and waste financial mechanisms:** The amount of knowledge regarding how to design financial mechanisms to support reductions in chemicals and pesticides use while building improved production is very limited. There are no practical models that provide governments, producers, and suppliers a framework upon which to formulate financial structures designed to incentivize sustainable practices. There is little access to expertise needed to provide innovative economic models in the region to show that a reduction in the use of pesticides can improve production and profitability, both directly as well as through the reduction of external risks.

d. **Limited promotion of alternative products:** There are relatively low levels of investment in funding for alternative and sustainable production practices. Private and/or public funding for agroecological research and development is limited. Investment in the promotion of sustainably produced commodities is not sufficient. The ability of governments to access and exchange information and to be able to afford to apply this information is lacking.

In moving the chemicals and waste agenda forward, certain changes must be made to the 'business as usual scenario' that is taking place at present. The key drivers that will inform the strategic positioning in relation to transformation include the government buy in and support of systems such as sustainable agricultural practices, integrated waste management, recycling initiatives and measures to improve extended producer responsibility. Due to the size of the countries, many of these options cannot be implemented sustainably at the national level. The economies of scale in the Caribbean must be analysed and a determination made on the feasibility of such initiatives at the regional level.

The aforementioned root causes, and barriers, together with the resulting problems are analysed diagrammatically in the following problem tree.

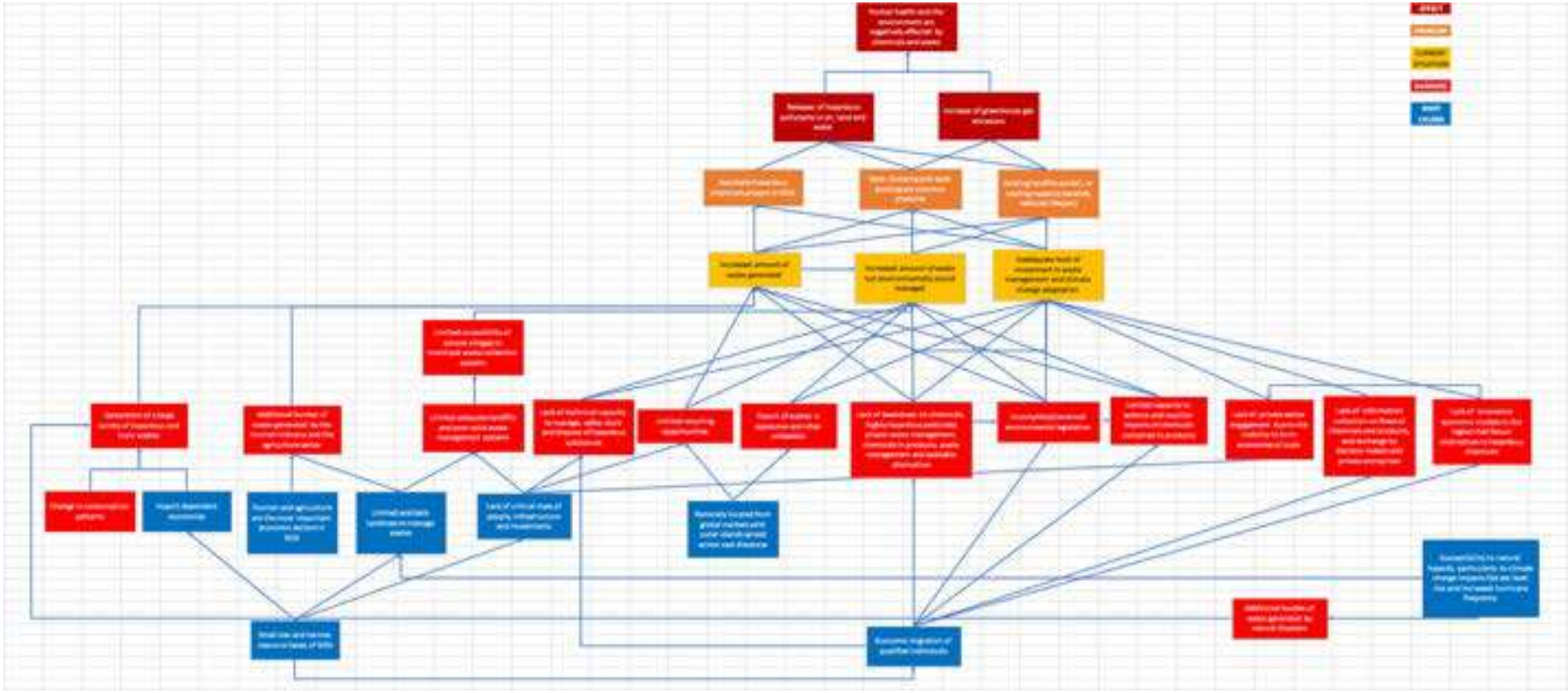


Figure 1: 10279 Caribbean Child Project problem tree

2) The Baseline Scenario and any Associated Baseline Projects

2.1 Global, regional and national baseline scenario

2.1.1 Global baseline scenario:

SIDS are a distinct group of 38 countries across the: Caribbean, Pacific, Atlantic, Indian Ocean and South China Sea (AIMS). SIDS are characterized by their small physical scale, geographic isolation, unique biodiversity, exposure to natural hazards and disasters, limited resource base, remoteness from global markets and small economies of scale . There are multiple drivers and pressures affecting SIDS and hampering their development. These include vulnerability to climate change, local access to potable water, nutrition and food security, energy and transport demand, exploitation of natural resources, local sectoral development, poor management of waste and pollution (including from chemicals), coastal squeeze and loss of ecological resilience.

Globally, development in SIDS is guided by the 2014 SIDS Accelerated Modalities of Action (SAMOA) Pathway, being implemented from 2014-2024. The SAMOA Pathway recognizes the adverse impacts of climate change and sea-level rise on SIDS' efforts to achieve sustainable development as well as on their survival and viability, and addresses economic development, food security, disaster risk reduction and ocean management, and chemicals and wastes management. On chemicals and wastes management, the SAMOA Pathway recognises the need to reduce, reuse, recycle, recover and return approaches according to national capacities and priorities *inter alia* through capacity-building and environmentally appropriate technologies[13]. A SIDS Partnership Framework was also established, designed to monitor progress of existing partnerships, and stimulate the launch of new, genuine, and durable partnerships for the sustainable development of SIDS[14].

In September 2019, a high-level meeting convened at UN Headquarters, NYC, to review midterm progress in implementing the SAMOA Pathway[15]. The political declaration from the meeting calls upon relevant institutions, funds, and facilities to review their financing instruments to maximize accessibility, effectiveness, transparency, quality, and impact. It also underscored the need to foster enabling environments to attract foreign direct investment, and strengthen capacity of SIDS to effectively participate in the multilateral trading system[12].

A midterm review of progress on the SIDS Partnership Framework was also completed[16], addressing the impact of partnerships on beneficiaries and sustainable development of SIDS, as well as challenges faced, and lessons learned. The report concluded further attention is needed to address: the multi dimensions of poverty; inclusion of marginalized groups; issues of market development; issues related to health and noncommunicable diseases; gender considerations, particularly in regard to income inequality; and addressing sustainable consumption and production holistically in the context of small island environments.

The fourth meeting of the UNEP Assembly led to further commitment of governments to act to improve the management of chemicals and wastes, in line with the SAMOA pathway. These include the resolutions related to marine plastics and marine litter; sustainable consumption and production, including green procurement; addressing single use plastic pollution; the environmentally sound management of chemicals and wastes; and sound management of chemicals and wastes[17].

The opportunity for SIDS to learn from each other to address common issues is lacking in the current project-by-project landscape. As identified in the SIDS Waste Management Outlook (2019), SIDS require opportunities to cooperate with other SIDS to learn from each other's experiences by working regionally and globally to make headway and improve chemicals and wastes management[4].

---

[13] http://www.sids2014.org/content/documents/336SAMOA%20Pathway.pdf
[14] https://sustainabledevelopment.un.org/sids/partnershipframework
[15] Earth Negotiations Bulletin, meeting coverage: https://enb.iisd.org/vol08/enb0858e.html
[16] United Nations Department of Economic and Social Affairs. (2019). Partnerships for Small Island Developing States. https://sustainabledevelopment.un.org/content/documents/24591SIDS_Partnerships_May_2019_web.pdf
[17] UNEA resolutions: UNEP/EA.4/L..8,9,10). http://enb.iisd.org/vol16/enb16153e.html

SIDS in each region are at different stages of development and have varying levels of capacity to address the challenges posed by chemicals and wastes. For example, a number of the Indian Ocean SIDS have existing commercial waste management companies operating at national level generating knowledge on the best mechanism for contracting of services over multi-year contract periods. The Pacific has a regional overarching policy framework under the "Cleaner Pacific 2025" programme which sets the regional context under which all Pacific SIDS are set to manage chemicals and wastes. The opportunities for the Pacific and Indian Ocean SIDS regions to exchange experience and knowledge with the Caribbean region, to ensure a general raising of standards for management of chemicals and wastes exist and need to be acted upon. All SIDS, however, share a similar development trajectory. They are all highly vulnerable to climate change, which threatens SIDS population's health, livelihoods, food security, water supply, human security, cultural heritage and economic growth[18]. Simultaneously, common opportunities exist across SIDS to mitigate vulnerability and dependency.

One of the world's fastest growing sectors, tourism, is becoming a main economic contributor for many SIDS, creating employment, and generating foreign exchange earnings (equivalent to 20% of GDP in two fifths of SIDS where data is available)[4]. That being said, the sector also generates large amount of wastes and draw on already limited local resources and as such requires regulation to prevent unmanageable buildup of wastes and hazardous materials in SIDS. The situation is the same with the agricultural sector.

Globally, development in SIDS with relation to agriculture is guided by the Sustainable Development Goals that call for *inter alia* efforts to promote sustainable agriculture (Goal 2, in particular targets 2.3; 2.4 and 2.A). there is a focus on ensuring access by all people, in particular the poor and people in vulnerable situations, to safe and sufficient food, doubling the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples and family farmers and ensuring secure and equal access to productive resources and inputs, knowledge, financial services, markets and ensuring sustainable food production systems. However, achieving these goals includes agricultural research and extension services and technology development in order to enhance agricultural productive capacity. In this goal, a call for a reduction in the use of highly hazardous pesticides would make a significant contribution by reducing exposure to, and hence adverse impacts on health and the environment from, these pesticides.

2.1.2 Regional baseline scenario:

2.1.2.1 Regional summary of waste generation and distribution

Hazardous chemicals and waste systems in the Caribbean region are in the process of modernization, but practices vary based on income level and other limiting factors. The project countries generate over 1.5 million tonnes of waste on a yearly basis, with significant variation between individual countries as seen in Table 1. The municipal per capita waste generation in the project countries shows an average that in some cases exceeds the regional and global average as shown in Figure 2 below. The project countries also show significant amounts of quantities/emissions of pesticides, POPs and mercury products as seen in Table 2.

[18] UNDP. (2018). Finance, partnerships and innovation: Large ocean states pave the way to the 2030 Agenda. https://www.undp.org/content/undp/en/home/blog/2018/Large-ocean-states-pave-the-way-to-the-2030Agenda.html

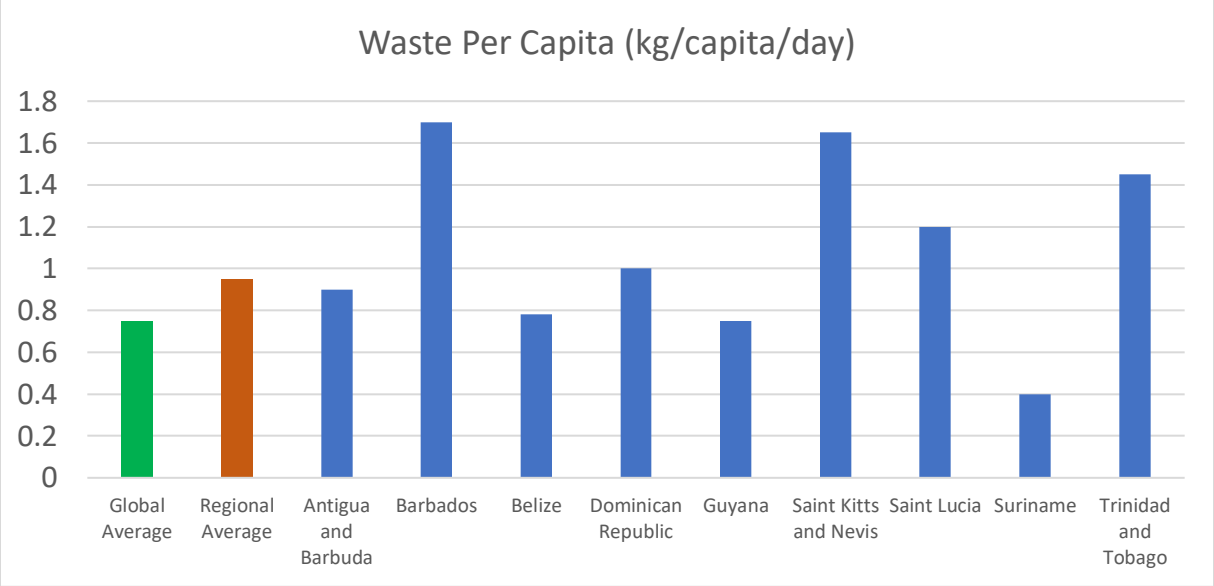


Figure 2: Waste Per Capita (Kg/capita/day) for the participating countries

The table below shows the distribution of the selected waste types and the amounts generated by each project country.

Table 1 Waste Distribution per Country by Tonnage (Tonnes/yr)

Waste Type	ANU	BDOS	BZE	DR	GUY	SKN	SLU	SUR	TT
WEEE [1]	1,735	7,956	6,931	73,878	9,184	2,046	3,478	2,099	47,288
Plastics	18,062	50,839	7,634	156,226	16,800	1,380	10,439	18,181	139,460
Agriculture Plastics	34.2[2]	0.213**	29.17	nd	5.38	0.060[2]	30	12.31	24
End of Life Vehicles (ELV) [3]	3,813	7,338	7,801	116,666	5,145	1,609	4,617	9,878	39,170
Waste Oil	232.7[4]	476.4	211	10,530	826	188	233	817.8	99,120[5]
Used Tyres	1,330	2,698	1,200	15,057	4,680	1,066	1,322	4,632	8,602
Used Lead Acid Batteries	471	947	425	102,700[6]	1,657	376	468	1,640	5,861[5]

Notes:

[1]Acosta & Corallo (2020) – Trade Flows report on EEE/WEE, GEF ISLANDS PPG

[2]Estimates as actual data is not collected or is not readily available for this waste stream.

[3] Acosta & Cutina (2020) – Final Recommendations report for ELVs, GEF ISLANDS PPG

[4]This does not include the quantities of sludge, oil rags and filters which end up in the landfill per year.

[5]Estimates as actual data is not available or has not been willingly supplied

[6]Estimate based on quantity of ULABs exported as per the Dominican Republic's National Report to the Basel Convention (2016)

Table 2 Status of Pesticides, POPs and Hg products in each country (kg), based on NIP and MIA data for 2016[1]

Type		ANU	BDOS	BZE	DR [(2)]	GUY [(3)]	SKN	SLU	SUR	TT
Pesticides		Annual imports of pesticides into the region are estimated at approximately 10,000 tonnes.[(7)] In 2016, 209 tonnes of obsolete pesticides from 8 project countries were disposed abroad under the GEF/FAO 5407 project. In a separate GEF funded project in Belize 23.93 tonnes DDT, 4.3 tonnes solid pesticide and 2,000 L liquid pesticide was disposed abroad in 2017.								
PBDE in use (2016)	**C-Penta BDE**	386	48	734	nd	nd	nd	557	620	2,894
	C-Octa BDE	210	665	253	nd	nd	95	378	130	nd
HBCD		nd	nd	nd	nd	nd	nd	nd	16,795	nd
PFOS		64	23	0.35	nd	nd	79	772	2,756	nd
PCBs		A rapid inventory assessment of obsolete equipment in 2016 (except Guyana and DR) identified 46.54 tonnes of PCBs oil and contaminated equipment for disposal abroad. The process is ongoing with disposal expected by 4Q 2020. Another inventory is underway in 4 project countries (ANU, BZE, SLU and SUR) as part of the GEF 5558 project, with disposal expected in the next year. Dominican Republic and Guyana estimates 114 tonnes (2009 NIP) and 20 tonnes (2013 NIP) of PCBs and equipment, however more detailed and updated assessments are needed.								
Hg Products[(4)]		24	nd	nd	38,704	1,505	30	49	554	440
UPOPs g TEQ[(5)]		0.89	32.68	4.48	160	18.9[(6)]	0.06	1.07	77.70	23

Notes:

[1]Quantities/Emissions are likely underestimated due to missing/incomplete datasets.(

[2]Data source is the most recent NIP (2009). UPOPs emissions are for 2005 and calculated using the old UNEP dioxins/furans toolkit

[3]Data source is the most recent NIP (2013). The NIP is currently ongoing an update, with expected completion in 2021.

[4]Hg in its liquid form is also used in the ASGM sector in Guyana and Suriname. The total estimated Hg releases for those countries inclusive of Hg and Hg Products are 29,688 kg of Hg in Guyana and 174,710 kg of Hg in Suriname.

[5]UPOPs emissions data in g TEQ/annum

[6]Revised emissions based on the 2013 UNEP Dioxins/Furans toolkit.

[7] Country Presentations at the 19th Meeting of the Coordinating Group of Pesticides Control Boards of the Caribbean. Antigua and Barbuda June 2-3, 2014

nd – no data available at this time.

2.1.2.2 Regional summary of hazardous chemicals and waste management situation

12. Hazardous chemicals

There are currently two main GEF-funded regional projects focused on the management of hazardous chemicals, namely the sustainable management of POPs (GEF 5558) and management of pesticides (GEF/FAO 5407) and which are due to be completed in 2021/2022. These projects collectively address legislation, action plans, training and capacity building, information storage, storage and treatment facilities, source separation, alternatives and communication and awareness and disposal of stockpiles.

There are no facilities available in project countries which carry out the environmentally sound management (ESM) of POPs and other chemicals. Therefore, the practice of collecting and storing obsolete chemicals pending export for ESM is common to all countries. The most recent consolidation and export was done in 2016/2017. The Dominican Republic exported 21 metric tonnes of PCBs to France for recovery in 2013; other transformers with PCB-containing oil are stockpiled but details on the quantity could not be obtained. It is noted that their storage is guided by the management protocol established under the Dominican Corporation of State Electric Companies' Network Rehabilitation Programme. The adequacy of temporary storage facilities varies across the project countries with most, except for Dominican Republic, Guyana and Belize, having none or very basic infrastructure. An activity of the GEF 5558 project assessed the temporary storage facilities for hazardous chemicals and waste in the four OECS project countries and will develop detailed engineering designs for a model temporary storage facility and country specific design for Antigua and Barbuda,

since they will co-finance its construction. The upgrade will meet international standards and will consider current and future capacity needs.

13. Hazardous chemicals in agriculture

Annual imports of pesticides into the region are estimated at approximately 10,000 tonnes[19]. A conducted field survey with the purpose of collecting chemical and non-chemical alternatives targeted three main types of pesticides[20] namely nematicide, herbicide and insecticide. The survey revealed that herbicides play a strong role in weed management across the Caribbean, except for Trinidad and Tobago, where 20% of respondents recorded no chemical pesticide use[21].

Several potential Highly Hazardous Pesticides (HHPs) have been identified in 7 out of 9 project countries by FAO (Table 3) as well as through surveys carried out by the Rotterdam Convention Secretariat. Priority pesticides, which have been identified in several countries, include the herbicides paraquat and glyphosate, and the insecticides methomyl, diazinon and malathion.

Table 3 Priority potential HHPs identified

Country	**Pesticide active ingredients for priority action?**	**In which crop (or non-ag contexts) is each mainly applied?**	**Against which target pest or disease organisms or type of weeds?**
Antigua & Barbuda	Glyphosate methomyl malathion	Food (veg) & non-food crops Fogging (public health)	Weed control Insects Mosquitoes
Barbados	paraquat; 2,4-D methomyl; carbaryl malathion	Food (veg) & non-food crops Fogging public health	Weed control Insects Mosquitoes
Dominican Republic	methomyl; chlorpyrifos; diazinon	food crops	Insects
Guyana	Paraquat Diazinon; chlorpyrifos	All crops	Weeds insects
Saint Lucia	Oxamyl (vydate) Paraquat (gramoxone) malathion	Bananas Public health vectors	Nematodes/ borers Weed control Mosquitoes
Suriname	glyphosate; paraquat imidacloprid; diazinon	Food & non-food crops	Weed control Insects
Trinidad and Tobago	glyphosate; paraquat; 2,4-D chlorpyrifos; spinosad [spinosoids]; abamectin diamethomorph; mancozeb; Bellis (boscalid and pyraclostrobin)	Mainly veg crops	Weed control Insects Fungal diseases

With the expansion of the global trade in agricultural commodities, food quality and food safety have become critical to both export and import countries. Pesticide residues in food are a major concern related to food safety. The Maximum Residue Limits (MRLs) are commonly used all over the world as the maximum acceptable pesticide residue levels in

[19] Country Presentations at the 19th Meeting of the Coordinating Group of Pesticides Control Boards of the Caribbean. Antigua and Barbuda June 2-3, 2014

[20] Rotterdam Convention Annex III chemicals

[21] Anonymous 2018. Field Survey: Collection and Analysis of Data on Agro-ecological/IPM practices and chemical /non-chemical alternatives to Annex III and candidate Pesticides in six Caribbean Island States. CARDI Report, pp 59

food. Food safety standards, e.g. pesticide MRLs, are an increasingly important issue in the region for safeguarding domestic consumers and for facilitating the international trade of agricultural products.

Poor pesticide management can result in pesticide residues in food exceeding the MRLs set by international standards like the Codex Alimentarius. Lack of adherence with the pesticide residue regulations published by the European Union (EU), the USA and Japan could affect commodity trade. This is well reflected in the European Union report[22] on pesticide residues in food in 2017. In this report, the Dominican Republic and Suriname were among the 12 countries with the highest MRL exceedance rates (more than 10% of the samples, more than 40 samples analyzed) reported in 2016 and 2017. Furthermore, according to the Rapid Alert System for Food and Feed[23] of the European Union, in the period between 2015 and 2019 there were 64 notifications due to pesticide residues for the Dominican Republic and 4 notifications for Suriname. For the other islands, no notifications could be found for this time period. The main products affected were beans, peppers and mangoes.

The availability of biopesticides as alternative control measures to synthetical pesticides is limited in the Caribbean Region. As many Caribbean farmers are small holder farmers with less than two hectares of farmed land, the preparation of homemade insecticides is common. An FAO survey on this matter conducted in 2018 revealed that 18% (84 farmers) in the six Caribbean survey countries provided examples of homemade biopesticides[24]. However, there is a lack of evaluation of efficacy of homemade biopesticides. Despite high use of homemade biopesticides and bioherbicides, commercial synthetic herbicide use for weed control remains high across the Caribbean region.

14. Municipal Solid Waste Management

Waste management practices in the project countries remain less than adequate in most cases. Whilst improvements are being made in all countries, there are still critical areas that require addressing. These include disposal practices, source separation and recycling, leachate treatment and energy recovery.

The disposal of waste in each of the project countries is through landfilling methods, either of the open type, converted landfill or sanitary landfill. In Sain Lucia, four (4) pyrolysis units will be commissioned before the end of 2020; however, waste incineration, waste-to-energy have only been considered in two other Caribbean countries, namely Barbados and Trinidad and Tobago. Anaerobic digestion of waste has not been considered by any Caribbean country.

It should be noted that whilst countries such as Barbados, Guyana and Belize have developed and are currently utilizing engineered sanitary landfills for the final disposal of waste, some others such as Saint Kitts and Nevis and Antigua and Barbuda have reverted to open dumpsites because their landfill sites have reached capacity. In Barbados, two satellite quarries were opened to receive construction and demolition waste and relieve the pressure on the main landfills. In Saint Lucia, the Deglos Sanitary Landfill is presently operating at sub-optimal conditions and through the GEF 5558 project actions will be undertaken to improve its operations and the Vieux Fort Solid Waste Management Facility has been transitioned into the Vieux Fort Waste Transfer Facility. Trinidad and Tobago, Suriname and Dominican Republic do not have any sanitary landfills, with the former at the planning stages of constructing a new engineered landfill site at Forres Park. Suriname has detailed engineering designs and plans for a new engineered landfill at Ornamibo; however, the landfill requires funding for its construction. In the Dominican Republic, all landfills are open type and most are located near to environmentally sensitive areas, such as aquifers, rivers, streams and coastal areas. The newly instated administration has indicated its intentions to formalise several dump sites across the southern part of the country, but work towards this initiative is only being conceptualised.

Most of the existing landfills have compactors at the sites to ensure optimal compaction of waste and the extension of the life of the landfill; however, several of these sites do not have water tenders for dust and fire controls. This situation

[22] European Union report on pesticide residues in food https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2019.5743
[23] Rapid Alert System for Food and Feed of the European Union (https://ec.europa.eu/food/safety/rasff_en)
[24] Among them neem leaves were the most common ingredients mentioned along with hot pepper (Capsicum sp.), vinegar or garlic (Allium sativum). Also soap water and cooking oil was mentioned but at very low rates.

increases the risk of prolonged landfill fires and increases the opportunity for production of Unintentional Persistent Organic Pollutants (UPOPs).

Since all countries lack any policy or regulatory directive on tourism waste (Belize is the notable exception), demolition waste and disaster waste, they are sent directly to the landfills or, as often the case with disaster waste, piled and burnt near to the disaster site.

Informal sector involvement varies across countries, with only Barbados and Belize able to successfully tackle this social problem. In the other project countries, the number of waste pickers at disposal sites are generally less than 30 individuals, except for Trinidad and Tobago and Dominican Republic where it is much higher, approximately 400 individuals.

15. Hazardous Waste

All project countries' solid waste authorities have various initiatives to manage hazardous waste; however, they are constrained by an inadequate regulatory environment and poor infrastructure and consequently only a few hazardous wastes streams are managed. A registration and permitting system for generators of hazardous waste does not exist in any project country, although recently drafted legislation in Trinidad and Tobago and the Dominican Republic, when instituted, will address this issue. As it relates to disposal, of the three project countries with an engineered landfill, only Belize has a dedicated cell for hazardous waste, which is underutilized as a result of some gaps on collection and the types of wastes allowed under the Hazardous Waste Regulations, 2009. In some project countries, certain types of hazardous waste (asbestos and medical waste) are encapsulated and buried separately on the landfill. In instances where the hazardous waste is treated by incineration by a private entity, the ash is sent to the landfill where it is comingled with regular waste.

Waste management in rural areas is typically challenging and more so in countries with a large geographical area like Belize, Dominican Republic, Guyana and Suriname. The solid waste management authorities of these countries have acknowledged that there is lower implementation of solid waste management practices in these areas. Rural areas are characterized by a combination of lower per-capita solid-waste generation rates and equal or higher hazardous-waste generation rates than urban areas[25]. Thus, the fraction of hazardous waste in a rural landfill may be larger than that in an urban landfill. In Guyana, the EPA and Ministry of Communities have recognized as a priority the closure of dumpsites and the need for a more modern, appropriate manner to manage waste which will have fewer negative impacts on human health and the environment. In mid-2019, Belize received a grant from the IDB, through the Japan Quality Infrastructure Initiative, which will act as the second phase of the Solid Waste Management Project and has among one of its three objectives the design of a system to facilitate solid waste collection and transportation in rural villages for final disposal in the Mile 24 Regional Sanitary Landfill.

There is an emerging concern that due to international health and safety policies and guidelines in the international transport sector[26] (airlines and cruise ships) associated with the COVID-19 global pandemic, there may be increased strain on the hazardous waste management sector. It is expected that service providers will be (i) providing disposable PPE (e.g. masks, towels, gloves and tissues) for customers and staff and (ii) increasing the use of chemicals during constant sanitisation efforts. This concern is expected to be significant in several project countries (e.g. Caribbean Airlines in Antigua and Barbuda, Barbados, Guyana and Trinidad and Tobago) which serve as major ports of call and aviation hubs where there is the existing responsibility for waste management and/or disposal. This magnifies the already existing need for the management of ship-generated waste in the region and compliance in according to international standards in the region[27].

[25] Martha W. Gilliland; W. E. Kelly, Members, and D. M. Lokke - Hazardous-Waste Management in Rural Areas https://ascelibrary.org/doi/10.1061/%28ASCE%291052-3928%281991%29117%3A2%28102%29

[26] WHO Guidelines: How the Aviation Industry Should Manage COVID-19 https://www.jetex.com/who-guidelines-how-the-aviation-industry-should-manage-covid-19/

[27] CEPAL Maritime Sector and Ports in the Caribbean: the case of CARICOM countries https://unctad.org/meetings/en/Contribution/cimem7_2014_C2_Martime_CARICOM_en.pdf

There is also a recognised need for the current waste management systems of the region to address other priority and emergent waste streams such as disaster waste[28]. The exacerbation of climate change issues and related increased intensity and frequency of natural disasters have been directly recognised in the Caribbean islands[29]. As such, there is a recognised need to address the preparedness of the islands to appropriately mitigate and manage the post-disaster wastes/debris, which can evolve into human health and environmental concerns if not properly addressed[30]. In Barbuda, whilst quantities not available, the lack of a strategy has seen the development of indiscriminate burning of the post-disaster waste following Hurricane Irma in 2017. The need to 'Develop and implement a debris and waste management plan' was recognised as a priority following the World Bank's Recovery Needs Assessment[31]. Dominica, whilst not a project country under this child project, provides a recent snapshot of this issue, whereby the amount of debris generated after Hurricane Maria was approximately 4 million m^3 and the projected amount for the years 2030 and 2050, reaches up to 5 and 6 million m^3 of debris respectively if another Category 5 storm strikes the island. Key findings of the by the UN Environment / OCHA Joint Unit mission to Dominica included the need to 'develop a clear long-term waste management strategy' including the aspects for chemicals and hazardous waste management[32].

16. Recycling

All countries have some recycling initiatives, some encouraged by regulations, but most are driven by entrepreneurial activities within the private sector. Of the project countries, Barbados, Suriname and Trinidad and Tobago possess elaborate facilities for the processing of waste materials prior to shipment to recycling companies. In other countries, there are only basic amenities for recycling, such as storage facilities as well as baling/shredding machines. Recycling rates are highest for materials such as aluminium, paper, and plastic. All municipal waste in Barbados passes through the well-established SBRC who diverts the recyclable portion (paper and cardboard, glass, beverage containers, other plastics and metals) to private recyclers for exportation. Suriname has a privately owned recycling facility, AMRECO, who collects and processes plastics, cardboard and aluminium cans prior to export. They utilize a hybrid collection system (drop off and collection from the generator), owing to high transportation costs. In Trinidad and Tobago, the state-funded project, Recyclable Solid Waste Collection Project (iCare), is geared towards increasing public awareness and participation in recycling of beverage containers and establishing the infrastructure necessary to sustain a national recycling system in anticipation of the passing of the Environmental Management (Beverage Container) Regulations, 2019. Approximately 60,000 kgs of recyclables are collected and processed quarterly. The programme is funded entirely by the Green Fund and does not require the consumer to pay a disposal fee. SWMCOL and some municipal corporations piloted some localized curb side collection of recyclables; however, the sustainability of this initiative is unclear since there is no self-financing mechanism.

Antigua and Barbuda and Saint Lucia have structured but more basic processing recycling facilities while in Belize, Guyana and Saint Kitts and Nevis, it is mostly done on an ad-hoc and very limited scale. All are private sector initiatives.

The Institute of Applied Science and Technology (IAST) (public sector) in Guyana has successfully operated several pilot-scale recycling programmes involving domestic and industrial solid wastes, which it is currently working to

[28] IDB - Solid Waste Management in the Caribbean Proceedings from the Caribbean Solid Waste Conference https://publications.iadb.org/publications/english/document/Solid-Waste-Management-in-the-Caribbean-Proceedings-from-the-Caribbean-Solid-Waste-Conference.pdf

[29] Waste Management Outlook for Latin America and the Caribbean https://wedocs.unep.org/bitstream/handle/20.500.11822/26448/Residuos_LAC_EN.pdf?sequence=2&isAllowed=y

[30] DISASTER RISK MANAGEMENT IN THE CARIBBEAN: The World Bank's Approaches and Instruments for Recovery and Resilience - https://www.gfdrr.org/sites/default/files/publication/WBG%20Caribbean%20DRM%20Engagement_web.pdf

[31] Hurricane Irma Recovery Needs Assessment: A Report by the Government of Antigua and Barbuda https://www.gfdrr.org/sites/default/files/publication/Antigua%20and%20Barbuda%20executive%20summary_print_text%282%29.pdf

[32] Commonwealth of Dominica- Management of post-hurricane disaster waste https://www.humanitarianlibrary.org/sites/default/files/2020/01/Disaster-waste-management-Dominica-Oct-2017-final-draft-formatted-6.pdf

commercialise. These include production of roof shingles/tiles from waste high-density polyethylene (HDPE) plastics and sawdust, processing of used tyres to produce crumbed tyre which is combined with rubber and has been used to surface the Demerara bridge and the creation of activated carbon from coconut shells to replace the use of mercury in recovering gold during the mining process. Additionally, the Ministry of Public Infrastructure is in the process of installing a new 160 tonne per hour asphalt plant that will be able to utilize waste tyres along with plastic bags and plastic bottles.

17. Waste Electrical & Electronic Equipment (WEEE)

The estimated WEEE generation for 2020 for all project countries is 154,594 tonnes, with the highest generation in the Dominican Republic (48%) and Trinidad and Tobago (31%). Due to challenges in obtaining data, WEEE generation was based on import data from the Trademap database for selected EEE 4-digit HS codes and categorized based on the EU Framework Directive, with assumptions on lifespans derived from previous WEEE assessment in Suriname and Trinidad and Tobago (BCRC-Caribbean, 2013, 2014). Four categories of WEEE accounted for approximately 80% of the total WEEE generated, namely large household appliances (LHA) (32%), consumer equipment (CE) (30%), IT and telecommunications equipment (IT&T) (11%) and electrical and electronic tools (E&ET) (9%). PBDEs contained as flame retardants in plastics of TV and computer casings, and PCBs, are present mainly in categories IT&T and CE. The categories lighting equipment (LE) (2%) and monitoring and control instruments (M&CE) (3%) may include mercury components, regulated by the Minamata Convention, such as mercury-containing energy efficient lights and primary batteries.

WEEE management in the project countries is mainly undertaken by the private sector. Barbados is the only country where there is some support from the Government whereby e-waste is collected by SSA and delivered to the privately operated SBRC who then diverts the e-waste to private recyclers.

None of the project countries have source separation policies for e-waste therefore the onus is on the generator to engage a private recycler, which means the majority of e-waste enters the landfills or, as is often the case with government agencies, is stockpiled in warehouses. Smouldering of e-waste and cables by the informal sector at landfill sites is a common occurrence in the project countries and was identified in their updated NIPs.

In all project countries, except Dominican Republic, there is private sector involvement (mostly unregulated), typically to accept the e-waste (for a fee), dismantle to various degrees and export the materials recovered. The discarded material, including the plastics, are sent to the landfill or illegal dumpsites. While none of the countries adequately manages the lifecycle of EEE, three countries (Barbados, Saint Lucia and Trinidad and Tobago) have progressed in certain aspects, and in Suriname the Bun Suni Foundation recently received a grant from the UNDP, which is currently being used to assess companies for e-waste management potential. In Barbados, in addition to involvement of SSA, who greatly increases the collection rates of e-waste, there are two recycling facilities which coordinate directly with SBRC, namely Caribbean E-waste Management Inc, who exported 40 tonnes on average/per annum, although they do not accept certain categories (LHA, MD and LE), and B's Recycling, who exported 2 tonnes in 2019. Both companies undertake manual dismantling and some refurbishment. Greening the Caribbean in Saint Lucia accepts all WEEE except refrigerators and exported 600 tonnes between 2015-2019. Trinidad and Tobago has at least three (3) companies who collect, dismantle and export recovered materials from WEEE. Information was obtained from only one (1) company, Piranha Ltd, where they indicated they export 4 containers per year, in accordance with the Basel Convention procedures. The company either dismantles and exports (without a broker) or refurbishes and donates (estimated 85% is repaired for donation).

A key consideration for all private sector companies is their financial sustainability, which is influenced by external market prices, and when these prices are too low, the companies resort to storing the collected WEEE on their compounds until the markets are agreeable. Storage space is very costly, and this is compounded in project countries with lower WEEE generation rates, where the timeframe to acquire a reasonable export quantity also becomes a factor.

18. End of Life Vehicles (ELVs)

The estimated ELVs generation for 2020 for all project countries is 196,037 tonnes, with the highest generation in the Dominican Republic (60%) and Trinidad and Tobago (20%). The management practices of ELVs is heterogenous in the project countries, from a formal public-private mechanism in Antigua and Barbuda and Saint Kitts and Nevis, to informal private sector driven or acceptance at public landfills in Belize, Barbados, Saint Lucia and Trinidad and Tobago and finally where there are no practices in place (Dominican Republic, Guyana and Suriname). In all countries depollution and dismantling is carried out in a rudimentary manner and at a basic level. In Antigua and Barbuda, the plant receives, on average, 50 ELVs (cars) per week and they can bail about 200 per week. In January 2020 the government undertook a project to collect derelict vehicles, collecting an estimated 5,000 to date, which will be sent to the processing plant. The Saint Kitts and Nevis government has had an exclusive arrangement with Enclave since 2018 to collect ELVs and scrap, process and then export the metal components to NuCor Steel in the USA. Approximately 5,000 – 6,000 tonnes of scrap metal were exported. There is a discontinued private sector initiative in Saint Lucia by Renew Saint Lucia Inc. where users were paid to bring in their ELVs and the dismantled components were exported; however, without Government or other financial assistance, the endeavour was not sustainable. For the remaining countries, ELVs treatment is largely done by scrap metal dealers to obtain certain valuable components such as scrap metals, waste oils and used batteries; however, there is no data collection system to differentiate ELVs from other sources. In all project countries, the hazardous components of the ELVs, which are comingled with non-valuable components, are mostly disposed in landfills, burnt or illegally dumped.

Several countries have collection programmes for automotive waste oils, which are reprocessed for use in local industries (Antigua and Barbuda, Barbados, Belize, Saint Lucia and Trinidad and Tobago) or stored in holding tanks/pits at the landfills (Saint Kitts and Nevis). Trinidad and Tobago and the BCRC-Caribbean have embarked on a demonstration project for the establishment of a small-scale waste oil processing facility for the island of Tobago. Once successful, this project can be replicated within other countries. Collection rates are generally low due to limited investment by the private and public sectors and since it is mostly unregulated there is virtually no enforcement of good practices. Overall, the estimated annual regional quantity of waste oils from ELVs is 102,104 tonnes.

Used tyres is a major waste management issue in the project countries, generating on average 25,530 tonnes annually, and whist the disposal management is unregulated, the solid waste management authorities in some countries have initiated some management programmes. Antigua and Barbuda, Saint Lucia and Trinidad and Tobago have a tyre shredder at each of their landfills where they collect and store used tyres and, in Guyana, a new asphalt plant will utilize waste tyres. Collection rates are generally low and the crumbs from the tyre shredder are buried in the landfills. Barbados collects and stores used tyres at their Mangrove Landfill and are in the process of purchasing a tyre shredder and developing a sound management plan for the crumbs. In the Dominican Republic, tyres are used as a secondary fuel source at a cement kiln, collected through informal means. The privately owned cement kiln in Trinidad and Tobago has shown interest in using waste tyres and oil as a source of secondary fuel; this is in the planning and approval stage.

19. Plastics

Across a sample of Caribbean countries, an estimated 322,745 tonnes of plastic go uncollected each year, resulting in 22% of households discarding waste in waterways or on land where it can end up in waterways (World Bank). According to the United Nations Environment Programme (UNEP), 92% of marine litter in the Caribbean comes from land-based sources, as compared to the global average of 80%.

Management of plastics is a relatively recent (5-10 years) initiative in the project countries and is mostly related to single-use plastics. Three (3) project countries, Dominican Republic, Suriname and Trinidad and Tobago, have more elaborate processing plants for plastic waste. AMRECO in Suriname collects mainly three (3) types of plastic waste (PET, HDPE and LDPE) and shreds to produce plastic flakes which are exported to China, and more recently other countries in Asia. The flakes are separated by source (pre- and post-consumer and post-industrial), type of plastic and colour. In 2017, approximately 210 tonnes of plastics flakes were exported to China; this volume is estimated to be <10% of the plastic packaging imported to Suriname. Foundation Suresur is an NGO which focusses on the collection of plastic bottles and aluminium cans (est. 60 tonnes/year), particularly in the rural interior areas, and delivers to AMRECO for further processing. In 2019, there was indication that a Chinese owned plastic recycling company will be established in

Suriname within the next 2 years. Very few details were available; however, it appears the company will have advanced techniques to recycle plastic into the raw material. The company will receive pre-processed or bulk material from plastic recyclers such as AMRECO and other facilities in the Caribbean but is not expected to accept PET or PVC. The estimated processing capacity will be 200-500 MT/month of plastic waste.

Trinidad and Tobago has the first PET wash plant in the English-speaking Caribbean, producing 99.5% pure high-grade PET flake, which is used as a raw material in the manufacturer of fabric, carpets and stuffing for toys. The recycling facility, which is run by state-owned SWMCOL is supported by a PET Sort plant, located at its Guanapo Landfill Site in Arima. At this sorting plant, commingled recyclables are sorted into its components: PET, HDPE, glass and aluminium cans. The recyclables collection system is largely supported by the iCare project which has over 600 collection points nationally. There are also several private entities involved in recycling, but operational data could not be obtained.

In the Dominican Republic, plastics, glass, aluminium and cardboard are recycled. However, due to gaps in the collection of resources, 78% of resources generated are not used and therefore the recycling plants only operate at 40 to 55% of their total installation capacity, which is just over 260,000 tonnes per year. In the remaining countries, there are small scale recovery facilities which perform limited pre-processing (baling) prior to export. ABWREC in Antigua and Barbuda formed a partnership with the Government to facilitate collection of recyclables and they ship approximately 18 tonnes/year of plastics. In Belize, Mile 8 Recycling exports approximately 1,000 tonnes/year; however, with depressed market prices, they developed basic design plans to construct a plastic lumber plant, based on existing ones in nearby Guatemala, but are seeking funding and collaboration with the Government.

Saint Lucia is participating in a sub-regional project, RePLAST-OECS Pilot Plastic Recycling Project, which is a two-year public-private initiative, being implemented by UNITE Caribbean and is aimed at setting up an incentivized plastic waste collection and recycling scheme. The plastic collected (PET and HDPE) will be exported to a recycling plant, initially in Honduras and Martinique in the future. To date, 11,793 kg of baled PET bottles were shipped from Saint Lucia to Honduras. The intent is to replicate the programme in other OECS countries.

Belize launched their Marine Litter Action Plan in September 2019, which especially addresses plastic pollution and includes actions such as sustained long-term outreach campaign, development and implementation of legislation, and reduction in land-based sources of pollution. Belize was selected as the 'incubator country' for the Caribbean and thus their experience and solutions will be shared with the other Caribbean countries.

2.1.3 National baseline scenarios:

Caribbean countries share a common development trajectory with other SIDS globally as import dependent economies. However, there are nuances among Caribbean countries, including the nine (9) participating countries, which impacts their position along that trajectory.

During the project preparation phase, a comprehensive national review was undertaken to assess each of the nine (9) participating countries' status and progress on chemicals and waste management. These reviews also sought to identify the key priorities for each country at a national level. Each country assessment provides a snapshot of basic country data, waste statistics, legislative environment, and other relevant activities currently being undertaken in each project country.

The national baseline is presented below as follows:

a. Status of Ratification of Chemicals and Waste Management Conventions
b. Principal hazardous chemicals and waste legislation in each country
c. Assessment of the regulatory environments
d. Institutional assessment

a) Status of Ratification

The project countries are at varying stages of ratification of the BRS&M Conventions. Table 4 below highlights the status of each country.

Table 4 Status of Ratification of Chemicals and Waste Management Conventions

Target Country	Basel	Rotterdam[33]	Stockholm	Minamata[34]
Antigua and Barbuda	1993	2010	2004	2016
Barbados	1995	*1998(signature) (no entry into force)*	2004	-
Belize	1997	2005	2010	-
Dominican Republic	2000	2006	2007	2018
Guyana	2001	2007	2007	2014
Saint Kitts and Nevis	1994	2012	2004	2017
Saint Lucia	1993	*1999 (signature) (no entry into force)*	2004	2019
Suriname	2001	2004	2011	2018
Trinidad and Tobago	1994	2009	2004	-

b) Principal hazardous chemicals and waste legislation in each country

Antigua & Barbuda

The Pesticides and Toxic Chemicals Act, 2008 (PTCA) focuses on the regulation of pesticides, there are apparent gaps in the management of toxic chemicals as it regards to aspects such as transportation and disposal. For example, it mainly regulates the POPs-containing pesticides listed the Stockholm Convention. However, this list has not been updated since 2008. The National Solid Waste and Management Act, 2005, which was made to amend the act of 1995, is relatively comprehensive and the new EPMA is positive with regards to waste management and updates the old law. Still, there is still no legislation which adequately prescribes how chemical stockpiles and waste containing POPs should be managed, as per the obligations of the Stockholm Convention. These regulations therefore leave regulatory gaps in terms of the other obligations under the Stockholm Convention. There is, however, intent to harmonise and consolidate the legislative framework for pesticides and toxic chemicals (including mercury) using the model Integrated Chemicals Management Act developed under the GEF 5558 project; this is pending the completion of the GEF/FAO 5407 legislative guidance for pesticides.

Outdated provisions in several key laws require revision, such as the Public Health Act. There is an absence of laws and guidelines addressing certain waste streams such as clinical waste, incinerator ash, mercury, ELVs and e-waste. Transportation of waste is not adequately provided for under the National Solid Waste Authority Amendment Act, the Public Health Act, 1957 or the Litter Act, 2019. The Customs (Control and Management) Act, 2013 is quite general in that it has a broad application to prohibit imports and exports as required by law; however, there are no express provisions within this Act in relation to prohibiting import or export of hazardous waste in the terms outlined in Article 4 of the Basel Convention. The Environmental Protection and Management Act No 10 of 2019 (EPMA) attempts to regulate of the emission of environmentally toxic and persistent or carcinogenic substances and also prohibits the discharge of certain pollutants to water and air. It also provides for the development of subsidiary legislation which will facilitate the regulation of the import, export manufacture, use or distribution of substances which may harm the human health and the environment. However, some aspects from the Basel Convention which must be domesticated have not been covered, for example the illegal trafficking of waste. It also does not make specific provisions for the domestic transportation of hazardous waste within the Act.

[33] http://www.pic.int/Countries/Statusofratifications/tabid/1072/language/en-US/Default.aspx
[34] https://sdg.iisd.org/news/minamata-convention-reaches-105-ratifications/

Barbados

The number of laws which deal expressly with the regulation of chemicals in Barbados is limited. The Pesticides Control Act, 1973, provides for the control of the importation, sale, storage and use of pesticides, and is supported by the Pesticides Control Regulations, 1974 and the Pesticides Control (Labelling of Pesticides) Regulations, 1976. Although these regulations are dated, the prescribed regime for the registration of pesticides is still applicable. Subsidiary legislation is required to implement control on the disposal of pesticide containers and stockpiles of obsolete pesticides; however, these regulations are yet to be developed. Still, there are gaps in the overall management of pesticides and there is a lack of comprehensive legislation with respect to the management of other chemicals.

Although there is some legislation which refers to waste in Barbados (primarily the Sanitation Service Authority Act (CAP 382), 1963, Sanitation Service Authority (Amendment) Act, 2018 and Health Services Act (Cap. 44), 1969), there are no clear provisions on hazardous waste and its transportation, whether domestic or transboundary, as recommended in the Conventions. While there are draft Acts which intend to introduce important concepts in relation to dealing with hazardous waste such as the Waste Management Act and the 2009 Draft Environmental Management Act (EM Act), these have become quite dated, are yet to be gazetted. Last updated in 2013, this Draft EM Act has a section addressing toxic substances from import to disposal. At present, the Environmental Protection Department (EPD) reviews any hazardous waste disposal and export on a case-by-case basis.

Belize

Two (2) of the principal laws dealing with chemicals are the Pesticides Control Act Chap. 216 and the Environmental Protection Act, Chap. 328, though neither regulate chemicals to the extent required under the Stockholm Convention. There is a draft Integrated Chemicals Management Bill, 2017, which seeks to combine chemical and waste management in relation to the BRS Conventions, as well as the Draft Industrial Chemicals Management Regulations, 2017 which seeks to control industrial chemicals.

While the Environmental Protection Act, Chap. 328 defines hazardous substances, it does not explicitly define “hazardous waste” as per the requirements of the Basel Convention. The Solid Waste Management Authority Act, 1991 considers “solid waste” to include garbage and refuse but expressly excludes derelict vehicles, construction waste material and chemical by-products. Hazardous waste management is specifically governed by the Hazardous Wastes Regulations, 2009, which seek to implement some of the provisions of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. The Regulations also provide for the storage and domestic transport of hazardous waste. Still, more work is necessary in terms of updating the EPA and the regulations. Regulation 20 prohibits the import of hazardous waste for disposal; however, importation may be considered if the waste will be used as a raw material for an industry in Belize, for example, such as used lead-acid battery recycling. However, no express provisions are found on export of chemicals or hazardous waste. The domestic transportation of waste is prescribed but the procedure for transboundary movement of chemicals or waste is not covered under this legislation. Cruise ship waste is considered hazardous under these regulations.

Dominican Republic

The General Law of Environment and Resources No 64-00 provides the legal framework for environmental protection and management in the Dominican Republic. It defines toxic wastes and dangerous residues and prohibits their improper disposal. It also directs municipalities to collect, treat and dispose of non-hazardous solid waste. Chemicals and solid waste are further regulated via several regulations administered by the Ministry of Environment and Natural Resources. Currently, there is no overarching legislative framework for the management of chemicals and solid waste, but steps are being taken towards the promulgation of the draft Law on Comprehensive Management of Solid Waste Co-processing of the Dominican Republic. This bill was developed to regulate the generation and management of solid waste, including the reuse, recovery, recycling and final disposal, as well as the importation and transit of waste.

The Regulations for the Management of Hazardous Chemicals and Waste Substances in the Dominican Republic, 2013 establish the requirements for the treatment and final disposal of chemical substances and their containers and wastes and also enacts a licensing regime to give effect to the Prior Informed Consent Procedure under the Basel Convention. Resolution No. 445-06 was created to regulate the initial "dirty dozen" persistent organic pollutants (POPs) under the Stockholm Convention but it has not been updated since 2006. Polychlorinated biphenyls (PCBs) are specifically regulated under the Environmental Regulations for the Use, Handling, Transportation and Disposal of PCBs, 2013, but regulations for other POPs have not been drafted. Chemicals used in the agricultural sector are specifically regulated by the Regulation on the Use and Environmental Management of Agrochemicals and their Residues in Horticultural Production, 2013.

The Single Window for Foreign Trade (VUCE) was implemented in January 2017 to facilitate the digital streamlining of procedures relevant to the import and export of good. In addition to Customs, seven (7) other institutions have access to this electronic data management facility, including the Ministry of the Environment and Natural Resources and the Ministry of Agriculture.

Guyana

The Environmental Protection Agency's (EPA) Hazardous Waste Regulations, 2000 have made impressive strides to implement a permitting system for the operation of a facility to generate, transport, treat, store and dispose of hazardous waste. While this regime may be extended to the regulation of transboundary movements, there are significant gaps as the legislation does not define critical terms under the Basel Convention, including export, import, transit and illegal traffic. However, the Regulations empower the EPA to develop guidelines related to the handling of hazardous waste and they clearly define the hazardous wastes to be controlled within the territory. The draft Solid Waste Management Bill, 2014 when passed will establish a Solid Waste Management Authority and establishes licencing and permit systems for waste management facilities and waste haulers. There is potential for an overlap in jurisdictions between this draft legislation and the aforementioned regulations with respect to permitting of waste management facilities. Guyana has legislation dealing with attempts to reduce the effects of mercury, particularly in relation to small scale gold mining, from broad powers in the EPA Act to the Mining Act; however, there are gaps in management and disposal of mercury as the codes of practices are yet to be gazetted.

The 2007 amendment to the Pesticide and Toxic Chemicals Act, 2000 provides for the application of the Rotterdam, Stockholm and other similar international agreements in country. The amendment regulates the exports and management of chemicals by providing for the adoption of obligations assumed under the international agreements through the Act. For example, the amendment facilitates the implementation of the Basel Convention with a more direct link to the management of hazardous waste under the Environmental Protection Act. Guyana Customs has enabled data exchange and integration with the Pesticides and Toxic Chemicals Control Board and the Environmental Protection Agency (EPA) to allow for an integrated approach to chemical management using ASYCUDA World system.

Saint Kitts and Nevis

The Solid Waste Management Act, No. 11 of 2009 provides, *inter alia*, for the management of solid waste in conformity with the best environmental practices (BEP). The Act governs both solid and hazardous wastes and provides and extensive definition of hazardous waste, which is similar to the requirement under the Basel Convention; this definition excludes hauled sewage, residential waste, agricultural waste used tyres, used oil and radioactive wastes. The National Conservation and Environmental Protection (NCEP) Act No. 5 of 1987 addresses the pollution from sources including solid waste, garage oil, or other waste and enforces through the 2001 amendment. The Stockholm Convention is not included on the list of MEAs in the Fifth Schedule of this Act, nor listed in the Second Schedule to the draft National Conservation and Environmental Management (NCEMA) Bill, 2017 in the event that the draft legislation is adopted. The Public Health Act regulates drugs, offensive trades, and the disposal of refuse, particularly in relation to nuisances, but some provisions may be considered as being outdated.

The Pesticides and Toxic Chemicals Control Act Chap 9.18 of 2009 is the umbrella legislation governing pesticides and toxic chemicals; however, only one piece of subsidiary legislation (Pesticides Labelling and Storage of Containers) Regulations has been promulgated under the Act to date even though the PTCCB has identified several priority issues that should be regulated. The Customs (Control and Management) (Amendment) Act, No. 7 of 2001 which amends the Customs (Control and Management) Act, includes a list of items to be prohibited or restricted from importation or exportation. However, it should be noted that no POPs have been included on the list. Furthermore, despite acceding to the Minamata Convention in 2017, there has been no progress beyond a draft Cabinet Note to address the Convention's obligation in national law. As it relates to the movement of wastes, the Department of the Environment applies an administrative control through the Prior Informed Consent (PIC) principles.

Saint Lucia

The Waste Management Act, 2004 is the main instrument through which waste is managed in Saint Lucia. It contains enabling provisions to manage stockpiles and wastes, however, not specifically for POPS or mercury, but for waste in general, including hazardous waste. However, pursuant to Section 51, it is meant to be supported by regulations, some of which are yet to be formulated. There are several draft legislation and policy which addresses various aspects of hazardous waste management, namely, the draft Waste Management (Biomedical Waste Transport, Treatment and Disposal) Bill and the draft Environmental Management Act, 2018; however, the timeline for their enactment is not fixed. The Styrofoam and Plastics (Prohibition) Act 2019 which entered into force in August 2019 serves to ban the importation of all Styrofoam and single-use plastic containers into the territory.

The Pesticides and Toxic Chemical Control Act (Cap. 11.15) is a comprehensive principal piece of legislation dealing with chemical management; however, in practice, the law focusses mainly on pesticides, as did its precursor, the Pesticides Control Act, 1975, with limited management of toxic chemicals; however, if the full provisions for making Regulations are implemented, the Act is suitable for domesticating the legal requirements of the Stockholm Convention. The Customs (Control Management) Act 1990 lists goods which are prohibited and restricted for import and export. Although no prohibitions are made for chemicals and waste in this Act, it provides for the prohibition of the importation of goods referred to in other legislation. This can facilitate the implementation of some of the country's obligations under the Stockholm Convention.

Suriname

In May 2020, the Environmental Framework Law 2020 was enacted, and it is a principal umbrella legislation for environmental management. It will enable domestic, regional and international compliance with some of the mandates and agreements to which Suriname is party. While it will provide general aspects for environmental management, there are enabling provisions which will strengthen hazardous chemicals and wastes management, the extent to which will need to be further explored as the Law is implemented. The legislation framework prior to the enactment of this Law is still intact and is described as follows.

Suriname does not have a comprehensive framework for chemicals management, specifically it does not sufficiently accommodate the various classes of chemicals and did not address the different stages of the chemical lifecycle. Pesticides are the only type of chemicals that are specifically regulated from import to the phase of disposal through the Pesticides Act, 1972. The Act on the Movement of Goods and its subordinate regulation, the State Order Negative List manages the import of goods including the aforementioned pesticides, chemicals, including mercury and Ozone Depleting Substances (as per obligations under the Montreal Protocol). It does not, however, regulate mercury-added products. Liquid mercury imports are regulated to an extent under a permitting system. As of 2014, it was noted that a comprehensive law to regulate the use, import, export and handling of mercury and mercury compounds was lacking. The Business and Professions Act, 2017 has an operating licenses system for companies and professions where hazardous substances are involved, provided they are not listed as prohibited.

There is generally no legal obligation to dispose of wastes in a proper manner. There is a draft Waste Bill 2004; however, it was never adopted. Currently, there is a draft Standard for waste disposal and processing and Export procedure under Basel Convention and a draft Hazardous Substance Implementation Regulations Bill, within which the definition of 'hazardous substances' can be updated to adequately cover the general obligations of the definition under the Convention. The Act on the Movement of Goods prohibits the importation of any wastes.

Trinidad and Tobago

The Pesticides and Toxic Chemicals Act, Chap. 30:03 is the principal piece of legislation governing the manufacture, import and export, sale, use, storage, disposal and transportation of pesticides and toxic chemicals. A number of Regulations under the Act have been developed; however, this legislation is dated and there are still deficiencies as it relates to fully meeting the obligations of the Stockholm Convention. Provisions are lacking in terms of dealing with contaminated land, whilst there is no clear responsibility shown with regard to clean ups and costs relating to such. While the Environmental Management Act regulates hazardous substances and PTC Act regulates both pesticides and toxic chemicals, there is no clear identification between the jurisdiction of each law with respect to which chemicals they regulate. This indicates that there may be a duplication of efforts in the regulation of chemicals. The Pesticides and Toxic Chemicals Control Board (PTCCB) under the Ministry of Health drafted a National Pesticides Management Policy, which is expected to be in force within the next year. Trinidad and Tobago Customs and Excise Division has enabled data exchange and integration with the Pesticides and Toxic Chemicals Control Board and other relevant agencies to allow for an integrated approach to chemical management using the ASYCUDA World system. The country is not yet party to the Minamata Convention; however, under the Air Pollution Rules, 2014, mercury is classified as an air pollutant and maximum permissible limits have been established for its emission. Similarly, under the Water Pollution Rules, 2019, the quantity, condition or concentration for the parameter "Total Mercury" as a water pollutant have also been established.

Waste is presently managed through several pieces of legislation (primarily, the Litter Act No. 27 of 1973, Public Health Act 1950, Environmental Management Act 2000, and the Municipal Corporations Act of 1990). The Draft Waste Management (Registration and Permitting) Rules, 2018 developed under the EM Act intends to regulate the generation and handling of both hazardous and non-hazardous wastes. However, neither of these legal instruments addresses the importation, transit and exportation of waste. A gap assessment is therefore required as it regards to the domestication of the Basel Convention in Trinidad and Tobago.

c) Assessment of the regulatory environments

	Regional summary of the current enabling environment
Pesticides and Toxic Chemicals	All project countries have a parent law which manages pesticides and toxic chemicals; however, most emphasize the regulation of pesticides. None are underpinned by national policy. Trinidad and Tobago recently developed a draft 2019 policy with a focus on pesticides. Other than Guyana, the suite of chemicals management legislation in the project countries needs to be updated to adequately address the Stockholm, Rotterdam and Minamata Conventions obligations, and in particular toxic chemicals. Most countries have signalled their intent to either adopt the model Integrated Chemicals Management Act (developed in 2019 under the GEF 5558 project) or at least elements of same in existing legislation through amendments. This is pending the recommendations from the FAO review of regional pesticides legislation (GEF 5407 project) before updating and harmonizing their national laws.
Waste and Hazardous Waste	Three (3) countries (Barbados, Belize and Trinidad and Tobago) have instituted strategic waste management policies/plan. While most countries have fairly updated waste management legislation, there are deficiencies in certain aspects such as disposal practices. Most countries opted to include hazardous waste in the parent act. In Belize, Dominican Republic and Guyana, there are separate regulations for hazardous waste and in Barbados there is no reference to hazardous waste in existing

	Acts. None of the countries adequately regulate hazardous wastes nor sufficiently transposed the Basel Convention into national legal provisions; however, the hazardous waste regulations instituted by the Dominican Republic covers some of their obligations under the Basel Convention. While the Governments of the project countries do not support the importation of waste, none have enacted legislation to prohibit it. The exportation of waste is controlled by licensing systems managed by the Department of Environments (or equivalent) of each country with authority from the Environmental Protection and Management Act (or its equivalent).
EEE	None of the project countries have legislation to manage EEE. Three (3) countries, Trinidad and Tobago, Belize and Saint Lucia have attempted to provide some direction at a quasi-policy level; however, there is no adoption and very limited progress beyond the drafting of the documents. In Belize, the E-Waste White Paper was brought to Cabinet approximately 2 years ago and in Saint Lucia an E-waste Management Policy and Regulatory Framework (2017) was prepared. In Trinidad and Tobago, the EMA published a brochure on guidelines for proper E-waste management (2019); however, it does not cover brominated flame retardants, which is a constituent of concern in several EEE. The project countries rely on the provisions of the Basel Convention to regulate exports; however, since there is no national clear definition of the legal classification of these exported materials, the compliance of Basel Convention procedures could be vulnerable.
ELVs	ESM of ELVs in the Caribbean is still not a well-recognized public policy issue and this is reflected in the absence of any national policy and only four countries having some reference to ELVs in their legislation. In Antigua and Barbuda, the Litter Act No 3 of 2019 looks at removal and disposal of derelict vehicles. Both Saint Kitts and Nevis and Saint Lucia addresses it through their parent waste management acts, and in Saint Lucia, there are some proper handling mechanism in place, including enforcement dispositive, as fines in case of non-compliance. In Trinidad and Tobago, the Litter Act, which is antiquated, covers only the removal of derelict vehicles; however, in the recent National Environment Policy, 2019, while it does not specifically mention ELVs, it provides a major opportunity for the effective design and implementation of waste management systems, including ELVs management system. As import countries - Barbados, Belize, Dominican Republic, Guyana, Saint Kitts and Nevis, Suriname and Trinidad and Tobago – adopted certain policies governing the intake of used vehicles, such as age restrictions, environmental parameters or fiscal instruments.
Mercury and mercury-added products	Guyana and Suriname have some legislation and protocols to manage the import and use of liquid mercury in mining practices. However, all countries lack adequate legislation to manage the use of mercury-added products. Most other project countries (except Barbados) have either completed or are soon to complete their Minamata Initial Assessments, which included recommendations to domesticate the obligations of the Minamata Convention; however, to date none have applied these recommendations to their national laws. While an MIA has not been done for Barbados, a mercury inventory is currently being completed under a capacity building Quick Start Programme. From an import perspective, the import classification for some products containing mercury are not distinguishable from those that do not contain mercury as they fall under the functionality of the product, and ASYCUDA World data reports are based on the general HS Code of these commodities which include both items that do not contain and those that contain mercury. For liquid mercury and mercury compounds, procedures and protocols exist to permit registered personnel to import for artisanal and small-scale gold mining in both Guyana and Suriname; however, the issue of illegal imports across both countries has been noted to occur due to the porous borders and lack of capacity of border control agencies.
Medical Waste	There is an absence of policies and laws on the sound management of medical waste in most project countries. The Standard for the Comprehensive Management of Infectious Waste, which was established in the Dominican Republic in 2004, classifies types of medical waste and regulates their generation and management. Belize

	recently drafted regulations on licencing of medical facilities, which includes provisions for the management of medical waste, as part of the GEF 5558 project; however, they are not yet passed. In Saint Lucia, the Waste Management (Biomedical Waste Transport, Treatment and Disposal) Bill is one of many pieces of waste related legislation that is yet to be enacted. A code of practice for the management of bio-medical waste was drafted in 2005 for Trinidad and Tobago; however, it was not adopted and is highly likely in need of updating.
Post-Disaster Waste	Very few countries have national guidelines or legislation which specifically addresses disaster waster, given the vulnerability of the Caribbean to hurricanes.
Tourism Waste	Three (3) project countries considered tourism waste in their legislative framework. Antigua and Barbuda and Saint Kitts and Nevis both have very limited coverage in their NSWMA Act and Shipping Act, No. 24 of 2002, respectively. Belize classified cruise ship waste as hazardous under the Hazardous Waste Regulations, 2009 and does not allow the landing of any such waste.
Plastic Waste	Within the past five (5) years, most project countries have started to regulate primarily single-used plastics in certain products like bags, straws, utensils and disposable containers. However, the legislation often does not regulate the lifecycle of the commodity and there are numerous exemptions, for example, agricultural plastics. Plastic beverage containers are also managed in a few countries. Beyond these commodities, there is no regulation of other types of plastics.
Customs and Trade	Customs departments from all project countries are equipped with the legislative and institutional framework for control of imports and exports in general. As it relates to the control of trade in chemicals, chemicals in products, and wastes. Some customs legislation makes provisions for the control of restricted and prohibited goods under other national legislation; however, a more coordinated approach is required for the sound control of trade in chemicals and waste. The lack of regulatory instruments to mandate continuous updates of prohibited lists through inter-agency collaboration further weakens the effectiveness of Customs to identify prohibited imports.
Recycling	Trinidad and Tobago is the only project country with a recycling policy, where one of its stated objectives is the *reduction by 60% of the quantity of waste requiring final disposal by the year 2020, based on a 2010 baseline*. The progress status is unknown. No project country has specific legal provisions to separate recyclables from non-recyclables at the source; however, legislation related to extended producer responsibility, such as the Returnable Containers Act, 1986 in Barbados provides a financial incentive for consumers to separate some of their recyclables.
EPR	Most project countries generally have some measure of EPR schemes, but only four (4) of the Project countries (Barbados, Belize and Saint Kitts and Nevis and Guyana) have provided legislated measures regarding such. These schemes primarily involve returnable containers, and more recently bans on single use plastics. Saint Lucia and Trinidad and Tobago recently drafted legislation to manage beverage containers which includes an EPR mechanism. The Dominican Republic is the only country to include EPR in its principal solid waste management legislation, which is still to be enacted. It addresses the extended responsibility of the producer and importer to promote a special waste management regime under which producers and importers are responsible for the organization and financing of the product throughout its life cycle, including the post-consumer phase. The Draft Act lists eight (8) prioritized products and it includes WEEE and batteries.
GHS	There are no systematic national approaches to hazard classification and labelling and no law which addresses the requirements of GHS from a national perspective. Only Barbados and Guyana have policies but there is limited implementation.
Labelling and Standards	All the project countries have Standard Acts and bodies which look after the standards component of the jurisdictions; however, it differs in terms of the capacity to deal with chemical and hazardous wastes. All project countries, except Dominican Republic, are members of the regional body, CARICOM Regional Organisation for Standards and Quality (CROSQ). Chemicals are not regulated beyond labelling. The Trinidad and

	Tobago Bureau of Standards prepared a draft compulsory standard for safety of toys which applies to maximum acceptable limits for various elements and chemicals including mercury and phthalates; labelling requirements; and prohibits the importation, donation and sale of used toys. This standard is expected to become compulsory by end of 2020. CROSQ developed a regional standard on labels of all pesticides which is aligned to the GHS. The standard is at the public comment stage.
Sustainable Procurement	There are limited initiatives to promote or incentivise sustainable procurement in the import of chemicals, and even less so for the domestic manufacture of chemicals. Procurement practices in the Caribbean are mainly driven by the cost factor. With recent legislative bans on single-use plastic in several Caribbean countries and discussions on potential bans in other countries, there has been a noticeable change in the packaging and materials used for carry bags, food containers and straws. The National Recycling Policy in Trinidad and Tobago has as an objective to encourage product substitution by giving financial incentives on product of at least 70% recycled materials and proposes incentives to encourage business to extend life span of EEE; however, the extent of implementation is unknown. Antigua and Barbuda, Barbados and Belize have signed on the CARICOM Protocol on Public Procurement which encourages its members to apply green procurements policies in their procurement regimes as a non-revenue instrument for improving the chemicals and waste management situation in their respective countries. Awareness on sustainable procurement in Caribbean countries is generally perceived as low.

d) Institutional assessment

There is no single institution which is currently responsible for the lifecycle management of chemicals including POPs in the project countries. Guyana has possibly made the greatest strides in having a structured institutional framework across the various institutions. In the Dominican Republic, the Ministry of the Environment and Natural Resources shoulders most of the responsibility for chemicals and waste management as per the General Law of Environment and Resources No 64-00, although the Ministry of Agriculture also plays a role in the management of agrochemicals.

Institutional capacity for traditional waste management in Caribbean countries has developed very significantly over the last two decades as a result of investments by Caribbean countries into their waste management authorities, agencies and departments of government. Training provided by multilateral donor institutions in administrative and technical aspects of waste management have contributed to these developments. However, the institutional capacity to deal with these special and problematic wastes requires further development. Common barriers are related to human and financial constraints, and in some instances the political will to take these issues forward without some pecuniary benefit.

There are common themes which can be identified in relation to the project countries. These themes include the following:

- All countries face issues due to a lack national infrastructures in terms of human resource, technical capabilities, and the capacity to assess and manage the risks posed by widely produced and traded hazardous chemicals.
- With regards to chemicals management, the countries' have attempted to place duties and responsibilities on various bodies, which would have been constituted decades ago, thus expanding its mandate. In many instances this does not effortlessly seam into operations, thus providing issues in operations, primarily in the human and financial resources area.
- Across all countries there is insufficient staffing of inspectors from the Pesticides Boards.
- There is a struggle to combat the challenge of a significant and constant increase in the amount of products and materials imported that lead to hazardous waste.
- There are deficiencies in the national coordination between various entities, such as the Pesticides Boards and Health Authorities, focal points and customs departments. Often the identification of institutional roles, responsibilities and functions of agencies in the relevant legislations are not clearly defined and there is overlap in jurisdictional powers.

- There is no overarching waste management authority in some countries (Guyana, Suriname and Trinidad and Tobago).
- Filling of positions at agencies in accordance with required competencies is an issue.
- Customs departments and other border control agencies must undergo continuous training and capacity-building tools to further build awareness and enforcement capacities as it relates to trade in chemicals and wastes.
- Customs recognizes the need for Customs Officers to be able to recognize hazardous classification and labelling. Currently, there exists a rudimentary understanding of chemical classification and labelling. This knowledge gap presents a weakness in control and enforcement to prevent the smuggling and illicit trade of chemicals.
- For several recently implemented pieces of legislation, such bans on single use plastics, it is too early to assess if the current institutional capacity can effectively implement, monitor and enforce the legislation.

Analytical capacity varies across the project countries; however, through recent GEF projects, a regional approach to the improvement and upgrade of some laboratories is ongoing thereby expanding their capabilities. The more complex chemicals such as PCDD/PCDFs, PFOS and PBDEs are still outside the ability of regional laboratories.

2.2 Associated baseline projects

The Caribbean Region is made up of island nations in the Caribbean Sea and mainland countries on the South and Central American continents. These countries are SIDS with varying levels of economic status. Some countries have primarily tourism-based economies, including Antigua and Barbuda, Barbados, Saint Kitts and Nevis and Saint Lucia, and others, including Belize, Dominican Republic, Guyana, Suriname and Trinidad and Tobago, rely on commodity exports such as agriculture, minerals and petrochemical products, respectively. There are several regional and sub-regional entities that support coordination among countries for varying purposes. These include, *inter alia*, entities such as the Caribbean Common Market (CARICOM), the Organization of Eastern Caribbean States (OECS), CARICOM Regional Organisation for Standards and Quality (CROSQ), the Caribbean Development Bank (CDB), the University of the West Indies (UWI) and the BCRC-Caribbean.

As predominantly import-dependent countries with limited existing capacities for the environmentally sound management of growing streams of chemicals and wastes, Caribbean nations have continued to work towards improving national and regional frameworks for chemicals and waste management through ratification of international multilateral environmental agreements and participation in national and regional projects. Both regional and international organizations have undertaken projects in collaboration with Caribbean governments and private sector entities to achieve more sustainable chemicals and waste management nationally and regionally.

As early as 1994, the World Bank worked with 22 countries in the region through the Wider Caribbean Initiative for Ship Generated Waste Project[35], with the overall objective of supporting countries with the ratification and implementation of the International Convention for the Prevention of Pollution from Ships (MARPOL). Additional aims of the initiative included, *inter alia*: assessing existing waste management systems, formulating regional engineering criteria for waste reception facilities at the ports; coordinating with shipping and cruise lines on reducing waste, and developing integrated waste management alternatives. More recently, in 2019, the World Bank announced the Unleashing the Blue Economy of the Eastern Caribbean (UBEEC) Programme which aims to improve the competitiveness of the OECS blue economy and strengthen the resilience of marine and coastal assets on blue economy development in the OECS. UBEEC will include activities related to solid waste and marine litter management. This project is still in a very early phase, including preliminary communications with countries (Dominica, Grenada, Saint Lucia, Saint Vincent and the Grenadines). The World Bank is also developing a budget support to help the Dominican Republic tackle issues with solid waste and wastewater management and provide support in emergency debris management.

The Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean (BCRC-Caribbean), was established in 1998 as the Regional Centre to support Caribbean Parties to the Basel Convention and subsequently the Rotterdam, Stockholm and Minamata Conventions, with fulfilling their national chemicals and waste management

[35] The World Bank Group. (1999). Implementation Completion Report. The Wider Caribbean Initiative on Ship-Generated Waste Project. GEF Grant Number TF028653. http://documents1.worldbank.org/curated/en/898321468225291841/pdf/multi-page.pdf.

obligations to the Conventions, has executed several national and regional projects. Most notable is the GEF-funded Project #5558:"Development and Implementation of a Sustainable Management Mechanism for Persistent Organic Pollutants (POPs) in the Caribbean" which is benefitting eight (8) Caribbean countries including: Antigua and Barbuda, Barbados, Belize, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname and Trinidad and Tobago. Activities conducted between 2015 to 2020 included the update of national implementation plans (NIPs), development of model legislation for integrated chemicals management, improved landfill management to reduce the production of UPOPs, mapping of contaminated sites requiring remediation, removal and disposal of obsolete stocks and the development of a communications campaign entitled Stop the POPs.

The Centre has also worked with the region to conduct Minamata Initial Assessments (MIAs), having completed four (Jamaica; Saint Kitts and Nevis; Saint Lucia; Trinidad and Tobago) to date with the remaining six (Antigua and Barbuda; Bahamas; Belize; Dominica; Grenada; Saint Vincent and the Grenadines) being completed in the period 2020 – 2022. The National Action Plan for Guyana is also underway through the execution of the BCRC Caribbean.

Another GEF-funded project conducted throughout the region was the FAO-implemented GEF #5407 Project "Disposal of Obsolete Pesticides including POPs, Promotion of Alternatives and Strengthening Pesticides Management in the Caribbean". Key activities under this project include, safely destroying POPs and obsolete pesticides, remediating pesticide-contaminated sites, establishing mechanisms to deal with empty pesticides and other waste plastic containers, strengthening the institutional and regulatory framework for managing pesticides through their lifecycle, and increasing the uptake of alternatives to the most hazardous chemical pesticides on key crops. This project provided a regional baseline for pesticides management which highlighted that approximately ten thousand (10,000) tonnes of pesticides are imported annually into the region. Large quantities of pesticides are indiscriminately used to increase agricultural production in short-term crops for local and regional markets and pesticides residues on produce regularly exceed maximum residue levels, thereby raising food safety concerns and jeopardizing export potential. Further, the widespread use of pesticides is threatening agricultural production, harming vital ecosystem services, reducing soil quality, polluting aquatic systems and having negative impacts on human health due to direct and indirect exposure. Some of these challenges were addressed throughout the Project and under other regional initiatives such as: the Common Agricultural Policy, the CARICOM Regional Food and Nutrition Security Policy and Action Plan, the Caribbean Agricultural Health and Food Safety Agency, Caribbean initiatives to regionally integrate climate resilience and climate change adaptation policies, and the CARICOM Youth Development Action Plan (CYDAP) which further commit governments to act to improve the management of agrochemicals, in line with the SAMOA pathway.

The FAO has also initiated several projects on sustainable agricultural practices in the Caribbean. Focus has included integrated pest management (IPM), with several training workshops being conducted. Assessment of the use of biocontrol mechanisms as countries are being encouraged to promote alternatives to synthetic pesticides. Furthermore, there has been work with farmers to improve on education and awareness of the dangers of Highly Hazardous Pesticides (HHPs) and how to minimize such dangers. The FAO and stakeholder entities (including the World Bank, CDB, Development Bank of Latin America (CAF) and the IDB) have also engaged in soliciting support from governments and the private sector to provide investment in agricultural projects to reduce the use of HHPs and improve the sustainability for the sector within the region. Supporting projects in the Caribbean for the ISLANDS Programme include the Sustainable Agriculture Market Access project in Suriname; Resilient Agriculture and Integrated Water Resources Management project in the Dominican Republic; the IOMC Toolbox for Decision-Making in Chemicals Management; the Green Jobs for Youth programme; and Phase III (HHPs) of the ACP-MEAs Programme.

The CARICOM Secretariat's Sustainable Development and Environment Programme is the implementer for the "Programme for Capacity Building Related to Multilateral Environmental Agreements in African, Caribbean and Pacific MEAs" (ACP-MEAs) in the region. This Programme, which is funded by the European Commission and coordinated by the UNEP, aims to strengthen Caribbean countries' capacities to effectively implement the MEAs to which they are Party to. One of the outputs of this Programme is a Customs Handbook (2013) that serves as a guide to MEAs including the BRS Conventions for Customs Departments.

Additionally, CARICOM, through the Revised Treaty of Chaguaramas 2001, has also provided its member states with the directive to take environmental concerns into account when trading as a bloc. In this regard, and through the projects

with which they become involved, the Caribbean countries, as a region, have indicated their commitment to promote sustainable environmental policies as part of their ongoing development and trade agenda. The commitment of the countries to the protection of the region from the adverse impacts of export and transport of hazardous chemicals and waste is seen in the CARIFORUM European Union Economic Partnership agreement 2008 between CARICOM and the EU. The agreement highlights the need to ensure adequate environmental protection during the execution of the agreement under its provisions to facilitate trade in goods and services that the parties consider beneficial to the environment. Such products may include environmental technologies, renewable- and energy-efficient products and services and eco-labelled goods. Through provision of assistance to enhance the technological and research capabilities of the CARIFORUM countries, the Agreement also facilitates development of, and compliance with, internationally recognised sanitary and phytosanitary measures and technical standards and internationally recognised labour and environmental standards[36]. But CARICOM is unable to take advantage of these provisions currently as Member States do not have the capacity to provide efficient trade and waste management services among each other or internationally. CARICOM's continued commitment to the safety of the region's environmental quality, has been further advanced with the establishment of the CARICOM Regional Organization for Standards and Quality (CROSQ). It is the regional centre for promoting efficiency and competitive production in goods and services, through the process of standardization and the verification of quality. In this regard, CROSQ aims to support international competitiveness for the enhancement of social and economic development of the region.CROSQ helps to promote standards and quality across the Caribbean to ensure environmental protection is maintained. CARICOM also has a draft harmonized Customs Model Bill and Regulations which, when passed, will help to advance and harmonize the customs regulations in the region and present an opportunity for a harmonized position on chemicals and waste management as well as move the GHS process forward.

These project examples underscore the overall principles of sustainable development that govern the operations of the key regional entities in the Caribbean. They also highlight the commitment of the region to the SAMOA pathway. For example, the OECS, through the St George's Declaration in 2006, adopted the prevention and control of pollution and the management of waste as a core principle under which the regional body, consisting of Ministers of Environment, operates. To further the achievement of its mandate, the organization has also encouraged its member states to endorse the Caribbean Waste Management Action Plan proposed by UNEP and to mobilize resources to ensure the implementation of the action plan. Furthermore, the OECS has taken strides to encourage its member states to work on the reduction of marine plastics pollution and the effective management of ship generated waste through legislation enactment, developing management strategies and implementing activities aimed at recycling and containing plastic pollution in the OECS region. The organization has also embarked on projects aimed at improving management of solid waste through composting and other sustainable land management practices for organic waste. Presently, the OECS is implementing a 3 million USD project aimed at building the resilience of marine ecosystems through a reduction in marine litter in the Eastern Caribbean countries. They have also joined with the International Union for Conservation of Nature (IUCN) to further move this agenda forward through the Norwegian Agency for Development Corporation (NORAD) Plastic Waste Free Island Project to address the issue of plastic waste leakage from island states. This will be complemented with an additional project funded by the French Ministry of Foreign Affairs though an 828,000 EUR recycling project involving the French overseas territory of Martinique.

There are also other initiatives within the Caribbean basin that support the ISLANDS Programme. The Metabolism of Islands programme is currently conducting research on waste and resource flows including e-waste in Aruba, Barbados, Cuba, Grenada, Jamaica and Trinidad and Tobago. The Climate Technology Centre and Network (CTC-N) has a number of waste management projects in the Caribbean region. The IMO is also currently undertaking initiatives aimed at improving the region's compliance under the MARPOL, Cartagena and London Conventions in relation to the transporting of hazardous waste that will be considered under the ISLANDS project. Further collaboration can also be made with the Cartagena Convention Secretariat in areas of mutual benefits through their complementary projects on International Waters and nutrients as well as marine litter and wastewater management. Initiatives under the Cartagena

[36] OAS. Economic Partnership Agreement between the CARIFORUM States, of the One Part, and the European Community and Its Member States, of the Other Part. http://www.oas.org/dsd/EnvironmentLaw/EnvlawDB/Agreements/CARIFORUM-EU%20ECONOMICPARTNERSHIPAGREEMENT.pdf

Convention Secretariat include the development of a Regional Action Plan. As previously mentioned, initiatives under the current Plastic Waste Free Islands project, funded by NORAD and being executed by the IUCN regional office for Mexico, Central America and the Caribbean, can complement the anticipated benefits of the GEF ISLANDS Programme. The project, which focusses on the elimination of plastics from the islands, is being implemented in three (3) Caribbean countries; Antigua and Barbuda, Grenada and Saint Lucia. Furthermore, it is part of a lager initiative that includes the Pacific Ocean islands as well. Similar projects for the management of chemicals and waste in the Caribbean region are also currently being undertaken by the US Environmental Protection Agency (USEPA), specifically in Puerto Rico and the US Virgin Islands. The USEPA also has waste management projects in the Dominican Republic, particularly in the design of controlled and sanitary landfills and providing workshops on landfill design. Projects on municipal waste management are also being funded by the USAID in the Dominican Republic as they seek to improve the waste management system currently in place. Other governmental agencies providing development support in the Caribbean include the Japan International Cooperation Agency (JICA) and the UK Department for Environment, Food and Rural Affairs (DEFRA). DEFRA has a number of ongoing projects in waste management in the Caribbean, such as: the Commonwealth Clean Ocean Alliance (CCOA); Commonwealth Litter Programme (CLiP); Technical Assistance Facilities helping member countries of the Commonwealth develop a waste management plan (including Saint Lucia, Belize); Blue Planet fund; and Tide Turners Plastic Challenge Badge. Collaborations here could mean great strides in the overall management of hazardous chemicals and waste across the Caribbean region.

Finally, there is work being undertaken in the private sector. Individual companies and organizations have been embarking on the drive to better manage chemicals and waste in the Caribbean. For example, there is currently exploration in the use of microwave technology as an alternative to incineration and autoclaving for the management of waste through RS Caribbean in Curaçao. The possibilities offered by this company are potential alternatives to explore under the ISLANDS project. The Florida Caribbean Cruise Association and Cruise Lines International Association (CLIA) through their own initiatives, have been working with members to ensure effective management of chemicals and waste from their ships. Carnival Cruise Line, for example, has a number of ports in the Caribbean region where collaborations in waste management could be beneficial for local communities, such as Amber Cove in the Dominican Republic. In the manufacturing sector, the MSC Foundation is setting the stage with their work on projects aimed at recycling plastics to create building materials within the Caribbean. In Guadeloupe, work has also been ongoing for the pretreatment of electronic waste, the recycling of PET plastic products, and the recycling of food oils into biodiesel. In the Dutch Caribbean, a motor oil/tyre recycling plant provides a regionally relevant and appropriate solution to the issue of used tyres and used oil on small islands, which could be replicated within ISLANDS project countries. In the USA, Ecovation Global Holdings offers a tapestry of proven Environmental and Technology Solutions to sustainability issues that are financially feasible, benefit the health and well-being of communities and the environment, and improve the all-around resilience of small island states.

3) The Proposed Alternative Scenario with a Description of Components of the Project

The overarching objective of the ISLANDS programme is to support SIDS to enter into a safe chemical development pathway. Thirty (30) SIDS in the Indian Ocean, Pacific and Caribbean regions will benefit from six (6) child projects expected to be conducted under this Programme during a five (5) year period. The program aims to strengthen each country's ability to control the flow of chemicals, products and materials into their territories and to unlock resources for the long-term management, including integrated management, of chemicals and waste in SIDS. Achieving this under a global programme is ideal as this approach has the advantage of leveraging more resources than single countries or regions. The programme also has the potential to attract private sector investments which are more sustainable at a scale not achievable by single SIDS. As a global programme, the ISLANDS project will also promote exchange of knowledge and experience across regions which would not be possible with regional interventions. In this regard, this programmatic approach is desirable to bring much needed resources to SIDS to remove the stress on the environment caused by the unsustainable use of chemicals, materials and products. The programme looks to build on the principle of "think globally, act locally" through a combination of interventions and initiatives which address specific needs at country level but at the same time, reinforce regional and global cooperation as well as address the challenges facing SIDS. The exchange of information and knowledge amassed at the national level will also be shared between regions to achieve impacts at the global level. Working with SIDS at a global level also ensures that the introduction of legislation and standards through the projects reduces loopholes created in the regions in relation to countries which would not be covered in a traditional approach. The program also seeks to access regionally appropriate technologies and best practices for the management of chemicals and wastes in SIDS and incubate and accelerate these through catalyzing entrepreneurship in the small and medium enterprises (SMEs) across all regions. This will ensure solutions to challenges from chemicals and wastes are appropriate to the needs of specific SIDS but fall within a larger framework built around knowledge exchange and transfer.

The programme also focuses on assisting SIDS in transforming the management of chemicals and wastes in support of multiple chemicals related multi-lateral environmental agreements (including the Basel, Rotterdam, Minamata, and Stockholm Conventions, the Montreal Protocol and SAICM). ISLANDS will use the Conventions as an entry point to improve capacity for import monitoring and customs, policies and legislation pertaining to chemicals and wastes; introduction of best practices and approaches for SIDS in chemicals and wastes management (e.g. building capacity for export; creating sustainable opportunities for circular local waste management and treatment systems and supporting infrastructure; phasing out products that result in hazardous wastes).

Like the global programme, the UNEP/FAO Child Project aims to build a sustainable model for the sound management of chemicals and wastes in the Caribbean so that countries can continue to sustainably develop without a build-up of toxic and hazardous substances in their territories. This will be achieved through harmonizing, among other things, mechanisms for implementing the chemicals and waste MEAs, border control procedures, standards and labelling and capacity building. The Child Project will support the global programme in creating and supporting long term cooperation among SIDS to achieve the overall goal. While working at the regional level to harmonize practices the programme will identify, incubate and accelerate SIDS' appropriate technologies and practices to manage chemicals and wastes. This will allow much needed action at the national level to be taken and lessons learned at the national level to be scaled up to the regional and global level through the coordination mechanism developed by the programme.

The UNEP/FAO Child Project will help to overcome the common challenges facing Caribbean SIDS based on several core principles adopted from the global programme:

- **Operational Effectiveness:** By developing/ strengthening legislative and policy frameworks, promoting equivalence and where possible harmonization of regulations at the regional level. The project will also develop a series of tools and systems at the regional level which will benefit all countries, for example through working with CROSQ, to ensure that there are regional product and labeling standards;
- **Knowledge management and exchange:** By sharing of lessons learnt between countries and regions and facilitating access to information and experience (for example, Samoa and Barbados are in the process of introducing national bans on single-use plastic, and the Caribbean Child Project will be able to draw lessons

from this experience). These experiences will be collated, packaged and disseminated, by the global Coordination, Knowledge Management and Communication Child Project;

- **Using the programme as a vehicle for change:** By working with importers of electronics / cars, plastics manufacturers and sectors such as agriculture to lobby for the improvement of environmental performance and development of procurement agreements with receptive private and public-sector partners that can be utilized across participating countries;
- **Alignment of activities with other initiatives operating at the regional, cross-regional and global level:** Several other major funds are coordinating efforts at the regional, inter-regional and global levels. These include the World Bank, EC ACP Secretariat and European Investment Bank. This provides the opportunity to link GEF activities with other development partners coordinating the work at the regional and global level, facilitating alignment of workflows and achieving economies of scale. Several other major sectors such as climate change and plastics management are also operating across the three regions and provide opportunities to build on and link with existing structures for improved coordination. According to the SIDS Waste Management Outlook 2019, regional approaches that utilize synergies between countries are key to improving waste management in SIDS;
- **Linkages to global agreements and initiatives:** Bodies such as the BRS and Minamata Conventions, SAICM, and processes linked to the S.A.M.O.A. (Small Island Developing States Accelerated Modalities of Action) Pathway and WHO projects in SIDS operate and coordinate at the global level. They also provide existing platforms for coordination across regions to achieve global impacts, knowledge exchange and policy dialogue;
- **Cost effectiveness:** Will be achieved by delivering on all the above. Participating Caribbean countries will share the costs of development of products, knowledge and standards, which can be utilized and applied across non-participating Caribbean countries and other regions. By linking with existing global platforms, the programme will also increase the visibility of the issues in SIDS and the impacts of the programme in a cost-effective way.

The Child Project's theory of change (Figure 3) has been developed around three complementary approaches, which serve to address the barriers to sound chemicals and wastes management faced by Caribbean SIDS (and outlined Section 1a.1 above). These three approaches are:

- avoiding future imports and use of chemicals and products/materials that lead to waste which cannot be disposed of in Caribbean SIDS;
- treating chemicals and waste that are currently present in Caribbean SIDS and cannot be disposed of under existing conditions or using existing infrastructure; and
- developing systems, circular, or otherwise, to ensure that those chemicals and subsequent wastes which cannot be avoided are used safely with capacity for recycling or environmentally sound disposal at end-of-life.

Together with a cross-cutting global component on Knowledge Management and Communications, these three approaches also form the Project Component framework (outlined below).

The integrated approach responds to and reflects the child project and full programmatic theory of change by focusing on interventions in line with the identified drivers including public health concerns; responding to climate change and sea level rise (through future proofing infrastructure); that tourism requires a clean environment; and the need to protect ecosystems.

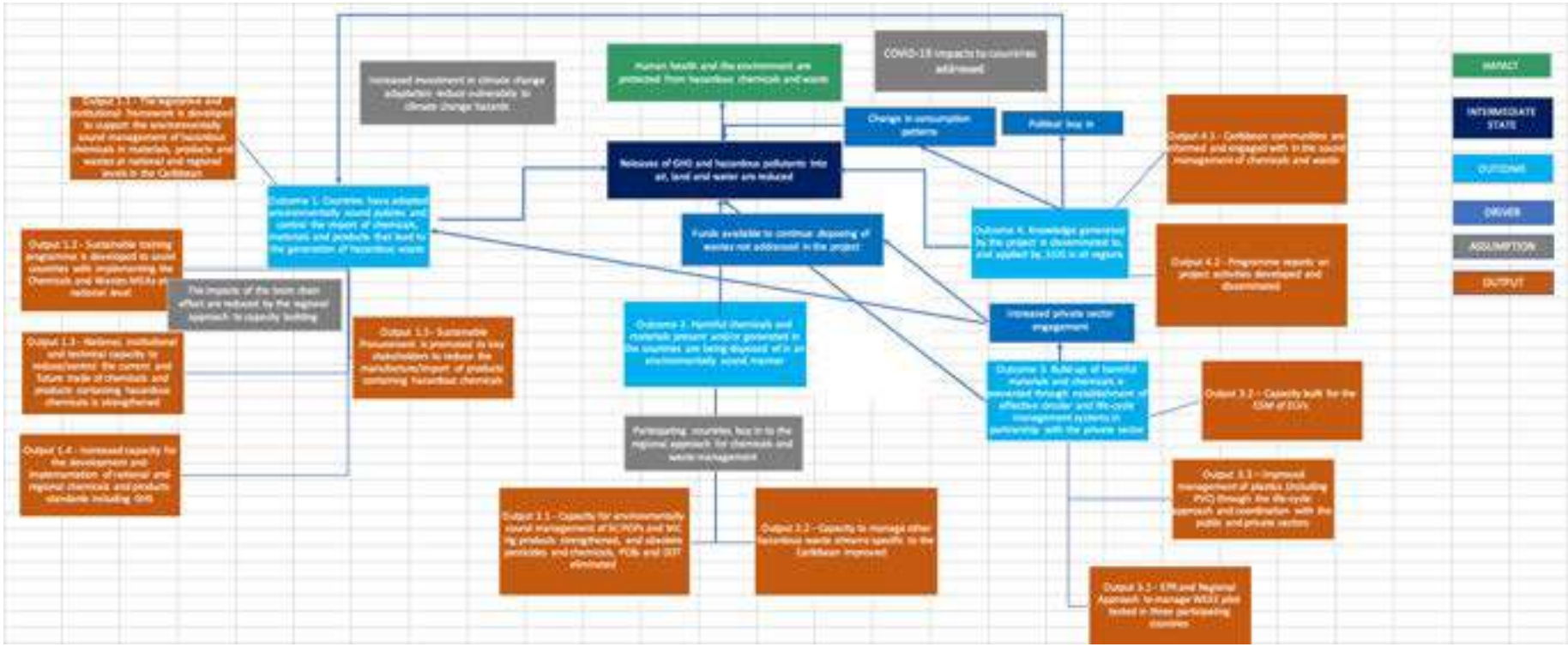


Figure 3: Theory of Change Diagram

The activities of the UNEP/FAO Child Project are directed at achieving the long-term objective of preventing the build up of POPs and mercury materials and managing and disposing of existing harmful chemicals and wastes across the Caribbean regions. It is envisaged that through the developed activities, the Caribbean will achieve the following outcomes, in line with the overall expected outcomes of the ISLANDS Programme:

- Caribbean SIDS have in place effective mechanisms to control the import of chemicals, and products that lead to hazardous waste;
- Harmful chemicals and materials present and/or generated in Caribbean SIDS are being disposed of in an environmentally sound manner;
- Build-up of harmful materials and chemicals is prevented through establishment of effective circular and life-cycle management systems in partnership with the private sector; and
- Knowledge generated by the Child Project and the Global Programme is disseminated and applied by SIDS in all regions.

By achieving these outcomes through participation in the UNEP/FAO Child Project as well as a concurrent IDB-implemented Child Project and the Global Knowledge Management Child Project, the nine (9) participating countries are expected to benefit from: having in place financial and regulatory structures and associated enabling environments to foster entrepreneurism and private sector investment in the management of chemicals and wastes; partnerships and communication platforms forming a solid basis for ongoing and future investments; bans on single-use plastics to address locally derived marine litter; improved capacity for e-waste management; and regional cooperation leading to an upsurge of sustainable management and behaviors across SIDS.

Activities to be conducted under the UNEP/FAO Child Project were developed based on national priorities highlighted during initial consultations with stakeholders from the participating countries. The activities include national and regional level activities developed using baseline information collected during the Project Preparation Grant Phase to avoid duplication and maximise incrementality of the project. Global level knowledge transfer and management plus coordination will be achieved under Component 4. Regional level activities (under Component 1 and 2 will help ensure national equivalence of regulatory environments and allow all countries to benefit from project activities. National level activities under Component 3 are based on national priorities, as outlined in Section 7. Component 4 activities will include the development of mechanisms to manage knowledge and communications to promote learning regionally and globally beyond the life of the project.

Component 1 – Preventing the Future Build-Up of Chemicals Entering SIDS

There is a need for Caribbean SIDS to stop generating hazardous waste that is difficult to manage and likely to build up over time. To achieve this, the ISLANDS programme aims to work together with project countries and IDB constituencies to put in place effective mechanisms to control the import of chemicals, materials and products that lead to the generation of hazardous waste. This is the overarching goal of Component 1, which will be achieved through five (5) Outputs.

Specifically, activities under Outputs 1.1 through 1.5 will aim to: (i) develop the legislative and institutional framework for the environmentally sound management of Electrical and Electronic Equipment (EEE), End-of-Life Vehicles (ELVs) and mercury containing products, and develop national strategies for adoption and implementation (**Output 1.1**); (ii) train the customs/border control and trade officers, environmental inspectors, and officers responsible for the sound management of chemicals (**Output 1.2**); (iii) establish standards and build capacity to control/limit and prevent the import of hazardous chemicals, products containing hazardous chemicals or products that will result in hazardous waste (**Outputs 1.3, 1.4**), and; (iv) promote Sustainable Procurement to reduce the manufacture/import of products containing hazardous chemicals (**Output 1.5**).

All activities under this component are national-level activities taking part in all 9 project countries with two (2) national-level demonstration projects in Guyana and Suriname under Activity 1.3.2. The lessons learnt form these demonstration project will be communicated to the other countries through output 4.1 and to the other regions through the CCKM project 10266.

Output 1.1- The legislative and institutional framework is developed to support the environmentally sound management of hazardous chemicals in materials, products and wastes at national and regional levels in the Caribbean

Very few countries have developed legislation which address waste management and hazardous chemicals in materials and products. Moreover, none specifically highlight the products and waste streams which were identified in the updated NIPs and MIAs as problematic, and that will be considered in this output, namely; EEE, ELVs and mercury containing products. In accordance with the Stockholm and Minamata Conventions' guidance documents on the management of these chemicals, the entire lifecycle of the materials or products should be managed from manufacture or import to end of life. In this output, the legislative and regulatory enabling environment will be enhanced. This will facilitate the uptake of the regional solutions proposed in this project to manage these materials and products and wastes, particularly as it relates to regulating their import and informing safe transboundary movement. Consideration will also be given to the existing national situations and the ability to ably support these regional initiatives. Although a regional legislative framework at the CARICOM level does not exist, a regional model approach can still be adopted that promotes harmonisation of the national efforts across the region but still allows individual countries to customise the model policies and regulations to enhance their existing framework. This approach worked well for the GEF 5558 project which developed a regional model Integrated Chemicals Management Act.

Activity 1.1.1 - Assess relevant legislation, infrastructure and institutional capacities to manage hazardous chemicals in materials, products and wastes at national and regional levels

A detailed assessment of the existing legislation, infrastructure and institutional capacities in the individual countries will be conducted to determine the ability of each country to successfully implement the project activities proposed hereunder. Existing regional or sub-regional regulatory mechanisms to manage hazardous streams will also be assessed. Here lessons learnt from other SIDS will be considered.

In recent years legislative and institutional assessments were conducted in most project countries, looking at integrated chemicals management (GEF 5558), pesticides management (GEF/FAO 5407), mercury management (various MIAs) and even a preliminary assessment in the PPG phase of the ISLANDS Programme. The detailed assessment for EEE, ELVs, mercury added products and plastics will build on these previous assessments, filling the gaps in knowledge where needed.

Activity 1.1.2 - Specific hazardous chemicals and wastes policies and legislation developed to support management at national and regional levels

A regional model policy will be developed to guide regulations for the management of EEE, ELVs (considering the import age of used vehicles, emission standards of imported vehicles, vehicle deregistration and regulation of destruction/dismantling facilities) and mercury containing products. The formulation of the policy will also consider international obligations and the wider national legal frameworks, as well as the experiences of other SIDS. Furthermore, the institutional capacity to implement the policies will be examined at national and regional levels.

An understanding of the issues to be addressed will be derived from the data gathered from the inventories made in Activity 2.1.1 and extensive stakeholder engagement, particularly as it relates to how countries view their ability to manage the specific hazardous chemicals, products or waste streams and the regional approaches adopted. Technical support from the countries will be at a regional level and will be led by experts, primarily from the ministries with responsibilities for waste, chemicals and environmental management, legal affairs and trade. Policies will be developed in synergy with IDB to create the necessary enabling environment to allow countries to manage chemicals and waste with full participation from the private sector and the finance sector.

The regional model policies will form the foundation for drafting model regulations. Here, the assumption will be made that each country has the empowering legislation in place to enact the model regulations or the parts thereof which are

relevant to the country's needs. Consultations with each country's legislative drafting department will be held and the core experts from each country will participate in periodic regional workshops as the regulations are developed. In order to formalize the model legislation at a regional level, engagement with CARICOM, specifically its CPC/Senior Legal Affairs Committee and bilaterally with the relevant authorities in the Dominican Republic will be considered to provide both high-level buy in and expediency. IDB constituencies will also be involved in formalization of the model legislation at a regional level.

The regional model policies and legislation will be shared with the global knowledge management platform (see Output 4.1).

Activity 1.1.3 - National strategies (one per country) developed for adoption and implementation of the model policies and legislation

Under this activity, the ISLANDS Programme will draw from Activities 1.1.1 and 1.1.2 to develop a harmonized strategy for each country to improve national chemicals and waste management which will facilitate the success of the proposed interventions by this project, and in so doing, help countries to achieve their obligations under the BRS and Minamata Conventions. In this activity, national working sessions with the various institutions, including IDB constituencies, will be held to identify the empowering legislation relevant to the recommendations and regional model policies and legislation developed in the preceding activity. It is expected that the different model regulations or parts thereof will be enacted under different parent acts and any amendments needed in these acts will be identified to ensure there is a harmonious approach to the national management of chemicals and wastes. The national workshops will also assess the financial, material and human resources needed to implement these recommendations and legislation. Finally, discussions will be held to identify and develop materials needed for implementation, such as practice guidelines, standard operating procedures, user-friendly and illustrative booklets/manuals, and reporting. The national strategy will document roles and responsibilities, description of tasks, supporting agencies, outputs and timelines.

Output 1.2 Sustainable training programme is developed to assist countries with implementing the Chemicals and Wastes MEAs at a national level

Priority areas of concern for project countries include: the absence of information on the waste and chemicals Multilateral Environmental Agreements (MEAs) tailored for the region; the concomitant challenge of meeting obligations under these Conventions; the limited capacity to stay abreast of the updates to the Conventions, and; the inherent need to improve implementation. In response, this output focuses on the development of a sustainable training programme which will develop materials to raise awareness on the Chemicals and Wastes Conventions and to ensure that Parties are aware of the obligations under these Conventions. The sustainable training programme will be developed based on an in-depth analysis of the relevant stakeholders and through the development of a comprehensive training needs analysis. The IDB will be consulted to help identify and engage with relevant stakeholders. The recognised institutional challenges and barriers to the effective implementation of the MEAs will be prioritised according to a pre-determined criterion and the requisite training will be developed with built in mechanisms to ensure sustainability. The modality of each training will be determined based on the scope and dynamics of the training material. The activities also address the challenges surrounding the high turnover of national focal points within the relevant government ministries. It is envisioned that the BCRC-Caribbean will act as the repository for the information on its webpage and will be the custodian of the materials developed (see Activity 1.2.4). This will allow for a standard guided approach to access the training material and a continuous update on the subject matter based on new information. This repository will also include the training and awareness raising materials developed in all subsequent outputs and will be shared with the global knowledge management platform (see Output 4.1).

The training programme will include development of guidance and tools for the ecological risk assessment of pesticides in agriculture, which will be tested and trained in the region. These guidance and tools will be tailored to national

challenges and needs, enhance capacity building for the implementation of MEAs in countries which have ratified the MEAs dealing with aspects of chemicals management, and assist countries in adhering to voluntary international initiatives such as SAICM and the International Code of Conduct on Pesticide Management. In addition, training and awareness raising materials will be available on the FAO e-learning academy (https://elearning.fao.org/) and will be linked to the BCRC-Caribbean virtual platforms and CCKM project. Accordingly, project and programme countries will: benefit from the services and information provided by various ongoing knowledge and policy processes in FAO; be able to influence policy dialogue, and; have access to human and financial resources in relevant areas.

Activity 1.2.1: Conduct a Training Needs Assessment (TNA) for implementation of the Chemicals and Wastes MEAs

The initial activity will be to conduct a Training Needs Assessment (TNA) for staff of key agencies in all participating countries as it relates to the Chemicals and Wastes Conventions. The TNA Assessment will include, but not be limited to: the stakeholder analysis; defined approach to identify the gaps and needs within these agencies; the prioritisation of the training needs; the development of the preliminary training plan which outlines the approach to each of the selected training topics, and; the recommendations for the execution of the training programme. A TNA report will be written.

FAO activities will contribute to the TNA conducted by the BCRC by providing assessments in relation to agriculture in the Chemicals and Wastes Conventions. A mixed methodological approach will be applied to complete this assignment. It will combine the Public-Private Dialogue (PPD) Stakeholder Mapping Tool Kit and the Participatory Stakeholder Analysis of the FAO. The PPD is a structured engagement among an inclusive group of relevant and local stakeholders that seeks to identify, prioritize, and recommend consensus. Together with the Participatory Stakeholder Analysis, the PPD will help to identify who are the key stakeholders, and to determine their linkages and levels of influence. The assessment instrument will assess capacities in three major dimensions or three entry points: the enabling environment areas, the individual dimension areas and the organizational/institutional areas. The enabling environment dimension will assess the context in which individuals and organizations exist. Therefore, policies, rules and regulations, which facilitate pesticide management in agriculture in the Caribbean both from a regional and national perspective, will be identified. The individual dimension will assess the awareness, knowledge and understanding by individuals of pesticide management in agriculture in the Caribbean. The attitudes of individuals will be assessed as well as what skills are practiced. It will also assess the possibilities of changing attitudes and skills through training and other activities. The third dimension or entry point will be the organizational or institutional dimension. This part will assess existing and possible partnerships and opportunities for knowledge sharing among organizations. In this context, partnership capacity, capacity for implementation as well as financial capacities will be evaluated.

Activity 1.2.2: Develop targeted training material and conduct training for the gaps identified from the Training Needs Assessment

Under this activity, the ISLANDS Programme will develop an interactive and detailed training plan with all accompanying background materials for the newly trained instructors to deliver to their agencies on the implementation of the Chemicals and Wastes Conventions. This will include identifying practical ways for creating and improving any existing training materials on these MEAs with a view to standardize the material. Training will be delivered as needed through existing training institutions. Toolkits, handbooks and other materials will be developed to ensure the institutionalization of the training plan and will be stored on the BCRC-Caribbean's webpage for ease of access. All FAO technical materials will be allocated and updated on the FAO regional Caribbean webpage and linked to the BCRC-Caribbean's webpage for ease of access. The BCRC-Caribbean will be responsible for updating the materials to address any future changes related to the Chemicals and Wastes Conventions, such as the addition of newly listed chemicals and adjustments to the Annexes of the Conventions. Consideration will also be given to the development of guidelines

and procedures to outline national roles and responsibilities under the Chemicals and Wastes Conventions to address changes to the focal point designations or agency personnel.

FAO activities will contribute to development of the "Training of Trainers" programme by extending capacity in key agencies mandated with the implementation and monitoring of Chemicals and Waste MEAs in relation to agriculture.

The overall FAO Training of Trainers component will be based on a participatory learning process including short interactive lectures from experienced relevant regional agencies and FAO trainers, experiential learning and sharing of best practices between participants. The learning process will be designed to allow participants to review their training methodology and improve their training ability. The design will involve participants in a process of ongoing critical reflection, allowing them to link the course contents with their own experiences and apply techniques and training methods in their specific contexts. The coaching element and the development of a personalized plan for adaptation of this training for future capacity building back home is an important part of integrating the training into the participants work environment and to provide direction for the participants to achieve their desired outcomes. FAO will apply its own tools and methodology for identifying criteria for the Training of Trainers. The regional Training of Trainers will be designed as a practical learning experience for agricultural pesticide management practitioners and trainers from various Caribbean countries. National, regional and international agencies, NGOs and governments that are actively working on pesticide management and transformation processes and/or importantly involved in training will be invited to nominate suitable staff members for participation in the course. These organisations can nominate staff for the course provided that the organisations commit themselves to: providing trainings on pesticide management related topics on a continuous basis in the future and provide full institutional support to their staff in the design, development, and delivery of the regional and national level training on pesticide management during the Training of Trainers program.

Activity 1.2.3: Develop a "Training of Trainers" programme to extend the capacity in key agencies mandated with the implementation of and the monitoring of Chemicals and Wastes MEAs

Recognising the need to build techniques to conduct successful and sustainable training, a training programme entitled "*Training of Trainers*" will be developed for key personnel in key agencies [e.g. waste management, environment, health, agrochemical sector] and the staff of the BCRC-Caribbean. The Training of Trainers programme is intended to engage master trainers in coaching new trainers that are less experienced with the topic or skill, or with training overall. This Training of Trainers workshop will then build a pool of competent instructors who can revert to teach the material to others within their agency to facilitate the sustainability of the approach. The workshop aims to train 25 trainers, of which at least 40% (10 trainers) female.

Consideration will be given here to linking to ongoing training and platform development initiatives of other regional centres (e.g. CETESB - Companhia Ambiental do Estado de São Paulo*),* UNEP, and BRS Secretariats (e.g. linking to existing webinars, training material, available trainers and also considering ongoing projects such as the GEF/UN Environment project: "Integrated Stockholm Convention Toolkit to improve transmission of information under Article 7 & 15"). In addition, it will be designed as a practical learning experience for agricultural pesticide management practitioners and trainers from various Caribbean countries. The training will cover national, regional and international agencies, NGOs and governments that are actively working on pesticide management. FAO will contribute to the development of an interactive and detailed training plan, providing toolkits, handbooks and other materials adopted to the region in relation to agriculture and the Chemicals and Wastes Conventions. The plan will link to ongoing training and platform development initiatives of SAICM and the FAO e-learning academy.

The design of the training material and modules will consider the dynamics concerning changes in personnel at focal point levels, changes in governments and alignment of focal point departments. As such, the stakeholder analysis associated with the delivery of the training of trainers will focus on the most suitable mechanism to address institutional strengthening. A Knowledge, Attitudes and Perception Survey (KAP) will be conducted before and after the training workshop is executed. This will be completed by the participants to ensure that feedback can be incorporated into the

improvement/finalization of the training materials to continuously strengthen the future delivery of the training programmes.

The Training of Trainers programme will be based on a participatory learning process which will be designed to allow participants to review their training methodology, share experience and improve their training ability. The programme will develop tools and methodology for identifying criteria for Training of Trainers and training materials and establish a team of masters of trainers for the future.

Activity 1.2.4: Develop, adapt or utilize an online training platform which is designed to promote sustainability

An online platform, hosted and managed by the BCRC-Caribbean, will act as a capacity building repository which will house all learning content, training materials and knowledge enhancing products developed under this output, all subsequent outputs of the project and any other training or awareness raising materials on Chemicals and Wastes developed under future initiatives. It will use creative learning approaches and methodologies, illustrations such as infographics and videos, modern technologies and eLearning tools. The online platform will be part of the suite of training/ awareness/ information dissemination tools the BCRC-Caribbean currently manages, including mercury videos, infographics and flyers developed under the MIA projects, the stopthepops.com website and the POPs Regional Information System currently in development. The platform will also seek to link to existing training portals and materials from the UNEP and BRS Secretariat. Within this activity will also be included the possible development of a demonstration open online course on reporting requirements under the Chemicals and Wastes Conventions.

All materials will also be located on the FAO Subregional webpage (http://www.fao.org/americas/caribe/en/) and the FAO e-Learning academy portal, as well as any platforms developed in the context of the IDB child project, linking to the BCRC-Caribbean's webpage for ease of access. This will offer free access to content in a range of formats, including e-learning courses for self-paced learning, blended learning programmes, massive open online courses (MOOCs), technical webinars, online tutored courses, mobile learning, face to face training workshops, as well as University Master's Degree programmes and post graduate degrees.

A virtual regional training workshop will be developed to demonstrate the use of the platform and its resources and to ascertain from the stakeholders in the key agencies of the participating countries how they expect to use and share the platform at a national level. The outcomes of this workshop will inform the development of the awareness raising programme in the following activity and will be shared with the CCKM under Output 4.1.

Activity 1.2.5: Develop and implement an awareness raising programme on the Chemicals and Wastes MEAs Training Platform

Following the development of the online platform during Activity 1.2.4, a communications programme will be created to increase the awareness of the existence of the platform. This will include the catalogue of resources and tools available, suggestions of stakeholders who can benefit from the available material and guidelines to access and use the platform. A survey will be conducted before and after the completion of the awareness raising program to provide insight on the awareness spread, and the platform will be continuously monitored for viewer traffic.

A detailed strategy will be developed focused on distributing the FAO content so that it gains the maximum amount of visibility. This will include details on when and how it should be published, including clear instructions for the site owners. Detailed dashboard reports will be created showing KPIs and progress for all content/tools, such as downloads, interactions with the tools and disaggregation by country.

Output 1.3: National, institutional and technical capacity to reduce/control the current and future trade of chemicals and products containing hazardous chemicals is strengthened

The existing national and regional frameworks related to the control of trade in chemicals, products containing chemicals and wastes governed by the various chemicals and waste MEAs are generally weak. Some countries within the region do not have standardized systems in place for the identification and quantification of chemicals or product imports containing chemicals of concern. For items that are restricted and/or prohibited, several barriers exist which reduce the effectiveness and enforcement of the relevant legislation. These include: lack of awareness among customs and border control officers and the public on restricted items; limited capacity for identification of imports before entry and at port facilities; few labelling requirements for imported chemicals and products containing chemicals of concern; aggregated import data, and; informal or non-existent institutional arrangements between customs and border control agencies, port owners, environmental departments and agencies with responsibility for pesticides, chemicals and waste.

Activities under this Output will address the identified gaps in the enforcement, institutional and technical frameworks in order to strengthen national and regional capacities to reduce and control the current and future trade in specified hazardous chemicals, products containing chemicals, and waste. They will focus on improving mechanisms for:

- Identification of restricted or prohibited hazardous chemicals, products containing chemicals or waste prior to their import or export
- Identification and seizure of illegal imports upon their arrival
- Environmentally sound storage, handling and testing of imported chemicals and products
- Institutional coordination and communication for data collection and management

Activity 1.3.1 – Develop a formal mechanism for inter-institutional collaboration and communication as it relates to the trade of restricted or controlled chemicals, products and waste and management of data generated by relevant agencies

Inter-agency collaboration regarding the monitoring and enforcement of the illegal trade in chemicals and waste is recognized as weak in several participating countries. Under this activity, the ISLANDS Programme will seek to identify existing inter-agency coordination mechanisms and opportunities to strengthen them. It will also develop formalized arrangements for inter-agency collaboration and communication, including conduct of activities such as: routine information and data exchange between border control agencies and other stakeholders; notification of relevant agencies of suspicious and illegal imports and exports, and; integration of the updated ASYCUDA World System into the operations of stakeholder agencies. The recent successes and lessons learnt under the Montreal Protocol, as it relates to improved inter-agency collaboration of border control and training of agencies, will be considered.

The project will lead to the development of a Model Memorandum of Understanding (MOU) for formal institutional arrangements and Terms of Reference for member agencies. The results of this activity will build on efforts being conducted under the Environmental Network for Optimizing Regulatory Compliance on Illegal Traffic (ENFORCE), of which the BCRC-Caribbean is a member, and the Green Customs Initiative. The existing successful mechanisms of countries such as Guyana and Trinidad and Tobago will be considered during the development of the Model MOU.

The project will establish a special collaborative mechanism between customs and national pesticide management agencies for control of illegal trade of pesticides. An information exchange system will be built between the registration authority and customs for sharing registration information and importing products to enable customs to check the legality of products pending import. Joint law enforcement will be organized between agriculture and customs for pesticide trade.

Another aim of this activity is to support the amendment of the regional Common External Tariff HS Codes based on the guidance report to be submitted by the United Nations Environment Programme Global Mercury Partnership–Mercury in Products partnership area (Products Partnership) at the fourth Conference of the Parties for the Minamata Convention (consideration will also be given to additional developments and decisions made at COPs within the lifecycle of the project). This is activity is key to reduce the imports of mercury-added products (MAPs) over the next 5 years and thus limit the build-up of mercury wastes in countries. Participating countries generally follow the World Customs Organization's 6-digit Harmonized System (HS) Codes for classification of traded commodities. However, trade statistics

obtained from using the 6-digit HS Codes are often aggregated by commodity-type, and quantities of imported products containing harmful substances, such as mercury, are often totalled with imports of their chemicals-free alternatives, thereby hindering analysis and understanding of the true nature of chemicals imports. Assistance for this activity will be sought from the Global Mercury Partnership (GMP)[37] and regional bodies (e.g. the CARICOM Council for Trade and Economic Development (COTED)).

Activity 1.3.2 – Improve capacity of customs and border control agencies for the identification of trade in restricted and prohibited hazardous chemicals, products containing chemicals and waste

Existing pre-screening and inspection procedures employed by customs and border control agencies will be assessed, including: officers' awareness of HS codes; use of ASYCUDA World for data collection and management; requirements for importer/exporter licenses and registration of imports/exports; awareness of restricted and prohibited chemicals and products; notification procedures; sampling and testing, including analytical and technical capacity; chain of custody at port facilities; process for seizures; return or disposal of seized goods, and; implementation of fines for importers of illegal or restricted goods. Recommendations to improve procedures will be provided. The activity also aims to support the standardization of institutional capacity for countries to quickly adapt to the global identification of new POPs of concern and their inclusion in the Stockholm Convention Annexes. The initial assessment will be conducted in tandem with Activity 1.3.1 which seeks to explore the existing inter-agency coordination mechanisms.

Additionally, in order to address the direct prevention of mercury imports, based on the results of this assessment and identified priority areas for improvements relevant to mercury added products, localized pre-screening and inspection guidelines will be developed[38]. The capacity of the border control agencies, in project countries where there are significant issues (e.g. Guyana and Suriname), to detect and control liquid mercury will be improved through the provision of X-Ray Fluorescence (XRF) devices. A pilot exercise in a selected country will be conducted to test the effectiveness of the developed guidelines and support their finalisation. The developed guidelines may be presented to CARICOM for inclusion in their Customs Handbook (2013)[39].

Further, in response to increasing illegal international trade of pesticides, training materials for Pesticides and Customs Inspectors/Officers on the import/export Inspection and Control of Pesticides will include modules on: pesticides regulation; registration law enforcement including the procedure of confiscation, safe transportation, storage and disposal; the role of Pesticides Inspectors and Types of Inspections; the roles of Customs and Border Control in the Control and Inspection of Imported Pesticides; Pesticides Import and Export Control, and; collaboration among and between government agencies.

A training plan, inclusive of supporting training material, will be developed and executed to support national and regional customs and border control agencies in adopting the developed guidelines. The training plan will also support building capacity of customs and border control agencies for monitoring and enforcement of requirements for chemicals identification and examination, notification procedures, and reporting and coordination, for activities related to the control of restricted and prohibited hazardous chemicals and product imports[40]. All developed training materials will be incorporated into the online training platform developed in Output 1.2 to ensure sustainability. The training activity will include a workshop activity on the development of a Model Memorandum of Understanding (MOU) for formal institutional arrangements and Terms of Reference for member agencies as detailed in Activity 1.3.1.

[37] The GMP is working on custom code harmonization for mercury added products.

[38] The Model Integrated Chemicals Management Act developed under the GEF 5558 Project includes SOPs for inspectors regarding the identification, handling and sampling of POPs.

[39] CARICOM Customs Handbook: Guide to Multilateral Environmental Agreements, 2013 does not include a section on the MC or newly added SC POPs.

[40] This will utilise training material developed under the GEF 5558 Project on the "Detection, Identification, and Classification of POPs by Border Control Agencies" has been developed.

Output 1.4: Increased capacity for the development and implementation of national and regional chemicals and products standards including GHS

Standards are important to ensure the safety and consistent quality of products and processes. Each project country has a department with responsibility for the development of national standards with respect to goods, services, processes and practices. These departments also generally have responsibility for testing of products to ensure compliance with developed standards; however, limited capacity for testing in most countries has been noted.

Additionally, the project countries, except for the Dominican Republic, are Member States of the CARICOM Regional Organization for Standards and Quality (CROSQ). CROSQ is a regional inter-governmental organisation which coordinates the development of harmonized regional standards based on requests by members states. As such participation by all Member States, including the Bahamas and Dominica who are beneficiary countries in the GEF ISLANDS 10472 child project, will be encouraged. The Dominican Republic is not a member of CROSQ. However, as a beneficiary project country in a project implemented by the BCRC-Caribbean, provisions will be made to allow them to participate and derive the benefits from the activity. Once regional standards are developed by CROSQ, countries are responsible for implementing, monitoring and assessing the effectiveness of the developed standards. CROSQ provides support for countries by developing and suggesting mechanisms that can be used for implementation of the developed standards, providing training on the requirements of the standard, advising on conformity assessment procedures, and identifying necessary equipment and calibration for testing. CROSQ has developed a Technical Regulation Development Guide (Good Regulatory Practice Guide) that countries could use to ensure that they are using best practices in developing their regulations including development of a regulatory impact assessment.

There is a need for the development and implementation of product standards which can assist countries with regulating the import of products with harmful chemicals, and standards for classification and labelling of chemicals and products containing harmful chemicals to support the identification of imports by border control officers. This Output will address this need through the development of two (2) regional standards in collaboration with CROSQ, and the creation of roadmaps to support countries with developing and implementing national and regional standards. Hazard classification and labelling of chemicals will also be considered under this Output in Activity 1.4.3 which focuses on developing an adaptive implementation strategy for the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) in each project country.

Activity 1.4.1 – Develop two (2) regional labelling and product standards for relevant chemicals and products

This activity will include an assessment of existing national and regional labelling and product standards related to hazardous chemicals and products containing hazardous chemicals, and the identification of gaps in available standards that would support countries with fulfilling their obligations under the chemicals and waste management MEAs, particularly the Stockholm and Minamata Conventions. Standards that can feasibly be developed and harmonised regionally will be assessed, and two (2) regional standards will be selected based on national priorities and feedback from national stakeholders and IDB constituencies. Products that will be considered include skin-lightening creams with mercury and PBDEs-containing toys or kitchen utensils. Support will be provided to develop draft technical specifications for the two (2) standards and these will be submitted as new work item proposals to CROSQ. Once approved, the regional standards will be formulated in accordance with CROSQ's standards development process. Consultation with stakeholders, those who will be affected by the regional standards and those who wish to contribute to its development, will be conducted throughout the process[41]. CROSQ's Regional Technical Committee, which consists of members from the National Standards Boards, will regularly collaborate with the national Project Working Committees and the BCRC-Caribbean to ensure technically sound and appropriate regional standards are developed. The National Standards Boards will spearhead extensive national consultations. The developed standards will include: guidance for implementation of the standards; identification of necessary equipment and calibration for testing and mechanisms for capacity building of regional laboratories to conduct required testing; training on requirements of the developed

[41] CROSQ's standard development process consists of 3 committees – Regional Technical Committee, Technical Management Committee and the Editorial Committee

standards; stakeholder education and awareness raising, and; templates for effectiveness evaluations and conformity assessments.

Continued cooperation between the BCRC-Caribbean and CROSQ will be established through development of a Memorandum of Understanding (MOU) specifying the requirement for the BCRC-Caribbean to participate in technical work for development of regional standards related to chemicals and waste as well as notify CROSQ on the need for future regional standards based on additions to the Stockholm Convention.

Activity 1.4.2 – Create national roadmaps to support countries with future development and implementation of labelling and product standards for relevant chemicals and products

National roadmaps will be developed to support countries with the development, implementation, monitoring and enforcement of new and existing national standards for which standards were not developed in Activity 1.4.1. The roadmaps will incorporate lessons learned from the implementation of existing standards, the results of an assessment of national and regional processes and requirements for developing new labelling and product standards, barriers to the development, implementation and enforcement of new standards and recommendations to improve processes and circumvent the identified barriers. These roadmaps will be developed using existing guidance documents[42] and will include considerations for testing in support of monitoring efforts, criteria for conducting effectiveness evaluations, private sector incentives and public sector engagement.

Activity 1.4.3 – Detailed multi-institutional assessment of current implementation of GHS, gap analysis and recommendations as it relates to capacity to respond and control chemicals imports at the borders

The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) is an international standard developed to support the classification and identification of hazardous chemicals and their risks.

It is acknowledged that there are some limitations to GHS as it does not adequately address chemicals in products and wastes, which is a major issue and problem for POPs and other hazardous chemicals in products and related waste management. Nevertheless, it is considered a frontline tool to support regulation of the import of chemicals and is another aspect that can be strengthened in each country.

The baseline indicated that the extent of implementation of GHS in the project countries varies but is generally non-existent to low. It was noted, however, that where appropriate, GHS has been considered in the development of standards. For example, CROSQ is in the process of establishing regional pesticides labelling standards which will conform to GHS. Overall, there is a need for coordinated national GHS implementation strategies which involve all the key institutions and complements the existing mechanisms within the national framework to manage chemicals. Stakeholder mapping will be conducted to include the private and public sectors. In this activity, an assessment of current implementation of GHS will be conducted for each country. This will include assessing: the existing coordinating infrastructure; legal framework including extent of enactment in various pieces of legislation; data management framework and inter-agency communication mechanisms with respect to managing the import of harmful chemicals, and; the presence of built in mechanisms to cope with the future addition of more POPs to the Stockholm Convention.

A gap analysis and recommendations will also be conducted based on the needs of the country, whereby the existing situation in each country will be benchmarked to the GHS 'Purple Book' and best practice examples of implementation in the other project countries and internationally. This includes the ongoing work currently being undertaken by the Secretariats of the Conventions. Crucially, the gap analysis and recommendations will consider the integration of hazard classification into countries' existing systems going beyond pesticides to include, for example, occupational health and safety. It will also outline means for quicker hazard identification, particularly for newly listed hazardous chemicals. As regards hazard communication, in addition to awareness and training from government agencies, the role of the Bureau of Standards and related labelling legislation will be assessed, in tandem with Activity 1.4.1. A training and awareness

[42] For example, the Stockholm Convention's "Labelling of products or articles that contain POPs – Initial Considerations", 2017

raising plan will be developed to complement the recommendations. Government agencies' and organizations' communication platforms will be considered, and the training will be integrated into BCRC-Caribbean's sustainable training programme (Activity 1.2).

Further, the Training on Guidelines on Good Labelling Practice for Pesticides in agriculture will cover information about pesticide hazards, risks, main routes of exposure and general principles of effective personal protection when working with pesticides, and thus highlight the risks for different uses and for various stakeholders. This will build upon lessons learned from the GEF 5407 project, and on the work of FAO and CGPC (the Coordinating Group of Pesticides Control boards of the Caribbean) in the development of pesticides labelling standards.

Output 1.5 - Sustainable Procurement is promoted to key stakeholders to reduce the manufacture/import of products containing hazardous chemicals.

The principles of sustainable procurement involve the purchasing of goods, supplies and services that are less harmful to human health and the environment thereby promoting sustainable development and shifts to green economies. It is well acknowledged by the international community that establishing mechanisms to ensure green procurement can play a major role in, not only contributing to achieving the Sustainable Development Goals (SDGs), but also promoting compliance with the chemicals and waste multilateral environmental agreements like the Stockholm and Minamata Conventions. In the Caribbean region, it is noted that while there may be challenges, there exists some level of sustainable procurement initiatives being implemented, such as: nationally driven activities to replace incandescent light bulbs with fluorescent and LED bulbs; promotion of other energy saving activities and initiatives under the Montreal Protocol that aim to reduce greenhouse gas emissions, and; more recently, initiatives to reduce the use of single use plastics. The intent of this output is to assess the enabling environment and promote the procurement of safer chemicals and products that traditionally may contain POPs and/or mercury or generate UPOPs as by-products of their use or destruction, with a focus on the public and/or private sectors that import chemicals and products for use in industry, fire safety, cosmetics and healthcare. The Chemicals without Concern knowledge platform (UNEP, funded by the GEF) will be a key resource for this output.

Activity 1.5.1 - Assess enabling environment for Sustainable Procurement in countries and determine which products lend themselves to such policy

This activity will seek to assess the legislative framework and institutional capacity, including the purchasing policies and practices, that exist for promoting and enforcing sustainable procurement in the public and private sector in each project country. Focused stakeholder consultations with key actors in government, as well as relevant Chambers of Commerce and importers, will be conducted to assess the sectors most impacted by POPs or mercury containing products. The assessment will include a cost-benefit analysis considering reliable available alternatives to products that may contain POPs or mercury and financial and other incentives to facilitate uptake of these alternatives. The activity will allow for recommendations to be made that can facilitate the drafting or updating of national or regional technical policies and procedures for sustainable procurement. Recommendations should give guidance for ensuring that all steps of procurement consider the chemicals and waste Conventions.

Activity 1.5.2 - Assess and select sustainable suitable alternatives to PFAS, POP-PBDEs, SCCPs/PCBs/PCNs and mercury added products

This activity focusses on the following categories of chemicals: PFAS, POPs-PBDEs, SCCPs/PCBs/PCNs and mercury added products. These categories were selected because the baseline, updated NIPs and/or MIAs indicated their presence and use in the region, for example, PFOS fire-fighting foams and cosmetics containing mercury or, for the newly listed chemicals under the Stockholm Convention, such as PFOA, deca-PBDE and SCCPs for which inventories will be complemented in Activity 2.1.1. Based on the global use of these chemicals, it is expected that significant quantities are imported in the region, particularly in products which may be commonly used in everyday life. The main alternatives to

pesticides considered in this project will be biopesticides since the majority of alternatives are currently addressed by the FAO GEF 5407 project.

Measures to identify and promote suitable alternatives will focus on two areas: cleaner production methods and the supply chain, particularly the distributors. These are synergistic with SAICM's approach.

An assessment of usage will be undertaken based on the inventories conducted between 2016-2020 as part of the updated NIPs and MIAs and projected future usage. Based on these data, selected products containing these chemicals will be prioritised according to usage/import, level of risk, and a more detailed assessment of its existing use and functionality in each project country.

In countries where the chemicals are used in manufacturing processes, such as SCCPs in metal-working fluid applications and polyvinyl chloride processing and POPs flame retardants in protective clothing, an iterative approach will be undertaken which includes (i) compiling suitable alternatives considering costs and efficacy, (ii) education and capacity-building of the key stakeholders, and (iii) promoting the most suitable alternatives, including awareness raising and training to support the phase in of the alternatives. The assessment will rely on the inventories made in Activity 2.1.1 to identify manufacturing processes in the region which use POPs. The proposed GEF funded Global Greenchem and Innovation Network Programme can provide useful guidance.

For products which are imported to the region, for example, PFOS/PFOA fire-fighting foam, POP-PBDEs in kitchen non-stick products, mattresses, textiles, and mercury and PFAS containing products, this activity will target two (2) products based on the assessment of usage which considers quantities and ecological and human health impacts and engage the importer/distributor/user to import a safer alternative. An example of this approach is the assessment of alternatives and phase out of PFOS/PFOA fire-fighting foam imported by the Fire Services in Saint Lucia as part of the GEF 5558 project. To achieve maximum benefit, products which are distributed regionally will be given preference.

Activity 1.5.3 - Training and sensitization of stakeholders and consumers on the benefits of Sustainable Procurement

This activity seeks to promote and increase regional awareness raising and capacity for sustainable procurement development, implementation, and its benefits. The target audiences will be institutions involved in procurement (public and private sectors) and consumers. For the institutions, the target training group will include government procurement managers, relevant policy makers and technical project officers. In the private sector the Chamber of Commerce will be the key collaborative institution. The training will be developed to give an understanding of the concepts of sustainable procurement; awareness of standards; identify key drivers, barriers and benefits; provide a strategy for organized sustainable procurement using proposed recommendations of Activity 1.5.1 and useful tools and guidance documents for implementation, and; promote awareness among key stakeholders on how to integrate environmental criteria for procurement of products and services. In order to tackle the common problem of accumulation of pesticide stocks due to unsustainable procurement, detailed training tools for farmers, distributors and governments will be developed on sustainable procurement and on existing bio pesticides alternatives. In collaboration with the private sector, training materials will be developed and delivered to the relevant targeted groups. Round table consultation meetings will be conducted to share good practices, business cases, success stories, new methods, tools and innovative approaches for SIDS farming communities.

Special training will be given to agencies involved in the donation of pesticides for emergency response to urgent outbreak of plant pests.

The training can be delivered face-to-face or via webinar, and the training materials produced can remain available on the training platform developed in Activity 1.2.4. For consumers, the POPs communication toolkit from the GEF 5558 project as well as the communication products developed for the MIAs in the region have already laid a foundation for general awareness and will now be expanded to specifically engender the public's purchasing power to select a safer alternative products on the market.

Component 2 – Safe Management and Disposal of Existing Chemicals, Products and Materials

In many Caribbean SIDS, harmful chemicals and materials may already be present and/or generated due to past or present activities. Therefore, there is a need to dispose of harmful chemicals and materials in project countries in an environmentally sound manner. To achieve this, the ISLANDS programme aims to work together with project countries to implement a number of interventions, including the collection, safeguarding, export and disposal of PCBs, obsolete pesticides and chemicals, DDT stockpiles and selected mercury added products. Where stocks cannot be addressed by the ISLANDS programme, the programme will work together with the IDB to find suitable solutions. The ISLANDS programme also aims to assist countries in improving their capacities to manage hazardous waste, and to develop tools for countries to access additional funding for these activities in the future. These are the overarching goals of Component 2, which will be achieved through two (2) Outputs.

Specifically, activities under Outputs 2.1 and 2.2 will aim to: (i) strengthen capacity for the environmentally sound management of SC POPs and MC Hg products (**Output 2.1**); (ii) eliminate obsolete pesticides and chemicals, PCBs and DDT (**Output 2.1**), and; (iii) improve capacity to manage hazardous waste (**Output 2.2**).

All activities under this component are national-level activities taking part in all 9 project countries, except activity 2.1.3 and activity 2.2.3. Activity 2.1.3 which will include two (2) national-level demonstration projects for two countries to be determined based on: if illegal dumping is a major issue; if the national solid waste agency is a willing partner, and; critically, if there is robust waste management legislation and demonstrated institutional capacity in enforcement. Activity 2.2.3 will include one (1) national-level pilot project in Suriname, and (1) national-level demonstration project of a model agrochemical waste management strategy tentatively in Belize. The lessons learnt form these demonstration project will be communicated to the other countries through output 4.1 and to the other regions through the CCKM project 10266.

Output 2.1 – Capacity for environmentally sound management of SC POPs and MC Hg products strengthened, and obsolete pesticides and chemicals, PCBs and DDT eliminated

It is recognized that the Caribbean region is import dependent with very few countries having a developed manufacturing sector. Component 1 dealt with implementing mechanisms to control the import of avoidable hazardous chemicals and chemicals in products into the countries. However, for chemicals and products containing hazardous chemicals that are already in the countries, those that are considered intrinsic to daily life and those without suitable alternatives, systems need to be in place to safely manage them on a national level and, where possible, as a region.

As such, the activities outlined below address the removal and destruction of stockpiles, while raising awareness to reduce UPOPs emissions from open burning, the main UPOPs contributor in the Caribbean. Additionally, the ISLANDS Programme will work together with IDB to develop tools for countries to access additional funding for the elimination of obsolete POPs in the future.

Activity 2.1.1– Develop management and destruction/stabilisation strategies to eliminate PCBs, obsolete pesticides and chemicals, DDT stockpiles and selected mercury added products

This activity aims to develop management and destruction strategies to eliminate PCBs, obsolete pesticides and chemicals, DDT and selected mercury added products to be disposed of under this project. The development of the management and destruction strategies will rely heavily on the mechanisms that worked well for previous projects and capitalize on the benefits including the network of government agencies and personnel familiar with the key stakeholders and identified centralized storage sites. The management of empty pesticide containers is currently the focus of the GEF FAO 5407 project and is not considered here.

The first task will utilise the information from the updated NIPs and MIAs and supplement where needed to identify the quantities for disposal. This is especially required for obsolete pesticides and chemicals which have accrued since the

last disposal in 2016/2017, particularly PCBs in Guyana and the Dominican Republic since their PCB data stems from their first NIP. As a result of the previous work conducted for the 2016 POPs inventories and the MIAs, stakeholder networks already exist, and these will be leveraged for this project.

Since there are still no available mechanisms to safely dispose of all these chemicals within the region, they will need to be exported for safe disposal. High shipping costs means funding from this project may not be possible to cover the entire disposal. Synergies in the centralized storage and consolidation of the different categories of chemicals will be explored for cost saving benefits. However, the strategies developed will also need to identify public and private sector financing opportunities to either supplement disposal costs or undertake separate disposal operations for wastes that could not be disposed of in this project.

For obsolete pesticides, strategies implemented under the GEF FAO 5407 project and national initiatives in Belize have slowed the build-up of these chemicals since existing quantities were disposed of in 2016 and 2017. However, since the region still does not have an environmentally sound disposal facility for hazardous chemicals and wastes, there will be a need to conduct another disposal operation within this project's timeframe, approximately 7-8 years after the first.

The baseline indicated that the elimination of PCBs is at different stages in each beneficiary country, depending on the project which funded the activity. Inventories will be verified to identify the remaining quantities of the newly listed chemicals under the Stockholm Convention, such as PFOA, deca-PBDE and SCCPs; POPs, including uPOPs; PCBs oils and equipment in each country. Since at least two regional laboratories (Antigua and Barbuda, and Suriname) will have the capacity to analyse for PCBs at the time of implementation, the inventory of obsolete and in-service equipment will include analytical testing. Based on the quantities of contaminated PCBs oil and equipment inventoried, technological options for disposal and/or decontamination will be recommended. It is worth noting large quantities of PCBs oils are anticipated in the Dominican Republic, based on the 2009 NIP, and thus cost effective and appropriate methods for management, such as dechlorination, should be considered.

According to the updated NIPs, none of the countries have any recent registered importation or use of DDT and only one known stockpile exists. It is located in Suriname and was identified for excavation and export for destruction.

Regarding mercury added products, the outcomes of each party's initial assessments indicate that no clear measures are currently in place for the disposal of mercury-added products currently in use. Through this activity, the updated volumes of specific mercury added products will be obtained. This will inform the identification of priorities for the development of disposal strategies of key mercury-added products. Currently, waste mercury added products are typically disposed of in general waste. This activity will assess the potential collection, storage, treatment and disposal options for each major mercury-added product for the development of targeted strategies for their disposal. Holistic approaches to link the disposal of mercury-added products with other hazardous waste streams will be explored.

Activity 2.1.2 – Elimination of obsolete chemicals, PCBs, DDT and mercury added products through safeguarding, centralization and destruction/stabilisation

Under this activity, in each country, the identified chemicals and chemicals in products will be packaged, labelled and consolidated at centralized secured sites prior to export for destruction at an approved facility. Within the previous 5 years, the region has gained experience (e.g. GEF 5407, Belize national initiative) with processes involved in safeguarding and safely disposing of chemicals abroad. As such, this activity will capitalize on this knowledge and other operational aspects that were put in place, including government agencies and personnel familiar with the key stakeholders, trained in-country personnel, and identified centralized storage sites.

For PCBs, if decontamination is the technology selected in Activity 2.1.1, the services for a dechlorination unit will be procured (for example a mobile unit) and the decontamination will be conducted in each relevant country in accordance with the PCB management and destruction strategy.

The Pesticide Stock Management System (PSMS) will be updated and linked with the POPs Regional Information Systems Database. A regional network will be activated in the Caribbean to use the PSMS for sustainable data collection of obsolete stocks.

This activity will be conducted in the second half of the project to enable as large as possible quantities of these chemicals to be accumulated to have maximum impact. A collaboration with IDB is expected to find solutions for the stocks that this project cannot address.

Activity 2.1.3 – Awareness campaign to promote or apply BAT/BEP to minimize UPOPs emissions from open burning

In many Caribbean countries, open burning of accumulated waste, particularly plastics, is widely practiced, largely due to insufficient waste management infrastructure and lack of awareness of the risks to human and environmental health. Assessment data from the NIPs estimated total annual release for 2015/2016 was 202 g TEQ of which approximately 30% was from open burning.

In this activity, targeted awareness campaigns will be carried out to emphasize health and environmental risks and exposure hazards from open burning. The audience for the campaign will be relevant stakeholder groups, as guided by the UPOPs inventories for 2015/2016 and updated inventories made in Activity 2.1.1. This activity will use the outputs from Activities 2.2.1 – 2.2.3 to promote BAT/BEP in the awareness raising campaign. An awareness raising plan focused on open burning will be developed by building on the Regional Communication Strategy to manage POPs which was developed under the GEF 5558 project and implemented nationally. The POPs Communications Toolkit for the GEF 5558 project, which includes brochures, infographics and a dedicated POPs website, already exists and will be expanded to align with this campaign.

One potential new product is the development of an app to empower the public to report illegal open dumpsites to the relevant authorities, since often, these sites are eventually burnt (accidentally or on purpose), resulting in dioxins/furans emissions. The National Solid Waste Authority in Jamaica launched such an app in 2020 and lessons learnt from its use will be incorporated into this activity. This app will be developed for two countries where illegal dumping is a major issue, the national solid waste agency is a willing partner and, critically, there is robust waste management legislation and demonstrated institutional capacity in enforcement.

Output 2.2 - Capacity to manage other hazardous waste streams specific to the Caribbean improved

Several of the project countries currently lack Waste Management Strategies and Integrated Waste Management systems with the considerations for problematic and hazardous waste streams generally absent in the region. Regionally, focus is placed on the collection aspect of the existing waste management systems. While collection rates are generally high in the smaller islands, there are several challenges with the integration of the rural areas of the larger Project Countries into the waste management systems and this is reflected in the significant gaps of waste collection in these areas. In addition, the tourism industry is identified as a key contributor to waste generation rates in several of the countries, and there is a recognised need for the current waste management systems of the region to address this and other priority and emergent waste streams such as disaster waste. The region is also now faced with emerging concerns associated with the COVID-19 global pandemic where there may be increased strain on the hazardous (medical) waste management sector.

There are also recognised gaps in the integration of post-disaster waste management into disaster plans and response procedures and this has led to inefficient segregation and management of hazardous waste streams and also indiscriminate open burning of waste piles. In addition to a paucity of requisite legislation and the need for sustainable financing, the main barriers to the proper management and incorporation of hazardous waste in the region are due to limited technical capacity and infrastructure.

Key activities under this output will consider the existing hazardous waste management strategies and initiatives, explore lessons learnt and harmonise participating project countries to a similar standard and approach to hazardous waste management. The proposed approach to the hazardous waste management will align with the BRS and Minamata Conventions' guidance on the management of the chemicals and wastes streams within the context of international best practices on integrated waste management. Additionally, the ISLANDS Programme will work together with IDB to develop tools for countries to access additional funding for the implementation of the hazardous waste strategy in the

future. The outputs of this activity will contribute to the project targets of UPOPs reduction, avoidance of emissions of POPs and avoidance of chemicals of global concern and their waste in the environment.

The output will be delivered via the following activities:

Activity 2.2.1 – Develop roadmaps for the implementation/execution of national hazardous waste management strategies in nine (9) project countries

Recognising that the management of hazardous waste is a component of the overall waste management landscape, this activity will support the project countries with a streamlined approach to hazardous waste management through integrated management systems. The activities will directly address the barriers identified such as the ad-hoc approach to hazardous waste management, lack of hazardous waste management policies, lack of political buy-in (with associated financial and institutional constraints) and limited capacity/lifespan of the existing landfill infrastructure. The activity will include the following:

- Assess the status of the project countries' hazardous waste management plans in the context of the national waste management strategies (with a focus on the wastes and chemicals under the BRS and Minamata Conventions). This will follow the consultations and findings of the previous regional GEF 5558 project[18] where the existing waste management infrastructure of four (4) project countries was examined in order to improve landfill operations, source-segregation strategies and hazardous waste storage in several project countries in an effort to reduce UPOPs emissions.
- Assess the gaps and barriers to the effective implementation of the project countries' national waste management strategies. The findings of this activity will also support the project activities that are addressing the policy, legislation and institutional constraints on the management of wastes and chemicals under Component 1.
- Develop a regional model for the development or enhancement of waste management strategies to include strategic hazardous waste management planning in the sector. Acknowledging that there is an ongoing need for periodic revision and updates of national waste management strategies and plans, the project will provide this regional model and the modality for the finalisation will include trainings and workshop activities. The model will include the fundamental elements of the strategy as outlined in the UNEP's Guidance Document 16: (i) establishing the scope of the national strategy; (ii) identifying an overarching goal and supporting targets; (iii) estimating expected national benefits; (iv) identifying initial options for financing and resourcing the process of strategy development, and building capacities for, and during development of the strategy; (v) setting a timeline for the development of the strategy, and; (vi) identifying linkages to other plans and areas of national policy
- Develop, in consultation with the key stakeholders, national roadmaps towards the effective implementation of a comprehensive national hazardous waste management plan. This will include an overview of the key activities, resource requirements, identification of potential funding opportunities and detailed stakeholder mapping and guide. Consideration will be given to the need for a cost benefit analysis (where the cost of inaction is clearly demonstrated) and a monitoring and evaluation plan. This activity will synergise with the need for legislation to support the implementation of the plans through Component 1.
- Present/deliver the national roadmaps to the management of the waste management entities and key decision makers within the waste management sector. Technical backstopping will also be provided in order to support requisite endorsements and high-level political buy-in.

Activity 2.2.2 – Establish regional guidelines for the management of various hazardous waste streams specific to the Caribbean Region in nine (9) project countries.

Following the assessments and recommendations of Activity 2.2.1, this activity will provide strategic guidance and planning on the management of priority hazardous waste streams. This will include, but not be limited to, the health care/biomedical waste, post-disaster waste (including hurricanes, earthquakes, and COVID-19), and tourism wastes (including hotels, cruise ship and airline wastes). The emerging issues surrounding COVID-19 will be built into the activity where the experiences, challenges and lessons learnt will be considered in order to equip the region with the institutional strengthening and training needed for future events of this magnitude. The proactive approach of this

activity and the proper management of these waste steams within a comprehensive and integrated waste management system will directly reduce the pressures on the already strained waste management entities. It will also prevent the improper management of the related hazardous components (e.g. chemically treated or infused furniture and equipment and plastics from the hotel industries and surplus health care waste/infectious waste from the national tourism industry operators, and household disaster waste with hazardous components).

The development of guidelines specific to the region would consider existing regional and global assessments, recommendations and guidelines and project initiatives. The activity will include:

- Prioritise and recommend three (3) waste sectors or scenarios for which regional hazardous waste management guidelines are required. The scope of this plan can be prioritised based on the national waste management strategies, problematic waste streams and sectors based on the findings of Activity 2.2.1.
- Develop regional guidelines for management of three (3) priority waste sectors or scenarios (e.g. regional post-disaster hazardous waste management guidelines, regional medical waste management guidelines, and regional guidelines on the management of tourism sector wastes and chemicals). The regional guidelines will identify and focus on the hazardous wastes and chemicals streams in the context of the effective management of the BRS and Minamata wastes and chemicals. The guidelines will be developed in keeping with international best practices on ESM and disposal of hazardous waste giving consideration to national and regional context on resource availability, institutional capacities and previous experiences.
- Activities on regional guidelines for health care waste management will take into account the ongoing GEF/ UNDP initiative on '*Promoting a Coordinated Approach to the Sustainable Management of Healthcare Waste during and beyond the COVID-19 Pandemic*'. The project outputs from this initiative will be synergised and embedded into the GEF ISLANDS programme as the findings will be incorporated into the regional guideline. Relevant aspects will include guidance on procurement, management options, available disposal technologies to treat with possible future events which will result in the surge of health care waste quantities
- Train key stakeholders and agencies (e.g. WM entities, public health, tourism, disaster management) in the selected priority waste scenarios on the use of the guidelines. This will include but not be limited to practical training on available tools on the prioritisation, identification and management relevant chemicals and wastes. Where applicable, the management of specific waste streams will also synergise with other project activities (Output 1.2) and other regional initiatives on recycling and the circular economy (Component 3). The aim is to train 25 waste management professionals, of which at least 40% (10 trainers) female.

Activity 2.2.3 – Assess hazardous waste management in the rural areas and develop a model hazardous waste management strategy

In response to the constraints associated with ESM of hazardous waste in the rural and interior areas of project countries including Belize, Dominican Republic, Guyana, and Suriname, the project will seek to assess and then strategize the incorporation of these areas into the national waste management strategies and national roadmaps (developed under 2.2.1) to hazardous waste management. These constraints include the small, dispersed populations; the large geographic size of the countries, and; the need for customised systems as traditional urban systems may not be suitable. This activity will directly address the concerns surrounding open-burning and illegal dumping through waste prevention and rural sustainability. The activities address the hazardous waste streams associated with sectors of gold mining, agriculture, and municipal waste (e.g. bulk white waste, e-waste, batteries, oils, solvents, paints, contaminated wood, pharmaceutical products, insecticides, pesticides, fungicides, herbicides, chemical fertilizers, empty pesticide containers, chemicals used for fumigation, cleaning agents used in animal husbandry, and medical waste). The activity will also address the disadvantages faced in these communities, their unique contributions to the mismanagement of chemicals and wastes and also address their susceptibility/vulnerability to the human health and environmental concerns from hazardous wastes and chemicals. Focus will be placed on the susceptibility of the indigenous communities. The activity will assess all aspects of the integrated waste management infrastructure, including collection, separation, recycling and disposal. It will also examine the gaps and barriers as it relates to the integration of the rural and interior areas into the national management landscape/ infrastructure, and examine/consider the

contribution and exposure of these communities. The activity will also demonstrate the incorporation of the rural areas into the hazardous waste management landscape in the project countries. The activity is broken down as follows:

- Assess the level to which the rural areas are integrated into the existing hazardous waste management infrastructure of Belize, Dominican Republic, Guyana, and Suriname (in union with assessment of the overall waste management strategies in 2.2.1). This will include the identification of key concerns surrounding the hazardous waste management in rural areas, seek to quantify the issues and also identify the gaps and barriers to the incorporation of these areas into the national integrated waste management system. This will explore all aspects including generation of hazardous waste, collection, storage and recycle/disposal opportunities.
- Develop one (1) model national hazardous waste management plan to include the rural areas of Belize, Dominican Republic, Guyana, and Suriname. The model rural hazardous waste management plan will be developed on a regional level to address the significant cross-cutting issues recognised between the project countries. The model plan will give consideration to an overall systemic approach involving technical, financial, social, cultural, environmental, and governance aspects. Consideration will also be given to increased waste diversion rates in order to curb uncontrolled waste disposal practices (open burning, wild-dumps, and river/marine dumping).
- Demonstrate one aspect (e.g. collection, source segregation, recycling) of the hazardous waste management plan in Suriname through a demonstration pilot project. This pilot should include the requisite public awareness and behaviour change activities.
- Demonstrate a model agrochemical waste management strategy. The strategy will be based on provided tailored to the region guidelines on Management Options for Empty Containers, and Toolkit for Management of Empty Pesticide Containers at the farm level.

Component 3 – Safe Management of Products entering SIDS/Closing Material and Product Loops for Products

There is a need to halt the build-up of harmful materials and chemicals in Caribbean SIDS. To achieve this, the ISLANDS programme aims to work together with project countries and IDB constituencies to establish effective circular and life-cycle management systems in partnership with the private sector. This is the overarching goal of Component 3, which will be achieved through three (3) Outputs.

Specifically, activities under Outputs 3.1 through 3.3 will aim to: (i) develop an Extended Producer Responsibility (EPR) system and regional approaches to manage Waste Electrical and Electronic Equipment (WEEE) (**Output 3.1**); (ii) promote the environmentally sound management of end-of-life vehicles (ELVs) (**Output 3.2**), and; (iii) improve the management of plastics (including PVC) through the life-cycle approach and coordination with the public and private sectors (**Output 3.3**).

Component 3 includes regional-level activities and national-level activities, specified in below outputs.

Output 3.1 - EPR and Regional Approach to manage WEEE pilot tested in three participating countries

WEEE management is a priority issue for the project countries. The baseline revealed that only the private sector (formal and informal) is involved in WEEE management and since it is unregulated, the majority of WEEE actually ends up in landfills. This output intends to develop and test two strategies to manage WEEE namely, EPR and a regional approach. The focus will be on the categories of WEEE with the highest rates of generation in the project countries, which are Large Household Appliances (LHA), Consumer Equipment (CE), IT and Telecom (IT&T) and Electrical and Electronic Tools (E&ET), which would also contain WEEE with the highest PBDE content. The categories Lighting Equipment (LE) and Monitoring and Control instruments (M&C) will also be included as they may include mercury components. In most countries there is private sector involvement in WEEE management, to varying levels of complexity, largely influenced by the national WEEE generation rates and market prices for the recovered materials. Unfortunately, a common practice in all countries is the disposal of the plastics and other non-valuable parts of the WEEE (which often contain PBDEs and

mercury) to landfills or illegal dumpsites. Therefore, increased collection rates and improved dismantling practices will significantly divert WEEE and its hazardous components from landfills and improper disposal practices.

The baseline revealed that very few project countries have legislated EPR schemes and they consider only returnable containers or plastics. One approach to divert WEEE from landfills is to shift the responsibility of its management to the producers of the products to manage its entire lifecycle. In the import-dependant Caribbean region, the definition of producers is understood to be those responsible for putting the products into the market. The EPR activity will develop WEEE related EPR legislation and carry out pilot activities to collect at least 300 tonnes of e-waste through establishing take-back systems and exploring the most efficient collection channels for various types of e-waste such as collection points, mobile collection trucks, governmental and business-to-business (B2B) collection and working with the informal collectors.

The regional approach to manage WEEE activity will also carry out a regional pilot project to collect at least 50 tonnes of e-waste from: (a) WEEE stored in Governmental agencies, and (b) used equipment retailers' and importers' stockpiles. The WEEE collected will be treated at a Regional Hub recycling facility (location to be determined—see 3.1.3). The objective is to put in place institutional instruments of coordination with different stakeholders, taking advantage of the strengths of each country and enhancing the system for the region as a whole. The Project will test the interaction with different project countries, the required logistical mechanism and costs for regional shipment and the legal clearances required.

Activities 3.1.1 and 3.1.3 will be regional-level activities, whereas activity 3.1.2 will include three (3) national-level pilot projects in three countries to be determined based on a feasibility study. The lessons learnt form these demonstration project will be communicated to the other countries through output 4.1 and to the other regions through the CCKM project 10266.

Activity 3.1.1 - Feasibility assessment for WEEE management, focussing on EPR and a Regional Approach

This is a foundation activity for this output and will inform the subsequent two activities. The intent of this activity is to assess WEEE management within the context of EPR and a Regional Approach and develop a framework for the cohesive and harmonised implementation of recommendations. The first task will be to establish a working committee which will consist of members of the PWC and public and private stakeholders involved in the entire lifecycle of WEEE management. A participative process where stakeholders assume an active role will be essential. For that purpose, inter-ministerial and inter- sectorial tables of discussion will be held. In this sense, it is necessary to consider suitable and efficient participation and information schemes that allow actors to have a picture of the whole process, particularly scaling up to establish public-private partnerships and economic instruments to manage and finance the EPR system.

In this activity the data required to conduct feasibility assessments for an EPR policy and Regional Approach to the management of WEEE will be obtained. It will build on the data from the NIP inventories and information derived from Output 1.1 (EEE legislation). Data will be gathered on the environmental, economic and technical capacity in the project countries in terms of: (i) collection, storage and transport capacity; (ii) WEEE streams currently treated; (iii) current capacity of treatment; (iv) BAT/BEP in place; (v) technologies used for WEEE treatment; (vi) level of training of the personnel involved in WEEE management; (vii) informal sector involvement; (viii) final disposal alternatives; (ix) Basel Convention procedures followed, and; (x) data collection and data management.

An assessment of EEE/WEEE management initiatives in other regions, such as the GEF funded UNIDO implemented project in 13 Latin American countries, the STEP initiative and UNEP projects in Africa, will be reviewed for their effectiveness and their successes and lessons learnt will factor into the proposed WEEE management strategy.

For EPR in particular, this assessment report will include a cost-benefit analysis of implementing a Take-Back system or Advanced Deposit Fee (ADF) for WEEE, or their combination, considering the peculiarities of each country. These instruments were identified in the baseline assessment (EPR Report, Acosta & Corallo, 2020) as most suitable for the

Caribbean. The report should provide policy makers and stakeholders with sufficient information on the alternative scenarios of implementation, taking into account, at a minimum, the following costs:

a. Costs for establishing a separate e-waste collection system;

b. Net costs for e-waste management, including transport, recovery and final disposal;

c. The cost to dispose of accumulated hazardous wastes (POPs, mercury and others);

d. Administrative costs, i.e. costs linked to the running of Producer Responsibility Organisation (PRO)s;

e. Costs for public communication and awareness-raising (on waste prevention, litter reduction, separate collection) as long as producers have a say in their design and implementation, and;

f. Costs for the appropriate monitoring of the system (including auditing and measures against free riders).

For the regional approach, an assessment of installed capacity for treating WEEE and identify gaps in project countries in order to leverage current initiatives in WEEE treatment from a regional perspective is critical. Collaborations with the public and private sector at regional and national levels will be formed. This will include the Caribbean Association of National Telecommunications Organizations (CANTO), various Chambers of Commerce and other representative groups involved with the target categories of WEEE.

Based on the above feasibility assessments, a framework strategy for WEEE management through a combination of EPR and Regional Approach will be developed. The project countries will be selected to represent the diversity of the domestic situations in the region, including geography, size, level of industrialisation, island/continental, and existing enabling environment as detailed by the earlier work. Details on the number of project countries are given in the two activities below. It is envisaged that the framework strategy will present a harmonised approach to WEEE management.

Activity 3.1.2 - Extended Producer Responsibility (EPR) system for environmentally sound management of WEEE developed in the project countries

In this activity, the EPR elements from the framework strategy will be further detailed into implementation plans for each deliverable. In this activity the Extended Producer Responsibility mechanism and its applicability in the Caribbean will be assessed and applied, using EEE as the product to be managed. The intention is to establish the enabling environment and test/implement the mechanism through a series of pilot projects. Experiences and lessons learnt from this project can be scaled up and applied to other consumer products such as ELVs, batteries and packaging. The main outputs from this activity are drafted EPR legislation and an associated roadmap for implementation, and elaborated design and implementation of three (3) EPR pilot projects.

Although EPR can be either voluntary or mandatory, it has been demonstrated that legislation and enforcement schemes should be established if effective and sustainable results are sought. The baseline has shown there are very few examples of EPR legislation in the Caribbean region. In the development of the EPR legislation, the relationship with EEE policy and legislation which will be developed in Output 1.1 will be considered and for each pilot country, the model EEE policy and legislation will be tailored to ensure complementarity with the EPR legislation. For the development of this EPR legislation, target countries will review their current legal frameworks and analyse the feasibility of the implementation of the norm from a holistic perspective. Participation and guidance from the working committee will be critical to the success of this task. As a mid-term result of this activity, a detailed roadmap for implementing EPR legislation will be developed for at least 3 Project Countries. The Roadmap will cover: policy/action plan/regulation/White Paper for EPR legislation considering inputs of activities in Output 1.1; roles of stakeholders; priority categories of e-waste to be addressed, and; function and monitoring of the governance system (e.g. PROs), drawing on relevant experience from other sectors in other countries and within Project Countries, especially the beverage sector. The draft legislation will consider results of activity 3.1.1 and will establish a reliable system for the ring-fencing of adequate funds to ensure the environmentally sound management and disposal of these wastes when a critical mass has been collected and establish a procedure for appropriate destruction or export if there is no solution available within the Project Countries. At the same time, this activity may also consider a possible regional approach in

order to facilitate the fulfilment of Activity 3.1.3. The attendant capacity development and awareness raising for institutions, stakeholders and the public will be conducted.

In parallel with the development of the legislation, the 3 pilot projects identified in Activity 3.1.1 will be implemented to test the applicability and effectiveness of the implementation of a take-back system in the project countries. Refer to Appendix 11 B, which will be used to guide the development of the pilot project. Detailed implementation plans for each scheme will be developed considering the following:

a. Multiple ownership of the same device;

b. Strong public awareness campaign, promotion at retail stores;

c. Separate collection and transport of WEEE to the dismantling facility;

d. Training to improve capacity for the detection, separation and handling of plastics and polyurethane foams containing brominated flame-retardants (PBDEs) and other Persistent Organic Pollutants listed under the Stockholm Convention. Quantify the reduction in the release of unintentional POPs;

e. Strengthen the capacity of manual dismantling facilities to obtain the more valuable components for recycling;

f. Activities (e.g. training) to involve informal waste pickers in the collection, transportation and / or treatment phases;

g. Training on Basel Convention provisions for National Authorities and Exporting Companies, e.g. on Basel Convention Technical Guidelines on WEEE;

h. Promote international certifications e.g. e-Stewards, R2, and;

i. Final disposal of wastes according to ESM practices.

Activity 3.1.3 - Improve the Capacity of WEEE Management through a regional approach

A regional approach would imply that used and waste EEE collected in certain project countries is processed at a specific country that would act as a regional hub. Within the project countries, more industrialized economies, such as the Dominican Republic or Trinidad and Tobago, would probably show more openness to act as regional hub. On the other hand, a regional approach would imply big challenges for coordination, logistics and legal harmonization. In this regard, although every country will develop its own policies and legislation, consultations should be done to ensure the applicability of the whole system. The design of MOUs, or similar collaboration mechanisms, should be addressed in order to coordinate activities among the project countries on a WEEE specific regulation and an EPR system approach. Also, the “not in my back yard” (NIMBY) effect should be addressed, since importing WEEE could result in high levels of resistance from citizenship.

Under this activity, the regional approach proposed in Activity 3.1.1 will be developed with an in-depth analysis considering, at least the following aspects: (i) common definitions in terms of EEE/UEEE/WEEE; (ii) storage, transportation and treatment requirements; (iii) accountability and economic aspects; (iv) social aspects (such as NIMBY effect and informal sector involvement); (v) priority chemicals/waste streams to tackle; (vi) long-term needs (including infrastructure, PPEs, technical assistance and investments).

A pilot project to test the proposed regional approach will be undertaken, with the regional hub in one (1) project country strengthened. The idea of this pilot is to test the interaction with different project countries, the regional shipment and the mechanisms and legal clearances required, focussing on two WEEE streams: (a) WEEE stored in Governmental agencies, and (b) used EEE retailers’ and importers’ stockpiles. The objective is to put in place institutional instruments of coordination with different stakeholders, taking advantage of the strengths of each country and enhancing the system for the region as a whole. Appendix 11 A may also be used to guide the selection of an appropriate location for a regional hub.

The proposed tasks include:

a) Draft a MOU, or similar collaboration mechanism to coordinate activities among the project countries (and private sector) on a WEEE EPR system;

b) Separate collection and transport of (i) WEEE stored in Governmental agencies and (ii) UEEE (used equipment) retailers' and importers' stockpiles to the regional hub recycling facility, which will be identified in Activity 3.3.1;

c) Training to improve WEEE management at the regional hub recycling facility;

d) Strengthen the capacity of dismantling facilities to obtain the more valuable components for recycling;

e) Quantify the reduction in the release of unintentional POPs and mercury;

f) Training on Basel Convention provisions for National Authorities and Exporting Companies, e.g. Basel Convention Technical Guidelines on e-waste, and;

g) Strengthening technical and institutional capacity in public sector involved and raising awareness through communication campaigns.

Output 3.2 – Capacity built for the ESM of ELVs

This project output addresses the barriers to ESM of ELVs in the region, including: the lack of information regarding quantities and flows of vehicles and ELVs; the lack of formal inter-ministerial and inter-stakeholder coordination mechanisms and exchange of information and weak institutional frameworks for ELVs management; the lack of specific policies and legal framework to ensure ESM of ELVs; weak to non-existent regulations related to EPR; the lack of formal processes for the deregistration of vehicles or for their disposal; the lack of storage and treatment capacity and inadequate final disposal alternatives; the difficulties to reach economies of scale in ELVs treatment, and; the high level of used vehicle imports.

Activity 3.2.1 is a regional-level activity. Activity 3.2.2 and activity 3.2.3 will include three (3) national-level demonstration projects in three countries to be determined based on technical, material flow and economic assessments. The lessons learnt from these demonstration project will be communicated to the other countries through output 4.1 and to the other regions through the CCKM project 10266.

Activity 3.2.1 Material Flow, Economic and Technical Assessment in order to design ELVs management scheme, considering a regional approach

Under this activity, the following will be conducted:

- Material Flow Assessment. This will assess in detail the generation of ELVs in the Project Countries, both in quantities and in methods for its generation. It will focus on understanding the inter-regional flows of ELVs and of the materials obtained from its treatment. The output here will assess the environmental, economic and technical capacities in place and gaps in the project countries in terms of: (i) ELVs generation and detailed materials flow; (ii) collection, storage and transport capacity; (iii) need of establishing authorized treatment facilities (ATF) in order to receive and issue CoDs; (iv) BAT/BEP implementation; (v) technologies used; (vi) level of training of the personnel involved in ELVs management; (vii) informal sector involvement; (viii) final disposal alternatives, and; (ix) Basel Convention procedures followed.
- Technical Assessment. The assessment will review installed capacity for managing ELVs (collection, transport, storage and treatment) and identify gaps, considering a regional approach alternative. The capacity of treating or disposing of residual waste if implementing a regional approach will be assessed. A draft MOU for regional ELVs treatment will be elaborated. The activity will identify gaps to be addressed and opportunities for improvement in terms of ELVs management and determine the best alternative to feed the design of the ELV legislation (including improvement in current schemes of levies/taxes on certain imports, implementation of an EPR approach, and regional approach to ELVs treatment). This assessment will also give consideration to the findings of Output 1.1, where the policies and legislation developed to support management of ELVs are addressed (giving consideration to the import age of used vehicles; emission standards of imported vehicles; vehicle deregistration, and; regulation of destruction/dismantling facilities).
- Economic assessment in order to choose the best alternative to finance ELVs management, including through an EPR approach and the establishment of an ELV fund. A revolving fund to scale up recycling facilities will be designed to outline where seed funding would be provided to scale up recycling facilities through micro-finance / loans to buy new

equipment and then repaid to allow reinvestment. The assessment of the EPR approach will include the level of levy needed, modality to charge the levy (such as visible fee to consumers, or invisible fee included in the price), the use of the collected funds (e.g. to cover collection and transportation but not operation and final disposal) and monitoring the spending of the funds. It is essential that the funds insured are used exclusively to cover costs related to ELVs management and are not diverted for other purposes. This is to guarantee the transparency and profitability of the system.

The feasibility of the national approach and the regional approach to ELVs treatment to be assessed under this activity is elaborated in Appendix 11 C. Consideration will also be given here to the role of the provisions of the Basel Convention in addressing transboundary shipments of hazardous materials, the global trend of stimulating and encouraging the use of new, less polluting technologies for vehicles, and the need for requisite management systems (e.g. Antigua and Barbuda's GEF EMobility Project). Existing infrastructure in non-participant Caribbean countries will be considered (i.e. Guadeloupe).

Activity 3.2.2 Improve ELVs treatment capacity

Under this activity, the following will be conducted:

- Training and capacity building on the BAT and BEP guidelines for collection, storage, transport and treatment facilities, with special emphasis on the proper management of POPs. In the absence of binding legislation for the ESM of ELVs, the training and capacity building activities can form the basis for national guidelines. As such, adequate training will be provided for all stakeholders involved in ELVs management. The aim is to train at least 15 waste management professionals in each project country, of which at least 40% female.
- Training and regularization of existing ELV facilities in three (3) countries, considering the impact of the informal sector, if involved. This activity will address inadequate health and safety measures for workers employed in existing ELV facilities. The issues surrounding the de-pollution process (sometimes depollution and dismantling are being carried out together and identified as dismantling) and the handling of hazardous materials will be addressed to include strict health and safety rules and proper storage and labelling to prevent contamination of the environment. Though the three pilot countries have not been identified yet, the project will ensure that project countries receive equal benefits and as such, the countries under this activity will most likely differ from those participating in other pilot activities.
- Establishment of a roadmap for the adequate and sufficient ELVs management infrastructure in three (3) countries. As an end-term outcome, the regularization of existing downstream handlers / informal scrap iron dealer is important and a low hanging opportunity to action. This would improve substantially good practices and reduce the environmental and health risks associated with improper disposal of ELVs. This will build upon the database of existing companies involved in handling and dismantling of ELVs in the participating countries developed during the preliminary assessments conducted in the PPG phase.

Based on the results of activity 3.2.1, a roadmap for establishing the adequate and sufficient ELVs management infrastructure will be designed, for at least three (3) Project Countries for both scenarios, if acting independently from the region. If a regional approach is defined, the infrastructure will be designed for a regional hub and two feeder countries. This decision will be based on the results of the feasibility studies conducted under 3.2.1. This activity will support Activity 1.1.3.

Activity 3.2.3 Demonstrate improvement of three (3) existing national ELV treatment facilities

Under this activity, the following will be conducted:

- Detailed assessment of one (1) existing facility in three (3) project countries - Based upon the results of the technical assessment carried out under 3.2.1 and building from the activities developed under 3.2.2, the project will initially cover costs to conduct a general evaluation and screening process to identify the three (3) facilities that should be up-scaled. In order to select the industries to be upscaled, it is suggested that they have a proven track record in the handling of vehicles and spare parts. A set of indicators such as legal status, certifications, volumes, range of services, existing customers, facility, processes, documentation and, even more important, willingness for cooperation and full transparency, are proposed as appropriate to conduct the screening process.

- Comparison/gap analysis against international criteria for BAT/BEP for ESM of ELVs (with a focus on the POPs treated components). An in-depth assessment of the facilities will be carried out in order to assess the gap against international criteria for BAT/BEP for ESM of ELVs and prepare a customised roadmap for establishing an adequate and sufficient ELVs treatment facility.
- Development of a customised roadmap for establishing an adequate and sufficient ELVs treatment facility. This will outline the required equipment and processes to ensure an environmental treatment of streams such as: lead-acid batteries, coolants, engine oils, tires, plastics and foam.
- Technical backstopping, training and improvement of the enabling environment will be provided to support the pilot projects in three (3) countries to upgrade existing facilities. It is envisaged that the requisite funding mechanism for the procurement of equipment will be facilitated under the GEF ISLANDS IDB Child Project. Customisation of the national policy or legislation required to address the import age of used vehicles, emission standards of imported vehicles, vehicle deregistration, and regulation of destruction/dismantling facilities, will be piloted in these three (3) countries. The three pilots will be documented in a systemized manner, compiling lessons learned and experiences, in order to facilitate the replication of the up-scaling process in later stages among other facilities and countries.

Output 3.3 – Improved management of plastics (including PVC) through the life-cycle approach and coordination with the public and private sectors

From the baseline, it is evident that project countries are taking measures to recycle certain plastic waste streams; however, there remain gaps in the knowledge and management, both from certain sources of plastic waste and of certain streams of plastics that are not typically recycled in the region nor disposed of in an environmentally sound manner.

This output seeks to address two areas: plastic waste from the cruise ship industry, and PVC, a halogenated polymer which when burnt produces dioxins and furans and is a contributor to marine plastic litter.

As it relates to cruise ship generated waste, this issue is poorly managed in the Caribbean with only Belize having legislation for disposal of waste on land.

The baseline also noted that no project country has policies or legislation to manage PVC waste or promote its separation from general waste streams, whether considered as part of construction and demolition waste, EPR or as standalone policies. As such, they are typically comingled with regular waste and sent to the landfills and illegal dumpsites where they may contribute to UPOPs production due to open burning or enter the ocean via water courses. If PVC wastes are collected separately for environmentally sound management and thus diverted from these sites, UPOPs emissions from the burning of these waste, which have a high chlorine content, will be reduced. The reduction of UPOPs, through the management of PVC plastic waste, will be examined by conducting an inventory to understand the existing situation and propose informed options to manage PVC waste in an environmentally sound manner and in coordination with the private sector.

This output includes two (2) national-level activities. Activity 3.3.1 is a national-level demonstration activity in the Dominican Republic. Activity 3.3.2 is a national-level activity held in Barbados, Guyana, and Trinidad and Tobago. The lessons learnt form these demonstration project will be communicated to the other countries through output 4.1 and to the other regions through the CCKM project 10266.

Activity 3.3.1 Assess plastic waste generation from the cruise ship sector in the DR, identifying ways to process cruise ship plastic streams parallel to municipal waste in an environmentally sound manner

The aim of this activity is to reduce the stress of plastic waste on the environment and small island states and municipalities reliant on the cruise industry. Cruise ships have been compared to “floating cities” due to their size and the related magnitude of resource consumption and waste production. Moreover, the cruise industry is a waste intensive sector and there is no single law in place for cruise ship waste management. Rather, cruise ship waste is governed by a number of international protocols, domestic laws, regulations and standards. Therefore, a concentrated

aim to manage cruise ship waste is needed and supported by international cruise line associations. Specifically, the development of policy that can be adapted to national contexts and adopted across regions would be greatly beneficial.

Cruise tourism is a large and growing economic sector in the Dominican Republic. In a planned pilot project, Carnival Cruise Line will collaborate with Puerto Plata Province, Dominican Republic, to establish joint waste management practices that will process cruise ship waste streams parallel to municipal waste in an environmentally sound manner. Amber Cove, operated by Carnival Cruise Line, is one of five cruise terminals in the country and situated in Puerto Plata Province, making this location ideal for a collaboration.

This activity will assess plastic waste flows from the cruise ship sector in the Dominican Republic and provide recommendations on the environmentally sound co-management of plastic waste with municipal waste management stakeholders. Recommendations will follow 3R and circular economy approaches, including the phase-out of single-use plastics. A demonstration pilot project will be held in Amber Cove, Puerto Plata Province, with the possible expansion to two (2) additional locations. Additionally, success of the demonstration pilots will lead to policy development for cruise ship waste that can be adopted throughout the Caribbean region and extended to the Pacific and other regions.

Activity 3.3.2 – Assess the material flow of PVC wastes from selected sectors in 3 pilot countries and identify environmentally sound management options.

The aim of this activity is to determine: the quantities and types of PVC plastics produced, and waste generated; the generators of the waste; the activities or products which produce the waste, and; existing disposal methods, if any. This will inform the development of strategies to divert PVC waste from landfills and treat it in an environmentally sound manner. The Caribbean is a high consumer of PVC, particularly in piping, e.g. water pipes or ducts for power and telecommunication cables, piping in construction such as ceilings and windows, and piping in consumer products like pools and garden hoses. Additionally, as a tourism driven region, construction and renovation rates are high in this sector in order to meet updated standards. Other than a preliminary qualitative assessment for four project countries in the GEF 5558 project which established PVC as a waste stream of concern under the Construction and Demolition Waste category, the preliminary baseline assessment for this PPG Phase did not unearth any other existing studies or data on PVC usage and waste in the Caribbean and it is clear that no mechanism to capture this data currently exists.

PVC applications are wide ranging and thus, the scope of this inventory will be limited to PVC manufacturers and distributors and the construction industry, including piping. The WEEE assessment in Output 3.1 will be taken into consideration when conducting the inventory in order to synergise the efforts. Medical waste, some of which contain PVC, is addressed in the GEF 5558 project as well as in Activity 2.2.2. PVC containing packaging waste will be partially addressed through Activity 2.1.3 since it is a contributor to UPOPs emissions and thus will be the focus of an awareness campaign on the dangers of open burning and UPOPs and targets the household level.

Three pilot countries have been selected to assess the material flow for the selected PVC wastes and the process will be properly documented since it is the first activity of its kind in the Caribbean and can therefore be replicated. Additionally, the assessment can be later expanded to include other types of PVC plastic wastes which are not considered in this project.

The three pilot countries include Trinidad and Tobago since it is one of the larger and more industrialised project countries and therefore, it is reasonable to deduce that it is a high generator of PVC waste. Further, it is the only project country which produces PVC (the updated NIP identified two manufacturers) which is then distributed to region. The remaining countries include: Guyana, which is expected to have a construction boom due to projected increases in GDP from the commercialisation of their fossil fuel resources, and Barbados which has a tourism-based economy with high renovation rates in the hospitality industry.

In this activity, an assessment of the possible options to manage PVC wastes from the targeted sectors will be conducted, informed by the material flow results. The assessment will identify options to manage the PVC wastes in an environmentally sound manner and consider the feasibility of each option. This will include: disposal options; recycling technologies; markets available for recycled products; feedstock quantities; separation and collection mechanisms, and;

national, sub-regional or regional approaches. The report will also provide recommendations on the gaps in the enabling environment to support each option and the measures to address them.

In response to the more urgent need to divert the PVCs wastes from the landfill and illegal dumpsites, the assessment will also engage the main generators (private sector) to develop and implement a pilot separation, collection and temporary storage scheme until a more sustainable means of managing the waste can be implemented. The scheme will be scaled based on the response from the main generators and the extent of their financial and in-kind contributions.

This activity will lay the foundation to encourage the private sector to invest in the management of the PVC waste and can inform the development of policy or legislation by the beneficiary country.

Component 4 - Knowledge Management and Communication

A key component of the project is the overall coordination, knowledge management, communication and outreach, within the Caribbean Region, and to the Communication, Coordination Knowledge Management (CCKM) child project. The CCKM project is responsible for receiving and disseminating knowledge from all projects and will provide templates for the development of knowledge assets. The CCKM project is also responsible for executing the Programmatic communication strategy which sets out and monitors the overall coordination and communication of knowledge generated by child projects of the ISLANDS Programme.

Under this Component of the Caribbean project, activities will be undertaken to generate and disseminate knowledge from project activities as well as from the wider Programme. Specifically, Component 4 the project will communicate national systems on sustainable financing, to assist in improving the uptake, and ultimate success of these initiatives. It will also include activities related to changing behaviours related to waste management, through extensive community education, and specific activities targeted at youth and indigenous peoples. The project will also support activities related to a regional campaign to work towards a POPs and Mercury Free Caribbean. All these activities will involve the generation of specific knowledge assets to be shared with the CCKM project and disseminated to other SIDS regions through other regional child projects. The outcome of Component 4 is that knowledge generated is disseminated to and applied by SIDS.

Information will flow between the CCKM Project and the child project through the project coordinators. Information will also flow between regional child projects through moderated communities of practice on issues of global relevance including end of life vehicles, e-waste and healthcare waste. Interested stakeholders will be invited to join relevant communities of practice. These communities will be moderated and facilitate direct information exchange, peer-to-peer learning, and network building.

Component 4 is made up of regional-level outputs and activities which will be fed into the CCKM project 10266.

Output 4.1 – Caribbean communities are informed and engaged with in the sound management of chemicals and waste

For projects under the ISLANDS Programme to be truly effective, active engagement with Caribbean communities is needed. This will ensure that project activities are widely supported throughout and beyond the project execution timeline, as well as that the most affected demographics (youth, indigenous peoples and the informal sector) benefit from project activities. Finally, engagement with Overseas Countries and Territories in the Caribbean is critical to ensure regional collaboration and cooperation, as these countries and territories make a considerable part of the region and have additional resources which would allow them to cooperate with the countries of the project. These are the roles of this output, broken down into the activities below.

Activity 4.1.1 Creation and dissemination of knowledge products based on project implementation

Knowledge products are important tools to ensure that the material that is developed is shared in a manner that allows for action by the user. The knowledge products that will be developed under this activity include, but are not limited to: guidelines for updating restricted and prohibited import lists; regional strategy for implementation of 8-digit or 10-digit HS Codes for specified mercury added products; roadmap for national and regional response to the addition of new POPs to the SC Convention; pre-screening and inspection guidelines for the identification of imports of mercury added products; training plan and supporting material to build customs and border control agencies' capacity, and; roadmaps for development of standards and monitoring and enforcement of new standards.

In addition, a number of roadmaps for implementation of standards, national/regional strategies and legislation, and the establishment of facilities, have been developed in this project. Under this activity, these roadmaps will be collated and shared in a manner that allows for action by the users. The roadmaps developed under this project and collated under this activity are described in Table 5 below.

Table 5 Roadmaps collated for dissemination

Activity	Roadmap description
1.4.2	National roadmaps will be developed to support countries with the development, implementation, monitoring and enforcement of new and existing national standards.
2.2.1	Roadmaps will be developed for the implementation/execution of national hazardous waste management strategies towards the effective implementation of a comprehensive national hazardous waste management plan.
3.1.2	A detailed roadmap will be developed for the effective implementation of EPR legislation. The roadmap will cover: policy/action plan/regulation for EPR legislation; roles of stakeholders; priority categories of e-waste to be addressed, and; function and monitoring of the governance system.
3.2.2 & 3.2.3	A customised roadmap will be developed for establishing an adequate and sufficient ELVs treatment facility. This will outline the required equipment and processes to ensure an environmental treatment of streams such as: lead-acid batteries, coolants, engine oils, tires, plastics and foam.

To add to the knowledge products, lessons learned under Components 2 and 3 and specifically from pilot projects will also be collected. Knowledge products and lessons learned will be disseminated within the Caribbean to ensure that they reach the largest possible audience in the region. This includes European Overseas Countries and Territories and other Caribbean SIDS not participating in the ISLANDS Programme.

Activity 4.1.2 Behavioural change activities related to a POPs and Hg free Caribbean including indigenous peoples and CSOs

Behavioural communication change is an interactive process with communities (as integrated with an overall program) to develop tailored messages and approaches using a variety of communication channels to develop positive behaviours; promote and sustain individual, community and societal behaviour change, and; maintain appropriate behaviours. Behavioural change activities and community education in the Caribbean region will happen through the development of a campaign for a Mercury and POPs Free Caribbean and include engagement with youth groups, CSOs and indigenous peoples.

This campaign will build on the existing materials developed under the Minamata Initial Assessments conducted in the Caribbean as well as the BCRC – Caribbean's Stop the POPs campaign.

Activity 4.1.3 Raising awareness on plastic pollution among Caribbean youth through implementation of the Tide Turners Challenge Badge

The Caribbean is the second most plastic-contaminated sea in the world[43]. Many countries in the region have already banned, or are considering bans on single-use plastics, including plastic bags and styrofoam. The UN Environment Tide Turners Plastic Challenge Badge is a successful global programme to raise awareness on the impact of plastic pollution with youth movements such as the World Organization of Scout Movement, Junior Achievement and the World Association of Girl Guides and Girl Scouts. The Tide Turners Plastic Challenge has already successfully been piloted in three countries in the Caribbean region, namely Saint Lucia, Belize and Antigua and Barbuda. To build on this, Activity 4.1.4 will adapt and extend this programme into the wider Caribbean region, and will aim to not just raise awareness of the challenges and solutions related to the production of waste of single use plastics in the region, but also to shift behaviour and support young people in having advocacy skills to raise these issues with key decision makers. The aim is to reach up to 100,000 participants, of which a minimum of 40,000 girls, who would take part in the Tide Turners Plastic Challenge in circa 10 countries in the Caribbean region during a two-year period of 2020-2022.

Output 4.2 – Programme reports on project activities developed and disseminated

For projects under the ISLANDS Programme to equate to something greater than the sum of their parts, effective coordination is required. This is the role of the CCKM child project. For the CCKM Project child project to be successful, it requires consistent, high quality inputs from the project. Implementing parters will also use their own channels to disseminate the results of this project to the other projects of the programme and beyond.

Activity 4.2.1 Global guidance and tools on sound management of pesticides developed by FAO are disseminated to participating countries and applied by SIDS

Under this activity, FAO will develop and enhance instruments for strengthening the decision-making process in relation to agrochemicals. The instruments will provide an opportunity to build human and institutional capacities in countries. ISLANDS will synthesize and organize the outputs developed by this regional child project to produce resources / knowledge products, in the form of databases, data visualizations and publications. It will also deliver knowledge services in the form of round tables. These resources will be synthesized and packaged into knowledge products to be shared with ISLANDS SIDS across the three regions.

This activity also includes links to the several communities of practice. These communities consist of a social learning method through a group of people with similar interests willing to regularly work together towards specific objectives. Such objectives in the GEF ISLANDS context relate to increasing capacity around sound management of agrochemicals in SIDS, and to advancing behavioural change. The activity will link to digital communities of practice to motivate and engage individuals, such as the SAICM Highly Hazardous Pesticide Community.

Activity 4.2.2 Quarterly reporting to the Communication, Coordination and Knowledge Management Project on project activities

Knowledge products will be developed and shared with the CCKM project for use or for modification in the Indian Ocean and Pacific regions. Project case studies and fact sheets will also be shared with the Communication, Coordination and Knowledge Management Project for finalization and distribution to other SIDS. Other materials shared under this activity include: the model policies and legislation for ELVs, WEEE, mercury-added products and specific plastics waste streams; various training plans and information on BAT and BEP related to wastes and chemicals management, and; lessons learnt from the experience in the Caribbean.

[43] http://gefcrew.org/carrcu/18IGM/4LBSCOP/Info-Docs/WG.39_INF.8-en.pdf

Activity 4.2.3 Regular receipt of knowledge assets and information from Communication, Coordination and Knowledge Management Project packaged and distributed to relevant stakeholders.

Knowledge products received through the CCKM from the Indian Ocean and Pacific regions will be used or modified as needed for adoption or implementation in the Caribbean region, and/or for packaging and distribution to relevant stakeholders.

4) Alignment with GEF Focal Area and/or Impact Program Strategies

The. Chemicals and Wastes focal area is the only GEF focal area with a specific programme for SIDS and Least-developed countries to promote advancement and ensure progress on these issues. The ISLANDS Programme and by extension, this child project, is designed in alignment with GEF-7 Programming direction on SIDS[44], which supports:

- Implementing Sustainable Low and Non-Chemical Development Strategies in SIDS and LDCs;
- Promoting Best Available Technologies (BAT) and Best Environmental Practices (BEP) to reduce UPOPs releases from sectors relevant to the Minamata and Stockholm Conventions in SIDS and LDCs;
- Promoting cleaner health-care waste management based on the lessons learnt from GEF funded healthcare waste projects to reduce UPOPs and mercury releases;
- Strengthening the management system for e-waste, addressing all stages of the life cycle (i.e. acquisition of raw materials, design, production, collection, transportation and recycling) in SIDS and LDCs;
- Phasing out of mercury-containing products;
- Undertaking gender mainstreaming and project monitoring and evaluation; and
- Developing a strategy to ensure that technical assistance and investments are solidly linked to enhance countries' ability to deal with the management of POPs and mercury in a sustainable manner.

The GEF-7 investment framework for chemicals and wastes seeks to:

- eliminate/restrict/control emissions from chemicals listed under the Stockholm Convention;
- eliminate mercury emissions and releases;
- support SAICM objectives, including building capacity for e-waste management and HHPs;
- make efforts to deal with marine littering / micro-plastics from nationally derived sources and so influence industrial manufacturing and pollution management from plastics across SIDS;
- inform decisions and actions in the agricultural sectors in countries in order to better integrate the work of the Conventions into national level agricultural policy.

This UNEP/FAO Child Project is in alignment with the GEF-7 investment framework, as well as the GEF-7 principles of cost-effectiveness; sustainability; innovation; private sector engagement; promotion of resource efficiency (including circular economy approaches); and building on the use of existing networks.

GEF-7's chemicals and wastes approach focuses on sectors as an entry point to change, rather than taking a chemical-by-chemical approach. In response, the Project's components were designed to facilitate meeting the aims of the investment framework in the Caribbean through engaging with specific sectors.

In Component 1, preventing the future build-up of chemicals, the project will focus on assisting countries with instituting legislative measures to implement the chemicals and waste MEAs, control imports and emissions, and establish sustainable procurement mechanisms. In Component 2, managing and disposing of existing hazardous chemicals, products and materials, the project will build national and regional capacities to eliminate emissions and releases through chemical disposal. In Component 3, preventing the future build-up of chemicals entering SIDS through the development of end-of-life systems, activities will support sustainable partnerships with the private sector to address potentially hazardous wastes, such as extended producer systems for e-waste and end of life vehicles. Opportunities for regional recycling systems will also be developed, in partnership with the private sector, and working with communities and civil society group to establish remaking and repair spaces to reduce e-waste through device repair. In Component

[44] The GEF. (2018). GEF-7 Programming Directions. https://www.thegef.org/sites/default/files/council-meeting-documents/GEF-7%20Programming%20Directions%20-%20GEF_R.7_19.pdf

4, the project will generate, communicate and share the knowledge developed from the above components among SIDS, through the Communication, Coordination and Knowledge Management (CCKM) Child Project.

5) Incremental/Additional Cost Reasoning and Expected Contributions from the Baseline, the GEFTF, LDCF, SCCF, and Co-Financing

Globally, there is an immense need for investment in the waste management sector in Small Island Developing States (SIDS). According to the Global Waste Management Outlook, of the funding made available to support improved waste management in the last decade, two-thirds of this has been invested in just ten middle-income countries[7]. Making the necessary finance for investment available to least developed countries (LDCs) and SIDS which face unique challenges and often lack basic infrastructure is a major challenge which this ISLANDS Programme aims to overcome.

In the case of chemicals and wastes management in SIDS, GEF financing has a significant catalytic role in orientating countries onto a more sustainable development pathway. That catalytic effect is achieved through the focusing on achieving global environmental benefits (GEBs). In all child projects under the ISLANDS Programme the achievement of the GEBs will be based on activities linked to promoting the avoidance of specific chemicals through stronger import controls and promotion of alternatives, the integration of principles such as circularity at national and regional level, through investment in waste collection and associated recycling systems and, through the strengthening and where possible harmonization of national policies and regulations at the regional level.

The ISLANDS programme is proposed as a cost-effective way to link a series of individual, yet interlinked projects in three SIDS regions that will amplify the results throughout each of the SIDS regions by ensuring that best available technologies/techniques and best environmental practices are applied consistently across all regions. By ensuring coordination and exchange of knowledge at the global, regional and national level between SIDS and subsequently supporting the introduction of best practices, approaches and technologies for chemicals and wastes management in SIDS, it is anticipated that the programme will achieve at scale, positive impacts on the global environment, with benefits to all regions. The outcomes of this programme are intended to equate to more than the sum of the outcomes of each individual child project by building the capacity to leverage larger amount of investments and through exchange of knowledge and experiences among SIDS through the global project.

GEF financing under this project is focused on enabling Caribbean SIDS to align and integrate priorities in a manner that will minimize trade-offs in generating GEBs, while achieving sustainability and development goals. All outputs proposed deliver both local and global benefits. The relationship of the national and regional level outputs to global benefits, that is, GEF's incremental contribution, is outlined in Table 6, below. These global environmental benefits are expected to contribute to healthier terrestrial and marine ecosystems in the Caribbean (e.g. increased biodiversity), which will lead to socio-economic benefits through associated environmental services (e.g. the Caribbean Sea as tourism product).

Table 6 Incrementality of proposed project outputs

Project Component	Outputs	GEBs achieved through interventions at national level
1. Preventing the Future Build-Up of Chemicals Entering SIDS	1.1: The legislative and institutional framework is developed to support the environmentally sound management of hazardous chemicals in materials, products and wastes at national and regional levels in the Caribbean 1.2: Sustainable training programme is developed to assist countries with implementing the Chemicals and Wastes MEAs at a national level 1.3: National, institutional and technical capacity to reduce/control the current and	• Indirectly decreased emissions, through improved management of wastes • Toxic chemicals reduced, through – reduction and avoidance of chemicals of global concern • Reduction/elimination of Mercury

	future trade of chemicals and products containing hazardous chemicals is strengthened 1.4: Increased capacity for the development and implementation of national and regional chemicals and products standards including GHS 1.5: Sustainable Procurement is promoted to key stakeholders to reduce the manufacture/import of products containing hazardous chemicals	
2. Safe Management and Disposal of Existing Chemicals, products and materials	2.1: Capacity for environmentally sound management of SC POPs and MC Hg products strengthened, and obsolete pesticides and chemicals, PCBs and DDT eliminated 2.2: Capacity to manage other hazardous waste streams specific to the Caribbean improved	• Reduction/elimination of Mercury • Toxic chemicals reduced, through disposal/destruction of chemicals of global concern and their waste in the environment and in processes, materials and products. • Toxic equivalent TEQ reduced through - reduction, avoidance of emissions of POPs to air • To facilitate investment mobilization by develop banks.
3. Safe Management of Products entering SIDS/Closing Material and Product loops for Products	3.1 EPR and Regional Approach to manage WEEE pilot tested in three participating countries 3.2 Capacity built for the ESM of ELVs 3.3 Improved management of plastics (including PVC) through the life-cycle approach and coordination with the public and private sectors	• Toxic chemicals reduced, through disposal/destruction of chemicals of global concern and their waste in the environment and in processes, materials and products • Avoidance of marine litter • Toxic equivalent TEQ reduced through - reduction, avoidance of emissions of POPs to air
4. Knowledge Management and Communication	4.1 Caribbean communities are informed and engaged with in the sound management of chemicals and waste 4.2 Programme reports on project activities developed and disseminated	• Increased beneficiaries resulting from project interventions • Avoidance of marine litter • Reduction/elimination of Mercury

It is recognized that GEF resources are limited so the use of this project and the concurrent IDB Child Project to leverage additional support to Caribbean SIDS and identify opportunities for future investment into the public and private sector is a key element in the projects' designs. In the Caribbean it is expected that Governments and project partners, including the private sector, will provide substantial and significant co-financing. These leveraged contributions are expected to include investments in modernizing and extending the waste recycling and waste to product industry, as well as the production and (where necessary) importation of sustainable product alternatives.

There have been many initiatives on chemicals and wastes across the Caribbean countries and other SIDS. These have largely been delivered discretely and thus have failed to share and learn from experience (both positive and negative) and resources. For example, in the Pacific region national unintentional POPs (uPOPs) action plans have been developed under a regional project, but no mechanism or platform exists for sharing these resources that can be tailored to, and then replicated for other SIDS including countries in the Caribbean. Under the ISLANDS programme, the GEF resources will be targeted to address both deficiencies, thus ensuring true incrementality. The developed activities under the UNEP/FAO implemented child project are intended to build on existing and past work, as identified in the alternative scenario, to supplement GEF resources. Additionally, Component 4 of the project will develop knowledge products and promote SIDS learning, through transfer of these products to the global CCKM Child Project. The CCKM will develop a repository for knowledge, and communicate this knowledge to child projects in all regions. This will extend the benefit

of project investments and thereby ensure important and costly resources developed under the project are available to all relevant stakeholders. Better use of resources means additional SIDS beneficiaries for a marginal investment.

A collaboration with the Cartagena Convention Secretariat is particularly relevant in the Caribbean region. The Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region (WCR) or Cartagena Convention is a regional legal agreement for the protection of the Caribbean Sea. The Convention is supported by three Protocols, of which the one on pollution from land-based sources and activities (LBS Protocol), is particularly relevant. Within the framework of the LBS Protocol, the Cartagena Convention Secretariat is developing a new project proposal for 3-5 Caribbean SIDS to address the management of plastic waste and specifically plastic pollution of the coastal and marine environment to be financed by the Government of Germany. ISLANDS will work together with the Secretariat to ensure that activities under this project are in synergy with the Convention's plastic pollution project. The Secretariat also co-hosts the Regional Marine Litter Node for the Caribbean with the Gulf and Caribbean Fisheries Institute (GCFI) and has developed a Regional Marine Litter Action Plan and Strategy which will complement the work of this project. The joint Regional Activity Centre—RAC REMPEITC Caribe—that the Secretariat shares with the International Maritime Organization (IMO) further supports the Caribbean Governments with the implementation of pollution related IMO Conventions including MARPOL and the London Convention, and will be an additional strategic partner. Furthermore, ISLANDS will consult and engage with the Secretariat before and during execution of Output 3.3 (on cruise ship plastic waste and PVC plastic waste) and in Component 4 (knowledge management and communications).

Some of the initiatives on chemicals and wastes across the Caribbean countries specifically have been identified for their particular relevance to the ISLANDS Programme. For example, the cruise industry is a potential partner in the Caribbean region with relevant initiatives for ISLANDS. Cruise ships have sometimes been compared to "floating cities," due to the number of persons at any given time sailing aboard as either passengers or crew. The waste streams generated by cruise ships are governed by a number of international protocols (especially MARPOL) and domestic laws, regulations, and standards, but in general there is no single law for cruise ship waste. However, the cruise industry has voluntarily undertaken initiatives to improve pollution prevention, by adopting waste management guidelines and procedures and researching new technologies. In Amber Cove, a transit cruise port developed and operated by Carnival Corporation and the Rannik family, which is located in the Puerto Plata province of the Dominican Republic, there is a unique chance to both improve the municipal waste management and consider a pilot program for potential offload of some waste generated by the cruise ships but managed separately. Carnival has already worked with local government and consultants in exploring strategies and potential ways to partner in the development of a new and improved waste management facility near Amber Cove. A collaboration with the ISLANDS programme would help to establish partners and assist in establishing links with chemicals-containing products and other potentially hazardous waste streams. This project would be a first of its kind and a collaboration with ISLANDS could also help to establish best practices and guidelines for future plans in other destinations where either Carnival operates ports or visits with cruise ships.

Other potential partners include IGOs like the Organization of Eastern Caribbean States (OECS). Unsustainable waste management practices in the Eastern Caribbean region have had a direct impact on the resilience of marine ecosystems through an increase in marine litter. Therefore, the OECS in collaboration with the Norwegian Government, through its Ministry of Foreign Affairs, has developed the "Building Resilience in the Eastern Caribbean through a reduction in Marine Litter" (ReMLit) project in the Eastern Caribbean, including the following countries: Antigua and Barbuda, Dominica, Grenada, Montserrat, Saint Lucia, and Saint Vincent and the Grenadines. This project aims to contribute to building resilience in marine ecosystems through a waste management focused approach. In particular, the project aims to update and enhance the enabling environment for waste management, reduce plastics and Styrofoam use, encourage reduce, recycling and reuse where appropriate, undertake public awareness campaigns, and improve the transboundary movement of waste. A collaboration with the ISLANDS programme would support these activities in project countries (Antigua and Barbuda, Saint Lucia) and assist in establishing links with chemicals-containing products and other potentially hazardous waste streams such as plastics leading to uPOPs emissions. A collaboration with ISLANDS would also ensure there is no duplication of efforts and provide mutual support in regional initiatives such as the transboundary movement of waste and promotion of transnational recycling enterprises.

The work done by OECS has some overlap with the work done by the UK in service of the Commonwealth. Many Caribbean SIDS are part of the Commonwealth and thus, the UK would be a good potential partner as well. Most Caribbean SIDS lack an integrated waste management policy and the public awareness to put sustainable management practices in place and prevent waste streams such as plastics from entering the ocean. To tackle marine plastic pollution in the Caribbean and beyond, the UK and Vanuatu co-lead the Commonwealth Clean Ocean Alliance (CCOA), a Blue Charter Action Group. The CCOA now has 34 members, of which 6 are Caribbean countries: Antigua and Barbuda, Barbados, Belize, Saint Lucia, Trinidad and Tobago and St Vincent and the Grenadines. To support the ambitions of the CCOA, the UK has committed a £70m support package, including funding for the Commonwealth Litter Programme (CLiP) which supported development of the Marine Litter Action Plan in Belize in 2019. The CCOA Technical Assistance Facility (TAF) launched in 2019 supports ODA-eligible member countries to implement their commitments under the CCOA through technical assistance funding, this includes working with recipients in areas such as building research capacity, public engagement/communications, improving regulation, and working with the public and private sector. Saint Lucia and Belize signed up for support under phase one of the TAF, with bespoke projects to be completed in phase two. A collaboration with the ISLANDS programme in project countries could amplify existing work in supporting the avoidance and reduction of waste streams and public awareness raising campaigns. A collaboration with ISLANDS would also help to share lessons learned with countries that are not members of the Commonwealth and ensure that chemicals containing products and other potentially hazardous waste streams are handled appropriately.

The CCOA acknowledges the role of plastics specifically in keeping the oceans clean. Indeed, this is a waste stream of particular importance for many chemicals and waste initiatives in the Caribbean. This is no surprise considering that up to 14 million tonnes of plastic debris enter the ocean every year. This has adverse impacts on the health of ocean ecosystems, the integrity of food supplies and people's livelihoods. Small island states are particularly vulnerable to plastic debris because of their dependence on fisheries and tourism and because of the isolation and inaccessibility associated with islands. With support from the Norwegian Agency for Development Cooperation (NORAD), IUCN launched the Plastic Waste Free Islands project in 2019. The overarching goal of the project is to reduce plastic waste generation and eliminate leakage to the ocean from six SIDS - three from the Pacific and three from the Caribbean. The Plastic Waste Free Islands project overlaps with the Caribbean ISLANDS project in Antigua & Barbuda and Saint Lucia. A collaboration with the ISLANDS programme in these two countries could support awareness raising activities and efforts to improve policy effectiveness. A collaboration with ISLANDS would also help to increase communication and cooperation with regional bodies and other Caribbean SIDS, which is a key strategy of the Plastic Waste Free Islands. Specifically, the ISLANDS programme could help to extend the Plastic Waste Free Islands Blueprint, one of the IUCN/NORAD project's outcomes, to other project countries.

Of course, the main issue with plastic waste is final disposal, as plastic often ends up in uncontrolled landfills, illegal dumps or even the ocean. The Japan International Cooperation Agency (JICA) has developed a project in the Dominican Republic that will build institutional capacity on nation-wide solid waste management (FOCIMiRS 2). Specifically, the management of final dumping sites will be improved with the aim to operate them sustainably. This will be achieved through the development of manuals for new landfills, existing landfills, and environmental and social coordination, as well as a pilot project at a selected dumping site, all through coordination, guidance and assistance from MARENA in coordination with key stakeholders. A collaboration with the ISLANDS programme would assist in establishing links with chemicals-containing products and other potentially hazardous waste streams such as plastics leading to uPOPs emissions, as well as the appropriate handling of these waste streams. A collaboration with ISLANDS would also help to share lessons learned and developed materials such as landfill manuals with other project countries. JICA has committed to working together with ISLANDS on these topics during project execution.

Also in the Dominican Republic, USAID has a number of ongoing waste management / ocean plastics activities related to the sound management of landfills, and the creation of sanitary landfills. This will be achieved through a pilot project in the Samaná Peninsula. A collaboration with the ISLANDS programme would assist in establishing links with chemicals-containing products and other potentially hazardous waste streams such as plastics leading to uPOPs emissions, as well as the appropriate handling of these waste streams. A collaboration with ISLANDS would also help to share lessons learned and developed materials with other DR municipalities and other project countries. USAID has committed to working together with ISLANDS on these topics during project execution.

Finally, in the French Department of Guadeloupe, the local directorate for the environment (Direction de l'Environnment, de l'Aménagement et du Logement DEAL) has been very proactive in supporting the local Small and Medium-size Enterprises in the management of locally generated waste. Innovative solutions, adapted to the volume of waste generated in the context of a small island, have been successful in the management of ELVs, the collection of PETs recycling of used oils and the transformation of sargassum into H2 and bio fertiliser. Lessons learnt from this local experience will be beneficial to the project.

6) Global Environmental Benefits (GEFTF) and/or Adaptation Benefits (LDCF/SCCF)

The GEF is the financial mechanism for the Minamata Convention on Mercury and the Stockholm Convention on Persistent Organic Pollutants (POPs) and provides some funding for the Strategic Approach to International Chemicals Management (SAICM). GEF investments in the chemicals and wastes focal area seek to prevent a toxic legacy through both reducing existing stockpiles and preventing the use and emissions, both current and future, of the chemicals covered under the Minamata and Stockholm Conventions. The GEF 7 results framework has set out its GEB targets in the following terms:

- ***Reduction**, disposal/destruction, phase out, **elimination** and avoidance of **chemicals of global concern** and their waste in the environment and in processes, materials and products (thousand metric tonnes of toxic chemicals reduced)*
- *Reduction, avoidance of emissions of POPs to air from point and non-point sources (grams of toxic equivalent gTEQ)*

The programme is designed to provide support to SIDS to improve chemicals and waste management in line with international commitments and national plans (as outlined in Section 7). The programme is the first integrated attempt to assist SIDS across several regions to address chemicals and waste issues at the sectoral level. By addressing objectives of the Stockholm and Minamata Conventions and SAICM, the programme will look to broaden the scope of interventions to address the wider chemicals and waste management issues unique to SIDS. This will also be achieved through ensuring the GEF investment is fully integrated with the large number of other ongoing and planned interventions across the regions in this sector.

Using a broad array of national and regional interventions (outlined in Section 1a. 3), in accordance with the GEF mandate, the Caribbean Child Project will lead to the following measurable global environmental benefits:

- Elimination and avoidance of hazardous chemicals in Caribbean SIDS (including POPs, Hg, pesticides and other hazardous chemicals including those contained in products);
- Improved chemicals and wastes management in Caribbean SIDS leading to reduced releases of POPs, UPOPs, Hg and other hazardous chemicals/releases to the global environment;
- Disposal of obsolete stockpiles of chemicals that are POPs, including the improved management and treatment of mercury containing products;
- Through the management of land-based sources of waste, address the issue of chemicals and products in oceans and pollution of coral reefs, mangroves, and other fragile water systems;
- Replacement of POPs, mercury and relevant HHPs used in the global food supply chain, with alternatives, preferably non-chemical alternatives;
- Reduction in generation of non-biodegradable and hazardous waste generated and landfilled through diversion of recyclables and reusable material.

The UNEP/FAO Caribbean child project, through a combination of regional and country level activities, is anticipated to lead to the:

- *157,785 metric tonnes of toxic chemicals reduced, through - reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products.*
- *reduction/elimination of 69 metric tonnes of Mercury and 382.6 metric tonnes of POPs.*
- *319 grams of toxic equivalent TEQ, through reduction, avoidance of emissions of POPs to air from point and non-point sources.*
- *Avoidance of 150,000 metric tonnes of marine litter.*

7) Innovativeness, Sustainability and Potential for Scaling Up

To date, the GEF has not yet financed a holistic project relating to chemicals and waste management in SIDS. Therefore, the ISLANDS programme, by its very nature, is innovative. Furthermore, the ISLANDS Programme is unique in its geographical and topical scope with thirty (30) SIDS participating from three (3) regions. The combined comparative experience that is brought by the different GEF implementing partners to the programme, coupled with the involvement and contributions made by key regional partners, ensures a wide range of perspectives without giving up the focused and unique qualities of each partner. In this way, the programme ensures that the identified barriers are addressed through adequate and relevant interventions, sourced from a broad range of expertise.

The ISLANDS programme is focused on developing robust public-private sector partnerships, combined with national level sustainable financial mechanisms. This approach will be optimised through the direct involvement of the IDB as a co-financer and implementing agency for one of the Caribbean Child Projects. The IDB Child Project will be executed parallel to the UNEP/FAO Child Project and the outputs of the latter will support the enabling framework for the IDB project's objective of creating sustainable and effective public and private sector investments in chemicals and waste management. Close collaboration with other agencies, such as CROSQ, and donor-funded chemicals and wastes activities in the regions is expected to create additional synergistic solutions based on coordination of the public and private sectors. This allows for an innovative approach to waste management that builds on new technologies and approaches, rather than duplications of the often expensive waste management solutions found in larger countries, without sacrificing the concept of waste as a resource.

Individually, Caribbean SIDS do not have sufficient resources to develop and maintain economically viable infrastructure projects to manage all waste streams at the local or national level. As such, most wastes continue to be landfilled and the economic value contained in waste is not realised. For a region so far characterised by fragmented waste management practices, regionally-focused solutions are an innovative approach to sustainable and scaled up activities for environmentally sound chemicals and waste management. However, comprehensive regional collaboration on chemicals and waste management, including between the European Overseas Territories and independent countries, has not existed on a significant scale until now. The ISLANDS Child Projects will identify and develop innovative regional solutions, such as material recovery hubs, which would support increased regional capacity to manage generated waste streams on a larger-scale. Solutions developed at the regional level ensure sharing of knowledge, resources and lessons learned. The Child Project envisions innovative solutions will run parallel with the establishment of effective circular and life-cycle management systems in partnership with the private sector. This would assist in minimising the quantities of difficult to manage waste streams ending up in landfills, especially e-waste and end-of-life vehicles.

The Child Project will take advantage of technological advancements to engender stakeholder participation in executed activities. The effectiveness of using virtual platforms to conduct remote meetings was demonstrated during the COVID-19 pandemic when meetings had to be conducted remotely due to travel restrictions put in place to protect countries. Moving forward, where possible, project meetings and consultations will be conducted remotely to engage as many stakeholders as possible without bearing the costs associated with regional travel. Similarly, an online training platform will be developed to host online training material that can be accessed by regional stakeholders during and after the

project's execution. Considerations will also be made for the development of an app to empower the public to report illegal open dumpsites and to disseminate information on the hazards associated with open burning.

Overall, the Child Project will consider innovative and sustainable solutions for the environmentally sound management of chemicals and waste on a national and regional level, and support the implementation of these solutions in the project countries. The project activities will also seek to identify opportunities for scaling up the project outputs to other Caribbean countries not benefiting from the Child Projects and to ensure that the outputs are sustainable and can be continued even after the project is concluded.

1b. Project Map and Geo-Coordinates. Please provide geo-referenced information and map where the project interventions will take place.

Figure 4 below shows the location in the wider Caribbean Basin of the nine (9) participating countries. Belize, Guyana and Suriname are land based countries which are qualified as SIDS.

The detailed maps of the participating countries and their location is detailed in Annex E. The maps show the location of potentially contaminated sites in each country.

Figure 4: Map of the Caribbean region with project countries highlighted

1c. Child Project? If this is a child project under a program, describe how the components contribute to the overall program impact.

This Child Project is the UNEP/FAO implemented Caribbean Child Project under the ISLANDS Programme. The objective of the ISLANDS Progamme is to prevent the build-up of materials and chemicals in the environment that contain POPs and mercury and other harmful chemicals in SIDS, and to manage and dispose of existing harmful chemicals and materials in SIDS. The intervention logic for the ISLANDS Programme and the theory of change are included as Figure 5, below.

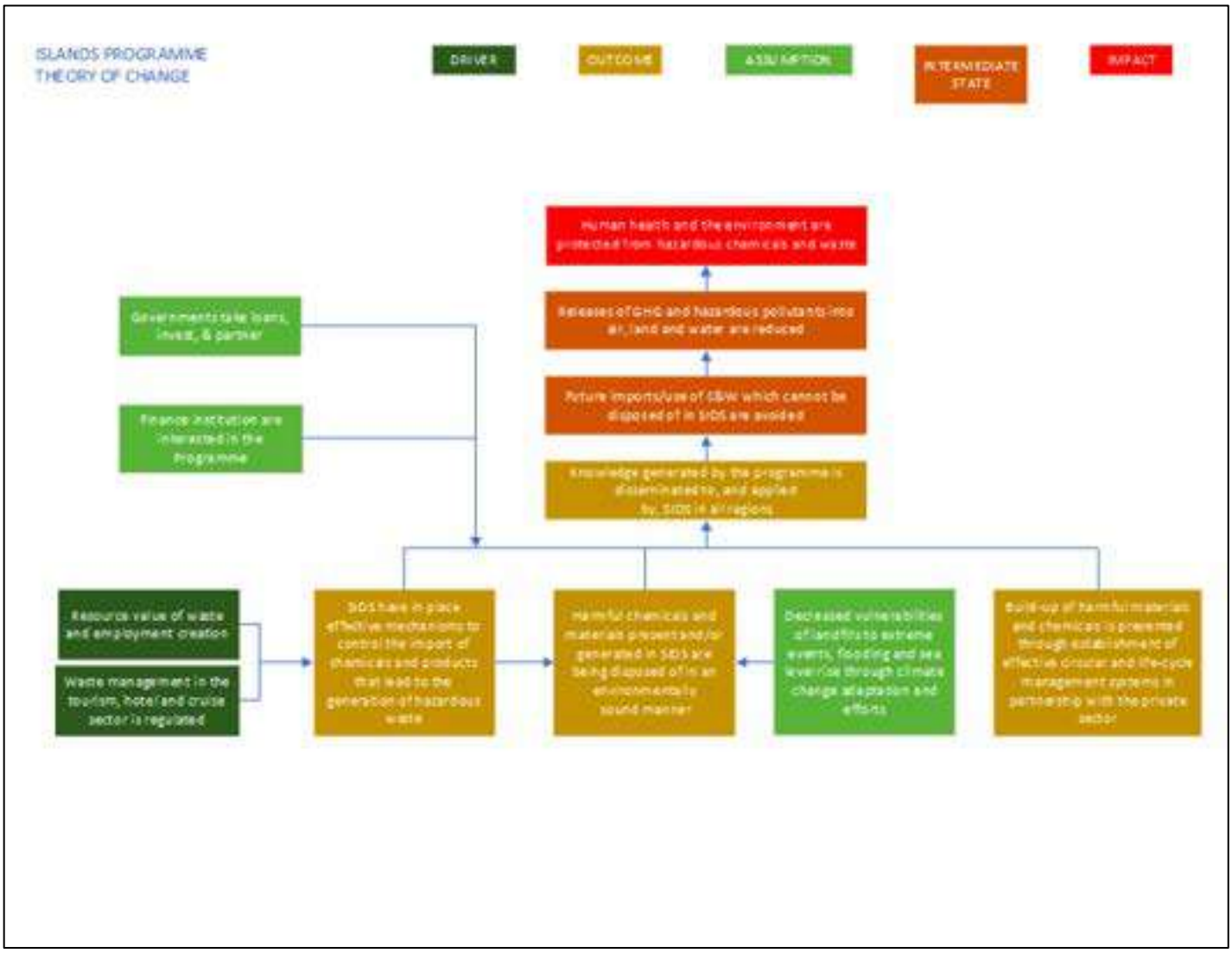


Figure 5: ISLANDS PFD Theory of Change

This Child Project's objectives are similar to that of the Global Programme with a focus on the nine (9) participating countries in the Caribbean region; i.e. to prevent the build-up of materials and chemicals in the environment that contain POPs and mercury and other harmful chemicals in Caribbean SIDS, and to manage and dispose of existing harmful chemicals and materials in Caribbean SIDS. The relationship of each project component to the overall programmatic impact is outlined below.

Activities under Component 1 are intended to achieve the outcome of Caribbean SIDS having in place effective mechanisms to control the import of chemicals and products that lead to the generation of hazardous waste. The activities are focused on providing support to the participating countries to improve legislation for chemicals and waste management, building capacity for implementing chemicals and waste MEAs and strengthening regulatory and institutional capacities for controlling the trade and procurement of chemicals and products containing chemicals. Outputs will include the development and implementation of policies and legislation to support hazardous chemicals

and waste management, the development of a training programme on the chemicals and waste MEAs including an online training platform, updated restricted and prohibited import lists, regional project standards and green procurement strategies including the identification of suitable alternatives to PFAS, POP-PBDEs, SCCPs/PCBs/PCNs and mercury added products.

Activities under Component 2 are intended to achieve the outcome of environmentally sound disposal of harmful chemicals and materials present and/or generated in Caribbean SIDS. Activities include the update of POPs and mercury inventories, destruction of obsolete chemicals including PCBs, pesticides and DDT stockpiles and products containing harmful chemicals, awareness raising to promote best available techniques and best environmental practices to minimize UPOPs emissions from open burning and building national and regional capacity for managing hazardous waste streams.

Activities under Component 3 are intended to achieve the outcome of preventing the build-up harmful materials and chemicals through the establishment of effective circular and life-cycle management systems in partnership with the private sector. Activities under this component include development of and enabling framework for Extended Producer Responsibility for WEEE and regional capacity building for WEEE, ELVs and PVC management.

Component 4 is intended to achieve the outcome of dissemination and application of knowledge generated by the programme to SIDS in all regions. This Component will include the FAO-implemented activities which aim to develop monitoring and awareness raising tools to support regional pesticides management as well as a general knowledge management output in which all knowledge assets generated under the Child Project will be shared with the CCKM in addition to being linked to the BCRC-Caribbean's existing platforms. Developed communications material will be disseminated to public and private sector stakeholders based on a comprehensive awareness raising strategy to be developed under this Component.

2. Stakeholders. Provide the Stakeholder Engagement Plan or equivalent assessment. In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement.

Select what role civil society will play in the project:
☐ Consulted only;
☐ Member of Advisory Body; contractor;
☒ Co-financier;
☒ Member of project steering committee or equivalent decision-making body;
☐ Executor or co-executor;
☐ Other (Please explain)

Stakeholders in the context of the ISLANDS programme are defined as organizations, institutions and groups which are directly or indirectly impacted by and/or which have a direct potential financial or administrative interest in the ISLANDS Caribbean child project interventions. Thus, the identification and engagement of stakeholders for project execution focus on those who have the most relevant and direct impact on project activities and outcomes, as well as those who will be direct project beneficiaries. All the stakeholders identified can bring a diversity of perspectives and expertise, connect issues and opportunities across programs, agencies and sectors and help to ensure the success of the project within the country. Stakeholder engagement is also critical to support the institutionalisation of the project's outcomes and to ensure its sustainability through continuation of the outputs after the project is completed.

Stakeholder groups consulted during the development of the project's activities included government agencies, civil society, the private sector, intergovernmental, regional and international organisations with responsibility over chemicals, waste and environmental management, customs and excise, standards development, legislation, health, gender, indigenous communities and public education. These stakeholders contributed to the overall understanding of

national priorities and validation of the developed activities. They will continue to play a critical role in ensuring that national priorities are effectively addressed and that the overall goals of the ISLANDS Programme are met during the project's execution.

Stakeholders will be engaged at varying levels during the project's execution to ensure their support and active involvement in the project's activities, to raise awareness on the hazards associated with chemicals and waste and to highlight their role in the management of various chemicals and waste streams. National focal points, consisting of the main government agencies responsible for chemicals and waste in each country, the UNEP and FAO, as implementing agencies, and the BCRC-Caribbean, as the executing agency, will participate on a Project Steering Committee (PSC) that would serve as the project's decision making body and support monitoring and evaluation of the project. PSC meetings will be organised on an annual basis to discuss the progress of activities and amendments to the schedule, as needed. Additionally, the BCRC-Caribbean will provide regular project updates to the PSC. The national focal points will support the organisation of National Working Groups (NWG), as necessary for specific project activities, and ensure that national stakeholders are continuously engaged and updated throughout the project. Stakeholders will be invited to national and regional meetings, training workshops and awareness raising activities and will also be engaged directly through dissemination of meeting notes, draft reports, and technical documents for their review. Regular project updates will be provided via email, meetings and online publications on the BCRC-Caribbean's and national media platforms.

Other national, regional and international stakeholders will be engaged as needed throughout the project.

The primary means of engaging the stakeholders will be through individual consultations, email correspondence, virtual meetings, and face to face communication during workshops and meetings, as needed for project activities. Supplemental communication will be conducted through, surveys and questionnaires, where necessary.

The table below identifies key project stakeholder groups critical to project implementation in the project countries. The table also highlights the present relevant role of the stakeholders in the project's area of influence, and their expected engagement and contribution to the project execution. It is noted that the table represents a summary of the project's stakeholders and a detailed list, identified by country, is included as Appendix 6.

Table 7 Stakeholder Assessment for Project Implementation

Stakeholder Group	**National Role**	**Engagement in and Contribution to Child Project**	**Potential Impact**
Government stakeholders *- Government stakeholders have a role to ensure that key issues are brought to the attention of decision makers across line Ministries. Coordination across involved Ministries will be important with exchange of information and sensitization of senior government officials being a key feature of the proposed stakeholder engagement strategy.*			
Environment Divisions within the Ministries with responsibility for the Environment and/or Sustainable Development	Partner agency for chemicals MEAs (some national focal points are within this Ministry, e.g. Environmental Management Authority, Trinidad and Tobago) Responsible for environmental management which includes monitoring and enforcement of pollution and hazardous emissions into the environment	Key stakeholder for all activities and national project implementing partner Continuous consultation on national priorities and to support data collection on impacts of pollution and environmental health, public awareness raising of chemicals and products of concern and the project Collaboration for the development and implementation of legislation, standard operating procedures, guidelines and strategies	High
Agencies with responsibility for Waste Management (including municipal/local	Responsible for solid and hazardous waste management including oversight of waste collection and disposal activities	Key stakeholder for all activities related to waste management Continuous consultation to gather information on national waste streams and existing public and	High

governments, where relevant)	In some countries, municipal/local governments have oversight over local waste collection and management Some national entities are also responsible for national recycling efforts	private sector waste management activities and priorities Collaboration for the development and implementation of legislation, standard operating procedures, guidelines and strategies Pilot waste management projects will be supported by these agencies in collaboration with others, where relevant	
Ministries with responsibility for Agriculture including Pesticides Boards	Partner agency for chemicals MEAs (some national focal points are within this Ministry, e.g. Department of Analytical Services, Antigua and Barbuda) Responsible for aspects of pesticides management including permitting of licences for import and use, monitoring and enforcement of national legislation	Key stakeholder for activities related to pesticides management Consultation, as needed, to support data collection on the use and impact of pesticides and raising awareness among importers, users and disposers of pesticides	High
Ministries with responsibility for Health	Chemicals management falls under some national Ministries with responsibility for Health, e.g Pesticides and Toxic Chemicals Control Board, Trinidad and Tobago Responsible for ensuring public health including mitigation of negative health impacts that may be caused by chemicals use and disposal, pollution and harmful emissions to the environment	Key stakeholders for all activities, particularly those related to public health, medical waste and chemicals management (for those countries in which chemicals management falls under the remit of this Ministry) Consultation, as needed, to support health impact data collection and collection of data on medical waste management and chemicals, where relevant Collaboration in support of awareness raising on the negative health impacts of exposure to hazardous chemicals and waste	High
Customs and Excise Departments within the Ministries with responsibility for Trade	Primary border control agency responsible for the monitoring and enforcement of imports and exports These departments are supported by chemicals authorities for inspection and testing of imported chemicals at port facilities	Key stakeholder for activities related to trade in chemicals, products containing chemicals and waste, particularly Output 1.3 Departments to provide import and export data and information on operational procedures in place at the national entry points Collaboration to support the development and implementation of Standard Operating Procedures (SOPs) for pre-screening and inspection of imports and formalised institutional coordination mechanisms and training on developed SOPs	High
Bureau of Standards	Responsible for the development, implementation and monitoring of standards, nationally In some countries, the Bureau of Standards have the capacity to test products to ensure compliance with developed standards	Key stakeholder for activities related to product standards, particularly Output 1.4 Bureaus to provide information on existing standards and procedures for developing and implementing new standards	High

		Collaboration to support the development of regional standards through participation on the Technical Committee for CROSQ and national implementation of the developed standards	
Ministries with responsibility for Legal Affairs	Responsible for drafting and reviewing national policies, legislation and regulation	Key stakeholder for activities under each output related to the development of model policies, legislation and regulations related to chemicals and waste management and the review of existing relevant laws Consultation for collection of information on existing legislative framework, gaps and opportunities to integrate model legislation into national laws Collaboration to support development and implementation of Extended Producer Responsibility Schemes (EPR)	Medium
Ministries with responsibility for Finance	Approves use of national funds	Approval needed regarding co-financing from various government agencies and departments Buy-in is needed from this Ministry to ensure adequate future national budget allocations to the chemicals and waste management sector, development of levies (as needed) and to support national investment opportunities for private sector initiatives Consultations with these Ministries needed to inform possibility of implementing levies and taxes to support ESM of waste generated from imported products	Medium
Ministries with responsibility for Tourism	Provides oversight of the tourism sector, including hotel and cruise ship industries, and ensures compliance with relevant legislation	Ministries to support quantification of waste generated by this sector and identification of opportunities for collaboration for integrated waste management	Medium
Ministries with responsibility for Education	Supports national education programs and various public awareness initiatives, including environmental awareness in some countries	Ministries to support with raising awareness on the project objectives and sharing developed educational and training tools to students at all levels	Medium
US Agency for International Development	USAID has ongoing waste management/ocean plastics projects in the Dominican Republic.	ISLANDS project activities are harmonized / coordinated with ongoing USAID activities.	Low
US Environmental Protection Agency	USEPA has ongoing waste management/ocean plastics projects in the Dominican Republic.	ISLANDS project activities are harmonized / coordinated with ongoing USEPA activities.	Low
Japan International Cooperation Agency	JICA has ongoing waste management projects throughout the Caribbean and specifically in the Dominican Republic.	ISLANDS project activities are harmonized / coordinated with ongoing JICA activities.	Low
Norwegian Embassy in Cuba	The Norwegian Embassy in Cuba has some ongoing waste management projects in the Caribbean region.	ISLANDS project activities are harmonized / coordinated with ongoing activities.	Low

UK DEFRA	UK DEFRA has some ongoing waste management projects in the Caribbean Commonwealth.	ISLANDS project activities learn from ongoing UK DEFRA activities.	Low
OCT Governments	OCT Governments are likely to use models developed under this project to advance their own chemicals and waste management frameworks.	Communications and knowledge management takes place in collaboration and cooperation with OCTs.	Low
DEAL Guadeloupe	Representative of the Ministry of Environment in the Department of Guadeloupe. In charge of environmental certification	Will provide links to succesfull examples of chemicals and waste management in the small islands context especially for Component 3.	Medium
Private Sector *– Public-private partnerships and co-financing for waste management and recycling systems are an expected outcome of the project's execution. To ensure these are feasible and sustainable post-project, the project will seek to engage and learn from potential private sector partners. In each Caribbean SIDS private sector stakeholders have been identified, together with the external drivers of their activities, the constraints they currently face, and their underlying interest. This information and further ongoing consultation will guide the development of interventions.*			
Importers and retailers of chemicals and products containing chemicals (including plastics, EEE and vehicles)	Little manufacturing of chemicals and products containing harmful chemicals is done in the region. As such, importers and retailers are the primary source of these hazardous materials in the project countries	Key stakeholder for all activities, particularly for Component 1 Entities to provide data on quantities and types of imported chemicals and products containing chemicals (including EEE and vehicles) Consultations on potential EPR, take-back systems, levies and tax schemes to support environmentally sound disposal of generated waste, incentives for procurement of green alternatives to harmful chemicas	High
Private Waste Managers and Recyclers (including informal waste handlers)	Private entities that collect and transport waste and operate landfills, waste storage and treatment centres and recycling initiatives, sometimes through contracts with governments and businesses	Key stakeholder for all activities Entities to provide information on national waste streams and existing public and private sector waste management activities and priorities Pilot waste management projects will be supported by these entities in collaboration with others, where relevant Consultations needed to verify their role and capacity for chemicals and waste management	High
Chambers of Commerce	Responsible for providing guidance to the private sector, monitoring their activities and ensuring compliance with national regulations	Key stakeholder for activities in which private sector support is needed Chambers to provide support with developing and implementing green procurement strategies (Output 1.5), and extended producer responsibility and take back systems (Output 3.1)	High
Carnival Cruise Line	Significant amounts of waste generated in the Caribbean	Carnival will be directly engaged in the activities planned for Output 3.3	High
Private industries in the tourism sector	Significant amounts of waste generated by these sectors	Key stakeholder for Activity 2.2.2 Industries to provide information on quantities and types of waste generated and mechanisms in place to minimise and manage the waste generated	Medium

		Can support the development and implementation of guidelines for managing waste streams specific to the tourism sector	
Manufacturers and distributers of PVC plastics	Two manufacturers of PVC used for construction and consumer products exist in Trinidad and Tobago	Key stakeholder for Output 3.4 Manufacturers to provide support for the identification of quantities and types of PVC plastics produced, generation of PVC waste and existing disposal methods, and for awareness raising on the dangers of open burning of PCV plastics	Medium
EcoRed	A business association whose objective is to facilitate the incorporation of a culture of social responsibility and sustainable development in DR companies.	EcoRed may be directly engaged in the activities planned for Output 3.1	Medium
Shipping companies	Deliver freight transport by sea services in the Caribbean	Shipping companies will be identified during the inception phase and directly engaged in activities under Output 3.1, and Output 3.2 depending on if a regional strategy is developed.	Medium
Civil Society Organisations (CSOs) and Non-Governmental Organisations (NGOs) *- Given the importance of behavioural change in improved waste management in SIDS, engagement and well-defined roles for community groups, village leaders, and locally active CSOs and NGOs across the project countries is considered essential during the project's execution. Such groups will be viewed in the context as execution partners, as well as beneficiaries and their support for the various initiatives to be undertaken as part of this project is seen as a key element of local and community level engagement.*			
Indigenous Communities	These groups work to ensure equitable distribution of national resources among indigenous communities Countries with significant indigenous and rural populations include Belize, Guyana and Suriname	Efforts will be made to include indigenous communities in the execution of the project's activities through consultation and, where possible, opportunities for employment, entrepreneurship and community enhancement The project will identify issues and associated mitigation/preventive measures related to indigenous communities, particularly in the context of the impacts of mercury and POPs on the populations, where applicable	Medium
Groups focused on Gender and Youth Affairs and other vulnerable communities	These groups work to ensure equitable distribution of national resources among vulnerable communities	Groups to support gender mainstreaming, and identification and inclusion of vulnerable communities throughout the project Engagement will support awareness raising among vulnerable communities and ensure their participation in decision making processes throughout the project	Medium
Universities and other Academic Institutions	Supports development and execution of tertiary level and/or technical educational content	Key stakeholder for the development and distribution of technical material and training content under each output Developed material and tools can be incorporated into existing coursework on hazardous chemicals and waste management and training for national staff on an as-needed basis	Medium
Environmental CSOs/NGOs	Varying aims by existing groups include lobbying for improved	Organisations to support national awareness raising and distribution of developed	Low

	national environmental management, supporting national environmental management frameworks, and raising environmental awareness.	communication and training material under this project Can support waste diversion efforts	
Regional and Inter-Governmental Institutions *– Coordination with regional and inter-governmental entities is critical to ensuring the success of this regional project by capitalising on existing initiatives and lessons learned throughout the region. Further, existing regional mechanisms can be used to facilitate the project activities and engender support from national and regional entities.*			
BCRC-Caribbean	Supports Caribbean countries in implementing their international obligations to sustainably manage wastes and chemical through technical assistance and capacity building	Project Executing Agency Facilitation of the delivery of project activities, outputs, and outcomes, coordination of communication between all project partners, and coordination of project activities with the other regional and global child projects Provision of technical, administrative, and management oversight, quality control and compliance with all UNEP reporting requirements	High
IDB	Inter-regional development bank that provides investment support to countries in the Latin American and Caribbean Regions	Implementing Agency for another Caribbean Child Project Opportunities for optimization of resources, coordination and collaboration between the UNEP/FAO Child Project and the IDB Child Project	High
CARICOM	Political inter-governmental institution promoting economic integration and cooperation among its Caribbean member states	Provision of regional project support and lessons learned from execution of other regional activities Engagement with Legal Affairs Committee will be considered to concretize regional legislation and strategies developed Provision of support with updating the CARICOM Customs Handbook (2013) under Activity 1.3.3	Medium
CROSQ	Regional inter-governmental organisation which coordinates the development of harmonized regional standards based on requests by members states	Provision of support with developing two (2) regional standards (Output 1.4) Project would provide technical and financial support to establish a Technical Committee throughout the standards development process Continued cooperation between the BCRC-Caribbean and CROSQ will be established through development of a Memorandum of Understanding (MOU)	High
Organization of Eastern Caribbean States Commission	Political inter-governmental institution promoting economic integration and cooperation among its Caribbean member states	ISLANDS project activities are harmonized / coordinated with ongoing OECS activities.	Low
Cartagena Convention Secretariat	Regional legal agreement for the protection of the Caribbean Sea	Through Component 4, ISLANDS project activities are harmonized / coordinated with ongoing Cartagena Convention activities.	Medium

		Additionally, the Cartagena Convention Secretariat will be will be directly consulted and engaged with in the activities planned for Output 3.3.	
International Organisations *– International organisations can provide technical support and oversight of the project activities in addition to co-financing through other global initiatives.*			
UNEP	Responsible for coordinating global activities in support of the UN's agenda for sustainable environmental management on an international level	Project Implementing Agency and primary GEF Implementing Agency for the global ISLANDS Programme Overall accountability for the project outcomes and fiduciary responsibility to the GEF Provision of technical backstopping, oversight and compliance with all GEF reporting requirements	High
FAO	Responsible for coordinating global activities in support of the UN's agenda for improved food security on an international level	The Caribbean Regional Office is the Project Implementing Agency for activities related to pesticides management Expertise will support the development and use of tools and best environmental practices related to pesticides use in agriculture and awareness raising	High
Global Mercury Partnership	Multi-stakeholder partnership that aims to reduce global releases and emissions of mercury	Will be engaged for assistance with investigating the requirements for regional implementation of 8-digit or 10-digit HS Codes for mercury added products (Activity 1.3.2)	Medium
International Union for the Conservation of Nature	IUCN has ongoing waste management/ocean plastics projects in the Caribbean.	ISLANDS project activities are harmonized / coordinated with ongoing IUCN activities.	Low

3. Gender Equality and Women's Empowerment. Provide the gender analysis or equivalent socio-economic assessment.

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women's empowerment? (yes ☒ /no☐) If yes, please upload gender action plan or equivalent here.

If possible, indicate in which results area(s) the project is expected to contribute to gender equality:
☐ closing gender gaps in access to and control over natural resources;
☒ improving women's participation and decision making; and or
☒ generating socio-economic benefits or services for women.
Does the project's results framework or logical framework include gender-sensitive indicators? (yes ☒ /no☐)

Increasing attention has recently been paid to the issue of gender in waste management and it is highlighted that waste production and management are not gender neutral – neither in concept nor practice (UNEP 2015; IETC 2015). Typically, the structure of waste management reinforces normative gender roles. The current gendered nature of the waste sector is the product of attitudes and stereotypes of men and women. These gendered norms play out through the entire value chain of waste management.

Even if hazardous substances, chemicals and wastes reach and expose populations equally, factors such as: (i) poverty and socioeconomic status, (ii) gender-based and customary norms, (iii) health access and equity, and (iv) overall representation in decision-making processes and management policies relating to chemicals and wastes, determine the extent of repercussions and ramifications of these on population subgroups. For example, in many societies, women are expected to fulfill roles of unpaid domestic work, including care of ill family members. In this way, chemical exposures and health effects (whether of men or women) can add to the existing and entrenched "time poverty" (i.e. the time required for non-productive or unpaid labour that limit women's opportunities to participate in remunerative

economic activities), thus further entrenching gender inequality. Further, in most SIDS, women are responsible for managing household waste, making them the primary users of waste management services globally (UNEP 2015).

The gender-specific context for chemicals and wastes is consistent with this programme in focusing on improving chemicals and waste management in SIDS. Gender dimensions are relevant to the success of the programme and meeting its objective of preventing the build-up of materials and chemicals in the environment, and of managing and disposing of existing harmful categories. Meeting this objective and sustaining programme outcomes requires the participation of all sections of SIDS societies, and as such, the programme will take a gender mainstreaming approach to ensure child project activities, either:

- do not reinforce existing gender inequalities (that is, are **Gender Sensitive / Accommodative**); or
- attempt to redress existing gender inequalities and re-define women's and men's gender roles and relations (that is, are **Gender Responsive / Transformative**).

Gender Analysis in the Project Countries

The participating Caribbean countries recognise gender equality as an essential element of the economic and social development of their societies and have demonstrated their political commitment to gender equality through participation in several international conventions related to gender. In addition, all of the countries fully acknowledge the United Nations Sustainable Development Goals (SDGs) which focuses on gender equality and empowerment in Goal 5. Gender equality is noted as a cross-cutting goal, and it is generally recognised that the full achievement of the other SDGs is dependent on the fulfilment of Goal 5.

Gender mainstreaming has been considered in some chemicals and waste projects conducted in the participating countries. For example, the "Review and Update of the NIP for Guyana under the Stockholm Convention" Project includes considerations for: 1) facilitating equal access to information and training; 2) encouraging equal participation in the PCU, PSC, working groups and any national consultations; 3) fostering equal recruitment of consultants to deliver the project outputs; and 4) collecting sex-aggregated data on vulnerable populations, particularly during the project's socioeconomic assessment which will provide a basis for prioritization, development of action plans and drafting of post-NIP projects. Similarly, MIAs conducted throughout the region include an assessment of potential gender dimensions related to the management of mercury, and "Gender Sensitivity Guidelines for Chemicals and Waste Management in the Caribbean" was developed under the MIA Project in Antigua and Barbuda, Dominica, Grenada and Saint Vincent and the Grenadines (GEF ID: 9865). A gender analysis was also conducted as part of the design of child project 2 implemented by the IDB.

A review of the relevant literature confirms that Caribbean states are inherently masculinist and invariably patriarchal. While several of the countries have already instituted gender equality policies or action plans, others are still currently in the process of developing such policies. Further, population and demographic statistics of the project countries reveal that (i) women have higher life expectancies than men (ii) all countries except Guyana fall within the high human development category based on their Human Development Index (HDI); (iii) men have a higher income per capita than women. It was noted that only Guyana and the Dominican Republic have a quota system for women in their parliament.

A review of the sex disaggregated labour force statistics of the project countries reveals that (i) women's labour force participation is lower than men in most countries - only Antigua and Barbuda and St Kitts and Nevis have a higher proportion of women in the labour force; (ii) women occupy lower paying positions as compared to their male counterparts; (iii) sectors related to chemicals and waste management have significantly more males overall and in managerial or supervisory positions than females resulting in both vertical and horizontal gender segmentation of the sectors (iv) in all the territories except St. Kitts and Nevis, the unemployment rate among women is higher than the unemployment rate of men.

As it relates to education, in all the project countries, the expected years of schooling of females is higher than that of males. Further, the OECS posits that nearly 1 in every 4 young people in the Caribbean is unemployed with young women's unemployment being more than 30% as compared to 20% for young men.

In the project countries, women are exposed in varying degrees to ownership of micro, small and medium enterprises (MSMEs) since they have limited access to the means of production either due to high interest rates, limited collateral to access loans, intimidating application processes, or poor production and market records. Moreover, there are several gender-based and other economic factors that hinder the success of mainly female-headed businesses chief among which is the historical culture of reinforcing women's domesticity which has impacted on the types of goods that women producers create and this limits the successful distribution of their produce in both the local and regional markets.

The project countries have ratified several international gender related agreements including the Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW) and several International Labour Organizations' (ILO)– conventions. As such, they have demonstrated their political commitment to gender equality. As it relates to international chemical and waste management frameworks, all the project countries have ratified the Basel, Stockholm and Rotterdam Conventions and all except Barbados, Belize and Trinidad and Tobago have ratified the Minamata Convention. These conventions recognize gender equality as key to their success and to address the differentiated impacts of hazardous wastes and chemicals on men and women.

A review of the national gender framework of the project countries reveals that, (i) the Constitutions of these countries speak to varying degrees on gender equality and discrimination on the basis of sex. Only the Constitution of Guyana contains a specific article, clause or paragraph about gender equality; (ii) long-term development plans/strategies of all the project countries make specific reference to and include provisions for gender mainstreaming except St. Kitts and Nevis which does not currently have a National Development Plan; (iii) Antigua and Barbuda has no National Gender Policy, while the other project countries either have an existing Gender Policy or is currently developing one; (iv) the project countries have multiple pieces of legislation that govern gender issues as well as chemicals and waste management within their territory (v) all the countries have a national gender agency that is mandated to mainstream gender as well as several agencies that coordinate the management of chemicals and solid waste within their territory. A review of the policies and legislations related to gender and the national development plans in the various countries shows there is low to medium or no gender consideration in these policies. The exception is the national development policy of Trinidad and Tobago.

The major stakeholders in the project countries include, (i) national governmental and regulatory agencies; (ii) national sanitation agencies and bodies; (iii) municipal and regional waste management agencies; (iv) waste workers and collectors; (v) private waste collectors; (vi) private enterprises involved in waste management; (vii) recycling actors; (viii) NGOs; (ix) informal waste workers and their associations and (x) vulnerable population groups such as persons living close to landfills.

Despite these considerations, there is still limited availability of sex disaggregated data related to chemicals and waste management throughout the region.

The following is a brief gender analysis by project country.

Antigua and Barbuda has a working-age population of 66,549 with 31,746 males and 34,803 females. Antigua and Barbuda has a high Human Development Index that is higher than the Latin America and the Caribbean average. Both men and women are involved in economic sectors associated with chemicals use and emissions. However, since women's labour participation is lower than men in the economy overall, their participation is lower in most sectors. Men dominate the agriculture, mining, manufacturing, electricity and gas sectors and are therefore more involved in the handling of and potential exposure to chemicals. Women's roles in economic sectors through further disaggregation does not necessarily put them at increased risk within the sectors. For example, women participate in various agricultural value chains, but their roles tend to be as agro-processors, marketers of agricultural products and tending to nurseries. Women's exposure to chemicals in the other sectors mimics the segregation of the agriculture sector. In fishing, for example, women are mainly marketers. Women's handling of and exposure to chemicals mainly occurs in the domestic sphere and in the hotel and tourism sector where their participation outnumbers men.

Both men and women participate in the waste value chain in Antigua and Barbuda. Men are the majority owners of waste management and disposal businesses and also in the regulatory public service agencies. Anecdotal information

from national stakeholders indicates that waste pickers are predominantly females, while labourers in charge of disposal activities are predominantly males. Waste pickers are more likely to be exposed to chemicals and other hazards than other workers in waste management and disposal. They are also less likely to be able to afford private health care to address health issues that may arise.

Men and women not involved in waste disposal services or waste picking tend to be equally likely to be exposed to pollution from dumpsites since population distributions are generally equally split. However, because of their vulnerable status, women are less likely to be able to access health care to manage the health impacts of pollution. Though there are state sponsored and subsidised health care facilities, health costs are increasingly borne by citizens at private facilities. Ability to pay to access health services is, therefore, an issue for vulnerable populations.

Barbados has a working-age population of 131,635 with 93,276 males and 98,359 females. Barbados has a multidimensional poverty index of 0.009, which is a significantly better value than the Latin American and Caribbean average. Gross National Income in Barbados is higher among men than women. Additionally, Barbados has a very high Human Development Index that is higher than the Latin America and the Caribbean average.

Men in Barbados are more likely to be exposed to and use chemicals, as indicated by their higher levels of participation in the main sectors of the economy associated with chemicals use and management. Labour participation for women ranks the highest for the CARICOM region and is higher than men. However, women's participation in the economic sectors associated with chemicals use and management is similar to the other project countries; i.e., much lower participation overall, except for the hotel and tourism, retail, wholesale and personal services sectors. Women are also exposed to chemicals at a higher level in the domestic spheres. Women and men participate in the technical fields associated with chemicals management almost equally. 70% of domestic waste is collected by the Sanitation Service Authority (SSA) while the remainder is collected through private entities contracted by the SSA; within the SSA, the gender disparity is the greatest for the agency at the technical level with 17% females and 83% males. In terms of waste workers overall, 81% are men and 19% are women. This percentage of formalised female waste workers is the highest of all the project countries in the public sector.

Belize has a working-age population of 248,936 with 122,661 males and 126,275 females. Belize has a multidimensional poverty index of 0.017, which is a better value than the Latin American and Caribbean average. Gross National Income in Belize is significantly higher among men than women. Belize has a high Human Development Index value that is below the average for countries in Latin America and the Caribbean.

Employment is higher for men than women in the agriculture and forestry, mining and quarrying, and electricity and water supply sectors. Men in Belize are more likely to be exposed to and use chemicals as indicated by their higher levels of participation in the main sectors of the economy associated with chemicals use and management. However, women's participation in the economic sectors associated with chemicals use and management is similar to the other project countries. Women are also exposed to chemicals at a higher level in the domestic spheres. Men's livelihood activities are heavily dependent on the major associated chemicals sectors of the economy.

Dominican Republic has a working-age population of 6,901,285 with 3,443,501 males and 3,457,784 females. The Dominican Republic has a multidimensional poverty index of 0.015, which is a better value than the Latin American and Caribbean average. Gross National Income in the Dominican Republic is significantly higher among men than women. The Dominican Republic has a high Human Development Index value that is below the average for countries in Latin America and the Caribbean.

Guyana has a working-age population of 508,962 with 255,910 males and 253,052 females. Guyana has a multidimensional poverty index of 0.014, which is a better value than the Latin American and Caribbean average. Gross National Income for women in Guyana is low compared to the Gross National Income for men. With regards to human

development, Guyana is the only project country that falls within the medium human development category based on its 2018 Human Development Index value of 0.670. Additionally, Guyana's Human Development Index value is below the average for countries in Latin America and the Caribbean.

Employment in Guyana is higher for men than women in the following sectors: agriculture, forestry and hunting; mining and quarrying; manufacturing; electricity, gas and water. Inequality in gender labour participation is stark. Guyanese women have the lowest level of participation in the economic sector for the Latin America and Caribbean region. Males therefore dominate all of the major sectors of the Guyanese economy including the sectors associated with chemicals use, namely agriculture, mining, manufacturing and construction. The largest economic sector in Guyana by employment is the agriculture sector which also includes heavy chemicals use. Women's involvement in agriculture is mainly in the reaping and marketing segments. Therefore, women's exposure to chemicals in the agriculture sector is low. However, the misuse of agricultural chemicals in suicides is a problem in Guyana that is associated with both males and females.

The mining sector is a large user of chemicals in Guyana, especially mercury, which is used in small and medium scale mining operations. Mining operations of all scales mainly employ men. Women's involvement in mining does not generally involve the handling and use of chemicals. However, despite the lower numbers of women in mining, mining continues to be a threat to Indigenous peoples, women and other hinterland populations in Guyana. Hinterland and Indigenous populations tend to have diets that are greatly reliant on wildlife, including fish, which are often contaminated by mercury pollution from nearby mining activities. Indigenous women are particularly susceptible to the effects of mercury and other heavy metal pollutions. Health care facilities in Indigenous and hinterland communities are often of low quality or completely absent, increasing the vulnerability of these communities to mercury pollution.

Saint Kitts and Nevis has a population of 52,441. Saint Kitts and Nevis has a high Human Development Index value that is higher than the Latin America and the Caribbean average. Review of chemical-related policies and development plans in Saint Kitts and Nevis indicates a low or non-reference to gender in the national policies. However, Saint Kitts and Nevis is in the process of developing a national gender policy. References and considerations to environmental management and chemicals and waste management in the national gender policy is unknown. Both men and women participate in the chemicals related sectors. However, women's participation is much lower than men's participation in the agricultural and electricity sectors. Women's participation is higher than men's participation in manufacturing and in the public sector (by almost double).

Saint Lucia has a working-age population of 130,343 with 63,893 males and 66,450 females. Saint Lucia has a multidimensional poverty index of 0.007, which is a significantly better value than the Latin American and Caribbean average. Gross National Income is significantly higher among men than women. Saint Lucia has a high Human Development Index value that is below the average for countries in Latin America and the Caribbean. Employment is higher among men than women in the following sectors: agriculture, forestry, hunting and fishing; manufacturing; water supply, sewerage, waste management and remediation activities. Employment is higher among women than men in the electricity, gas, steam and air-conditioning supply sectors.

Men in Saint Lucia are more likely to be exposed to and use chemicals than women, as indicated by their higher levels of participation in the main sectors of the economy associated with chemicals use and management. However, women's participation in the economic sectors associated with chemicals use and management is similar to the other project countries. Women are also exposed to chemicals at a higher level in the domestic spheres. Men's livelihood activities are heavily dependent on the major associated chemicals sectors of the economy. The management of solid waste is vested in the country's Solid Waste Management Authority (SLSWMA) which has responsibility for, the collection of municipal solid waste generated from residential properties, public schools and institutions and government offices. The Authority operates and manages two (2) waste management facilities of which 100% of the waste workers at the SLSWMA are males.

A review of the national policies of Saint Lucia reveals a low to absent gender consideration in the environmental policies of the sectors. The national policies reveal a low to medium mention of gender but no gender considerations are given specifically to the chemicals, environmental or waste management sectors.

Suriname has a working-age population of 379,713 with 191,770 males and 187,943 females. Suriname has a multidimensional poverty index of 0.041, which is a relatively poor value in comparison with the Latin American and Caribbean average. Gross National Income is low for women when compared to the Gross National Income for men. Suriname has a high Human Development Index value that is below the average for countries in Latin America and the Caribbean. Suriname's chemicals and waste management reveals that, (i) agriculture/forestry/fishing, mining and quarrying and electricity/gas/water supply sectors are major users and emitters of chemicals; (ii) the chemicals imported into Suriname are mainly pesticides, fertilizers, petroleum products, industrial and consumer chemicals.

Trinidad and Tobago has a working-age population of 956,857 with 475,915 males and 480,942 females. Gross National Income is significantly higher for men than women. Trinidad and Tobago has a high Human Development Index that is higher than the Latin America and Caribbean average.

A review of the labour participation of the economic sectors associated with chemicals use and management in Trinidad and Tobago illustrates male dominance in all of the sectors except for wholesale and retail. The trends align with the other project countries and show that chemicals management and chemical use related sectors are traditionally male-dominated sectors. Women participate in all economic sectors related to chemicals management and use, but a lack of data and information prevents an analysis of women's roles in these sectors. Data available from the public sector indicates that women's participation in public management is high and as a result, they have significant roles in regulatory functions. In Trinidad and Tobago, the Environmental Management Authority (EMA), the Solid Waste Management Company Limited (SWMCOL), the Municipal Corporations of the Ministry of Rural Development and Local Government and the Tobago House of Assembly (THA) are the main public agencies involved in solid waste management. For the waste workers level of the SWMCOL, men dominate with 86% compared to a mere 14% of women.

Men and women working in waste management tend to work in segregated sections of the value chain. According to anecdotal information, men are the majority owners of the more lucrative ends of the value chain, such as private enterprises and businesses that benefit from waste disposal and management. However, there are also female owners of waste disposal and recycling enterprises. Women in Trinidad and Tobago also participate in the chemicals and waste management sectors in many ways. Among the various roles of women in the chemicals and waste management sectors of Trinidad and Tobago are: managers and technical officers in policies formulation, research, legislation, and metrology; educational roles; and advocates for waste management.

National policies related to chemicals and waste management are low in gender considerations except for the country's National Environment Policy (2018), which can be considered medium in gender considerations. However, Trinidad and Tobago's national development policies rank high in gender considerations.

Gender Considerations in the Project

The Project activities were designed to be gender sensitive and to provide equal opportunities for women and men. Stemming from the overview of the solid waste and chemicals management situation and the level of gender mainstreaming that exists within the project countries, it is evident that gender mainstreaming in the chemicals and waste management sectors of these countries presents a lot of potential. The entry point for gender mainstreaming in the project must be the creation of awareness for the need to develop gender-responsiveness in the sectors and increase the visibility of gender roles especially women's contributions and roles. In the development of mandates for gender mainstreaming in the sector, implementation must be a primary consideration. Towards successful implementation of gendered programmes, formalized frameworks must be developed with the national gender agencies and include women's NGOs and other social groups such as youth and indigenous people's representative

organizations. Collection mechanisms can be built into already existing mechanisms in the environmental management agencies (some countries have Environmental Information Management Systems) and other agencies such as agriculture and energy have their own databases. Also, efforts must be directed at increasing the number of women in the technical roles in the sector. For the enterprise segment of the sector it is further recommended that; (i) the chemicals and waste management sector should be demystified and destigmatized through business awareness and entrepreneurial training; (ii) leadership and business training should be conducted with women to increase their participation in the lucrative sections of the waste value chain; (iii) funding and credit facilities specifically targeting women should be established to increase their access to credit and equipment; (iv) social programs should be leveraged to assist women waste pickers in the various countries; (v) gender awareness and equal employment opportunity training for business owners and the development of national gender seals is required; (vi) businesses should be assisted in adapting their work environments to better accommodate both genders.

The specific ways in which gender will be considered in Child Project's activities are outlined in the following paragraphs.

Gender consideration for Component 1 activities include ensuring that the roles of women are fully defined and understood in relation to the import of chemicals. Equal gender representation will be ensured in training activities envisaged for building capacities for implementing the chemicals and waste MEAs and for border control staff (on imports), by engaging stakeholders (such as local women's groups, NGOs, CSOs, where possible) on gender and socioeconomic aspects within policy solutions (such as specific hazardous chemicals and waste policies) and developing new product standards.

Activities under Component 2 will include exporting and local destruction of legacy wastes for final disposal including POPs and mercury containing products and the development of national strategies and regional guidelines for managing hazardous waste streams. Project activities will ensure that consultations with stakeholders on management of legacy wastes include consultation with women's groups and that women are aware of, and involved in, activities. Where possible, small-scale surveys near legacy waste sites for collection of gender-relevant data and information will be undertaken.

Activities under Component 3 of the programme which address chemicals and wastes that cannot be avoided in SIDS will involve establishing regional and national systems for dismantling, recycling and management of hazardous waste such as WEEE, ELVs and PVCs. The feasibility of such systems will be assessed during execution of the Child Project, and as part of this, gender will be considered in each stage of the value chain. Stakeholders (including women's groups) will be consulted, and opportunities and risks to women will be clearly defined in the feasibility assessment and resultant activity design. It is recognised that in some Caribbean SIDS, the most vulnerable groups in the waste management value chain are waste pickers living around dump-sites. It is essential that these groups can get access to and benefit from any levies put in place as part of the Projects, and do not lose out economically from losing access to informal recyclers for their collected materials.

Component 4 on knowledge management and communications will include the development knowledge products that will be disseminated in participating SIDS and used to guide project activities. Further, recognizing the responsibility of women in sorting and managing waste in the homes as well as in educating family members, targeted communication materials will be developed, and local women's NGOs will be used to assist in dissemination and education of women.

The Global CCKM Child Project will ensure consistency and coherence among Child Projects' approaches to gender during execution, through the development of a programmatic gender action plan. The plan will be developed in response to the Child Projects' specific gender reviews, and be executed by Project Executing Agencies, and coordinated by the Coordination, Knowledge Management and Communication (CCKM) Child Project. This will ensure that gender data is collected, monitored and evaluated; and lessons learnt, and best practices related to gender can be shared with all SIDS.

4. Private Sector Engagement. Elaborate on the private sector's engagement in the project, if any.

The private sector is an important stakeholder in chemicals and waste management due to its role in the entire life-cycle of products and chemicals. Private sector entities consist of the major manufacturers, importers, retailers and users of chemicals and products. At the end-of-life stage, the private sector also plays a part in the collection and disposal of the products.

There is limited manufacture of chemicals and products containing chemicals within the Caribbean and most products of concern are imported into the region by local importers and retailers. The project will seek to engage these companies as well as the few private producers that exist in countries such as Trinidad and Tobago. Engagement will support data collection on the quantities and types of manufactured products and imports and to secure buy-in for developed strategies for reducing the trade in harmful chemicals and products such as additions to the import negative lists, development and implementation of product standards and green procurement initiatives (Component 1). Further, importers and manufactures will be consulted on the development of EPR and take-back schemes and to garner their support for recommended levies and tax systems to fund the environmentally sound disposal of end-of-life products (Component 3).

Private sector industries such as the cruise ship industry and hotels will also be engaged throughout the project since these entities are major stakeholders in the tourism-dependent Caribbean countries and generate significant amounts of waste. Through consultations with representatives from these industries, strategies for managing waste streams specific to these sectors will be developed.

In the Caribbean, private sector entities are contracted by governments and businesses for waste collection and disposal and landfill management. Additionally, most recycling, material recovery, waste treatment and waste/material export activities are led by the private sector and are driven by prices in the international recycling commodity markets. These activities occur in several Caribbean countries for a few hazardous waste streams including waste oil, e-wastes (dismantled and then exported), and spent lead acid batteries (exported for recovery) as well as the recycling of non-hazardous wastes (paper, plastics). Engaging the private sector entities responsible for these activities during the project's execution is important to understanding ongoing initiatives and national and regional capacities for chemicals and waste management. Further, through consultations with relevant private sector entities, effective localised recommendations for best available technologies and best environmental practices can be determined to optimise processes and minimise harmful releases to the environment and opportunities to integrate these into existing initiatives can be identified.

Despite the above examples, private sector waste management in the Caribbean is generally poorly developed and there are limited public-private partnerships to support chemicals and waste management. While there is vast potential to engage the private sector in taking up the management of solid and hazardous waste streams, further intervention is required to catalyse this through the development of an enabling legislative framework to support and incentivize the creation of such initiatives. Identification, incubation and acceleration is therefore a key goal of the GEF ISLANDS Programme. The potential to further harness the comparative and competitive advantages of the private sector to improve the delivery of waste management and pollution control services is broadly recognised. To contribute to long term sustainable waste management in the Caribbean, there is a need to move private sector participation beyond consolidation and export of valuable commodities into more difficult and less valuable wastes including plastics, e-waste and used oil. There is also a need to organise activities regionally, to ensure that countries with smaller volumes of waste, which would not normally be appealing to the private sector, can be managed. There are however several constraints to this including differing capacities and experiences among Caribbean countries national and regionally and limited access to financial and human capital. This child project and the IDB-implemented Child Project have been designed to address these constraints. The Coordination, Knowledge Management, and Communications Child Project will also play an important role in developing relationships with original equipment manufacturers supplying equipment to SIDS, and other key private sector partners such as shipping lines (for export of waste) and re-insurers (on the issue of environmental insurance). The project's design to include the private sector in developed institutional arrangements and to develop extended producer responsibility programs is also key to this inclusion of the private sector into the overall solutions envisioned for the chemicals and waste portfolio in the Caribbean.

The listing of relevant private sector organisations identified during the PPG Phase is included in the Stakeholder Analysis annexed to this document.

5. Risks. Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):

SIDS worldwide share similar development trajectories and vulnerabilities. Due to these common vulnerabilities, several risks are common to all SIDS. These global risks are outlined in the following paragraphs. Regionally specific mitigation measures are then included in the following table.

1. Global risks:
    a. COVID-19

Direct risks from the COVID-19 pandemic to the project include travel restrictions and the generation of additional single use plastic waste. Some Pacific SIDS, for example, have indicated plans to close their borders until 2022, while SIDS in the Caribbean and Indian Ocean continue to be subject to rolling lockdowns. Restrictions on traveling to and within SIDS will impact project execution activities.

SIDS are also importing COVID-specific medical equipment, leading to increased pressure on medical waste management. These medical wastes include single use plastics and other impact-heavy waste streams that the ISLANDS programme seeks to reduce.

Indirect risks and decreased resilience from the COVID-19 pandemic include decreased local support due to shifted priorities and impacts to SIDS economies. SIDS governments have had to prioritise their COVID-19 response over other management issues, including waste management. Tourism-dependent countries in particular are facing significant decreases in GDP and sharp increases in state debt.

    b. Climate change

SIDS are highly vulnerable to climate change, facing increased natural disasters and rising sea levels in the present and future. In particular, coral atolls and low-lying island regions, such as in the Bahamas, Barbuda, the Cook Islands, the Federated States of Micronesia, Kiribati, the Maldives, the Marshall Islands and Tuvalu are at high risk of damage to infrastructure and the economy due to rising sea levels and more frequent storm surges. SIDS globally are also at risk of more frequent and more intense cyclone activity that may result in infrastructure damage, disaster waste, shifts in political priorities, and delays in project outputs. For example, in recent years hurricane activity has been much more frequent and severe than the historical average in the Caribbean region.

Vulnerability to extreme climatic events poses risks to project activities. Consideration must be given to storage sites for waste, and also of the need for climate-proofing waste management infrastructure. Without such consideration, project gains in waste management improvements are at significant risk of being undermined or destroyed by extreme climate events.

All project countries face COVID-19 and climate change related risks. Regionally specific mitigation measures are needed to adequately address specific regional vulnerabilities.

2. Regional risks

The following table 8 outlines the risks and proposed mitigation measures for the Caribbean region.

Table 8 Identified project risks and mitigation measures

Risk	**Risk ranking**	**Proposed mitigation measures**
COVID-19 risks		

Restricted travel	Medium	Though most Caribbean SIDS have re-opened since the first wave of the COVID-19 pandemic, rolling lockdowns continue. Considerations will be made for hosting meetings, workshops and consultations on virtual platforms as much as possible.
Decreased local support due to shifted priorities	Medium	Due to the impact of the COVID-19 pandemic on Caribbean economies, it is expected political priorities may shift to recovery from the pandemic. Project activities will be validated with national stakeholders before finalisation to ensure continued support. Furthermore, the programme will support recovery from the pandemic through tackling medical waste.
Increase of new waste streams	Low	Considerations for management of COVID-19 related waste have been added to the alternative scenario.
Impacts to SIDS economies (especially due to tourism reduction)	High	Discussions have been held with all relevant stakeholders to ensure COVID-19 impacts are not exacerbated by the programme and new economic opportunities are supported. Development of in-country capacity will help to mitigate impacts.
Climate change risks		
Infrastructure damage due to increased hurricane frequency in the Caribbean	Medium	The impacts of climate change will be considered in the development and implementation of project infrastructure and strategies for sustainable chemicals and waste management.
Increase in disaster waste due to increased hurricane frequency in the Caribbean	Medium	The impacts of climate change will be considered in the development and implementation of project infrastructure and strategies for sustainable chemicals and waste management.
Shifts in political priorities	Low	Climate change is expected to increase the need for waste management as a political priority as climate change impacts is more likely to increase rather than decrease the need for sustainable waste management. Nonetheless, the impacts of climate change will be considered in the development and implementation of project infrastructure and strategies for sustainable chemicals and waste management.
Delays in project outputs	High	Considerations will be made for changes in the project execution timeline to minimise the probability of natural disasters affecting the project timeline, thereby delaying project execution.
Operational/delivery risks		
Political priorities, will and/or buy-in are not adequate for execution of key project activities	Medium	The institutionalisation of the project's activities will be encouraged. Government stakeholders were engaged throughout the project development phase to ensure that national priorities were being considered and that there was political buy-in for the project activities. Continuous communication and updates will be provided to the national focal point and key agencies to ensure sustained support.
Changes in governments and country personnel to persons with little awareness and buy-in to the project	Low	Project information will be disseminated to as many stakeholders as possible and multi-party political support for the project will be sought.

Private sector and/or community support and behavioural change are not adequate	Low	The private sector and CSOs/NGOs have been engaged throughout the project preparation phase and will continue to be engaged throughout the project's execution. Members will be included on National Working Groups to ensure that their needs are being met. Awareness raising campaigns will be developed and executed to engender additional support from these groups. Finally, the programme will create job opportunities through new formal economic opportunities, which is expected to benefit the Caribbean private sector as well as communities.
High shipping and recycling costs and low market price of recyclable materials reduce the viability of establishing material recovery and recycling initiatives	Low	Market analyses will be conducted to ensure the economic viability of recommended recycling and material recovery initiatives. Financial incentives and investment opportunities will also be highlighted to support public-partner partnerships. As islands in the Caribbean are generally closer together than in other regions, this is considered low risk.
Technical risks		
Inadequate data available to support activities	Medium	Historically, data collection within the Caribbean region is not adequate. Where required information is not available, the project executers and partners will work with stakeholders to collect raw data and develop mechanisms to ensure that sustainable data collection mechanisms are implemented.
Social risks		
Continued disregard for the environmental and health impacts of existing waste management activities	Low	Awareness raising campaigns will be developed and conducted for government and private sectors as well as the public to engage key community authorities and vulnerable groups (e.g. youth, Indigenous communities).
Economic displacement of informal sector workers through formalisation of chemicals and waste management systems	Low	Communities/relevant experts and the informal sector will be engaged in the execution of the project's activities to ensure that developed and implemented strategies provide safe economic opportunities for informal recyclers. These workers will also benefit from training on best environmental practices to protect them from the negative health impacts associated with improper waste management.

6. Institutional Arrangement and Coordination. Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

Programme Level Coordination Framework

The ISLANDS programme is a multi-agency initiative that builds on the experience of several GEF Implementing Agencies (IA) across the Caribbean, Indian Ocean and Pacific SIDS. UNEP has been designated as the lead agency for the programme and as such will be responsible for the overall programme coordination and ensuring that the results at national / regional level benefit all regions. This role includes the monitoring of progress and delivery of programme results as well as providing a platform for knowledge sharing and exchange of information to all project beneficiaries. Making knowledge accessible to all partners and ensuring knowledge transfer between regions is seen as a major mechanism for ensuring that the programme makes progress towards achieving the objectives of preventing the build-up of harmful materials and chemicals in SIDS. UNEP will also work the other GEF implementing and executing partners to ensure equivalence of standards and adoption of international best practice across all three regions in the core components of the programme outlined in Section 1 of this document.

Under the ISLANDS programme, a series of Child projects are planned (see Figure 6). UNEP, UN Development Programme (UNDP), the Food and Agriculture Organization (FAO), and the InterAmerican Development Bank (IDB) will implement these Child projects. The identification of this group of agencies has been based on a set of criteria including comparative advantage as a GEF IA, experience of operation geographically and mandate. A summary of the four GEF IAs is provided in the following subsection.

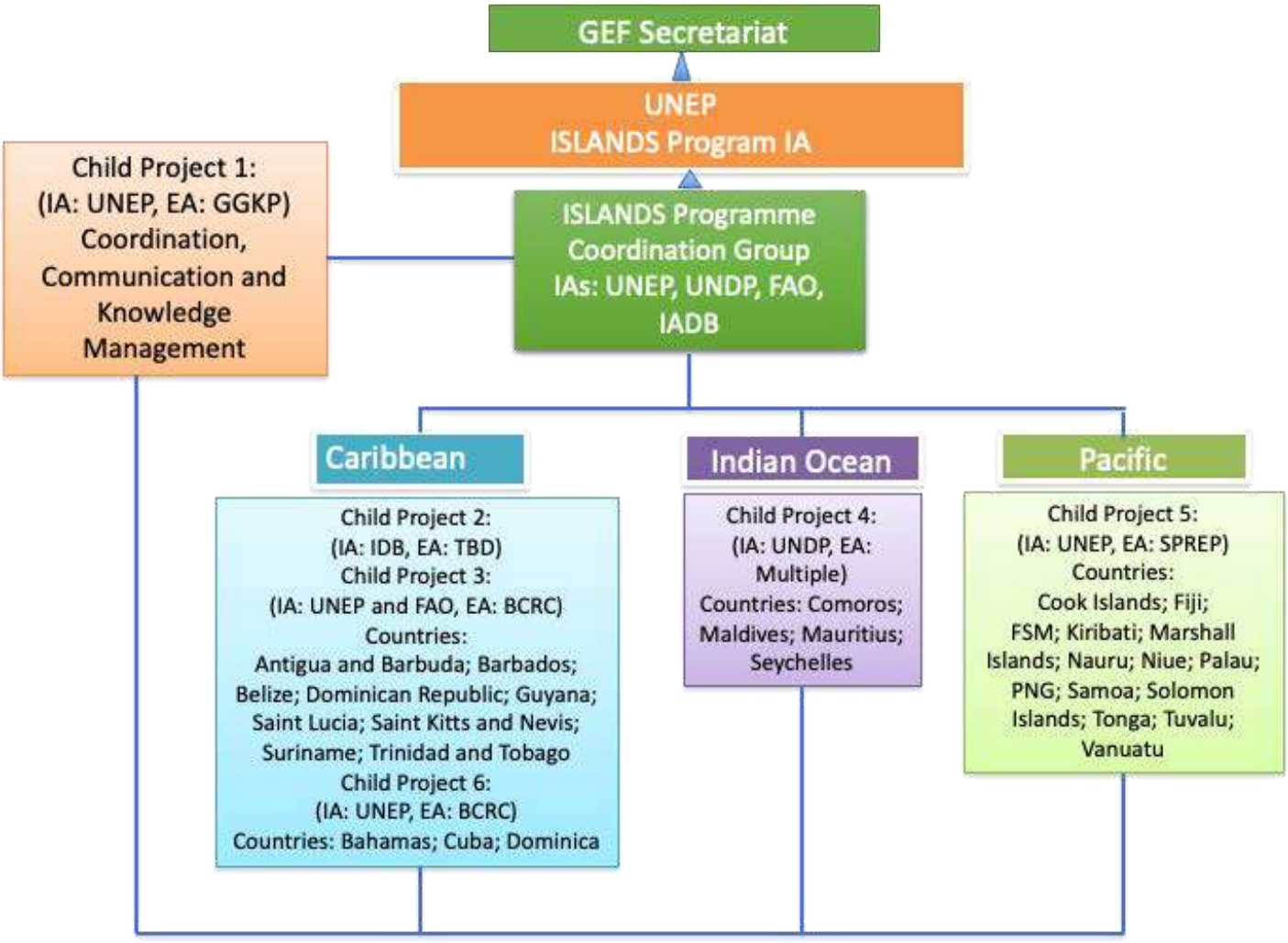


Figure 6: Global ISLANDS Programme Structure

The Programme will be coordinated through a Programme Coordinating Group (PCG) which will consist of the GEF Secretariat and the Implementing and Executing Agencies for the Child Projects (UNEP, FAO, UNDP, SPREP, BCRC, GGKP, IDB, and a government representative from the Caribbean, Indian Ocean and Pacific regions). The PCG will meet face to face annually, taking advantage of existing events in the chemicals and wastes calendar such as Conferences of the Parties of the Basel, Rotterdam, Stockholm and Minamata Conventions and events linked to the Strategic Approach to International Chemicals Management (SAICM). This modality serves to reduce cost and provides the opportunity for further interaction with a wider network of project stakeholders from the beneficiary countries, private sector and civil society through additional parallel events. The approach also ensures close collaboration with the Conventions and SAICM Secretariats.

Programme level coordination will also be supported by global coordination grant (Child project 1, Coordination, Knowledge Management and Communication) will be implemented by the UNEP and executed through the Global Green Growth Knowledge (GGKP) platform, an independent entity hosted by UNEP in Geneva. GGKP is a multi-agency knowledge management platform with an existing large constituency.

Child Project 1 will design the Child Project reporting format, as well as other procedures and modalities for sharing information across the regional and national focused child projects. This modality will allow regions to learn from each other's experience and foster an environment of south-south cooperation through peer-to-peer learning. This child project will provide reports on progress to the PCG as part of the annual reporting and monitoring process.

UNEP/FAO Child Project Institutional Arrangements

Figure 7 shows the Institutional Arrangements for the UNEP/FAO implemented Caribbean Child Project.

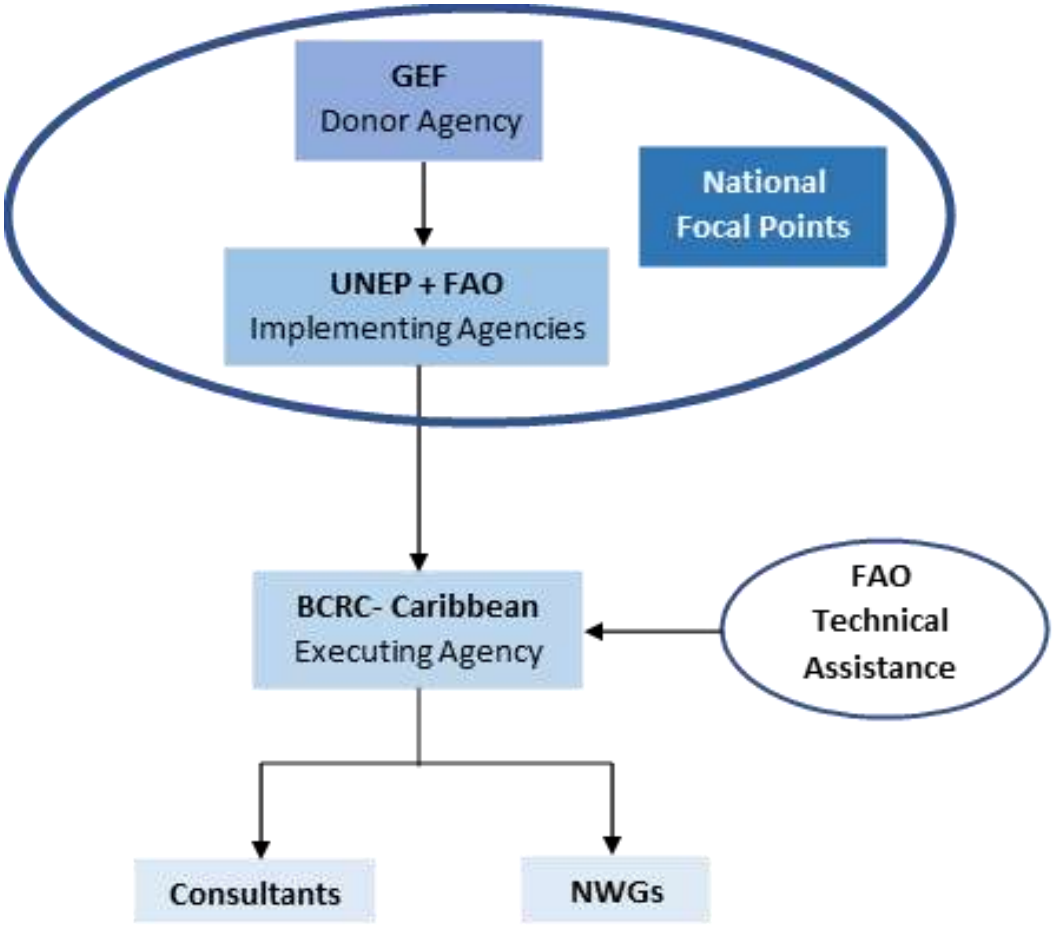


Figure 7: 10279 Caribbean Child Project structure

Implementing Agencies

United Nations Environment Program (UNEP) is the lead Implementing Agency for the Child Project. As lead agency, UNEP will oversee the development of the project and report to GEFSEC on progress. UNEP will coordinate dissemination of the project's activities and outcomes with the other child projects through regular meetings of a Programme Coordination Group made up of FAO, GEF C&W Focal Area team, IDB and UNDP. As Lead IA for the Child

Project as well as the overall Programme, UNEP will provide all reports to the GEF Secretariat to allow for onward report to GEF Council.

UNEP's comparative advantage is its mandate to coordinate the work of the UN in the area of environment, and its experience as a successful and efficient IA specializing in regional and global activities. UNEP's expertise includes proof of concept, testing of ideas, and the best available science and knowledge to form the basis of GEF investments. UNEP also serves as the Secretariat to three of the MEAs (Stockholm, Minamata and SAICM), for which GEF is the/a financial mechanism. UNEP will take the lead in finalising the programme level data flow and reporting to the GEF Secretariat as indicated in the organo-gram in figure 7 above.

The Food and Agriculture Organization (FAO) will act as GEF Co-Implementing Agency (co-IA) for the Project. As such, it will provide project cycle management and support services as established in the GEF Policy. As the GEF co-IA, FAO holds overall accountability and responsibility to the GEF for delivery of the results. In the co-IA role, FAO will oversee the execution of the activities falling withing its responsibility. FAO will monitor and support the project cycle to ensure that the project is being carried out and reporting done in accordance with agreed standards and requirements.

Executing Agencies

BCRC-Caribbean is the lead Executing Agency for the UNEP/FAO Child Project and will execute, manage and be responsible for the project on a day-to-day basis. The Centre is well positioned for this role as it serves the Parties to the Basel, Rotterdam, Stockholm and Minamata Conventions within the Caribbean region, and has undertaken: provision of critical training (to relevant public officials and stakeholders) on hazardous wastes; identification and assessment of environmentally sound mechanisms for waste management; development and provision of awareness-raising activities; provision of technical support and expertise to member countries in the form of consultancy services.

With regard to chemicals management in agriculture FAO will provide technical assistance for the activites executed by BCRC. Relevant tools will be developed and published within the context of the FAO-hosted International Code of Conduct on Pesticide Management (ICC-PM). These tools will be adapted and applied by BCRC and partners in SIDS in the context of the ISLANDS programme. The review and quality assurance to ensure high levels of technical accuracy and scientific quality, will be conducted with FAO's technical departments as needed.

Any standard-setting publication such as guidelines, best practices, or reference documents will follow a formal publishing process. All guidelines regarding pesticide management should be reviewed and endorsed by expert panel of FAO and FAO/WHO Joint Meeting of Pesticide Management (JMPM) before publication.

In order to keep high levels of technical accuracy and scientific quality, FAO experts in HQ will develop Terms Of Reference for each activity. FAO will suggest experts from the technical rosters which allow for a recruitment process from the list of approved experts. FAO will review Outputs and will provide validation/clearance. Payment for output delivery will be done by BCRC as principal contracting partner based on FAO validation of quality of output.

The BCRC-Caribbean, from 2012-2020, secured over $13,200,000.00 in donor funding to support over thirty-five activities in training and technology transfer for the region.

BCRC-Caribbean's Project Coordinating Unit (PCU) will constitute the necessary managerial and technical teams to execute the project, and will search for, hire and supervise any consultants necessary for technical activities. It will acquire any necessary equipment and monitor the project; in addition, it will organize independent audits in order to guarantee the proper use of GEF funds. Financial transactions, audits and reports will be carried out in accordance with national regulations and UNEP procedures. BCRC-Caribbean will provide regular administrative, progress and financial reports to UNEP.

As the lead Executing Agency for the Caribbean Child projects (implemented by IDB, UNEP/FAO and UNEP, respectively), the Centre will convene annual joint Project Steering Committee (PSC) meetings to ensure that the child project activities and interventions are balanced across the ultimately twelve (12) participating Caribbean countries and that activities are complimentary. These meetings will be scheduled back-to-back and in close coordination, to reduce travel and

meeting related costs, and ensure prudent use of donor funds. Execution through the same agency in the region will ensure operational efficiencies and ensure integration of the three projects at regional and national level.

BCRC Caribbean will also organize an annual financial audit of the project and transmit the report to the implementing agencies.

Regional and National Coordination

National Focal Points will be an integral part of the project's execution as part of the decision making body. The focal point agencies will play a key role in ensuring the relevant stakeholders are invited to and engaged at the various meetings and during public awareness activities throughout the project. Engagement in these meetings will help to secure feedback on project progress on a continuous basis and help to facilitate a more positive project outcome. National Focal Points proposed for this project will be from the main agencies responsible for chemicals and waste management in each country. The various Government agencies expected to fill this role are as follows:

- Antigua and Barbuda – Department of Analytical Services
- Barbados – Environmental Protection Department, Ministry of Environment and National Beautification
- Belize – Ministry of Fisheries, Forestry, the Environment and Sustainable Development
- Dominican Republic – Ministry of Environment and Natural Resources
- Guyana – Environmental Protection Agency
- Saint Kitts and Nevis – Saint Kitts and Nevis Bureau of Standards
- Saint Lucia – Department of Sustainable Development, Ministry of Education, Innovation, Gender Relations and Sustainable Development
- Suriname – Coordination Environment, Ministry of Spatial Planning and the Environment
- Trinidad and Tobago – Environmental Management Authority and Ministry of Planning and Development

A Project Steering Committee (PSC) will be established consisting of the nine (9) national focal points, nine (9) nominated alternatives to the focal points, a representative each from UNEP, FAO and the GEF (top group in Figure 7). Key stakeholders will be participating to the PSC to provide guidance but without decision rights. The BCRC-Caribbean will act as the secretary to the PSC. The PSC members will support the establishment of national working groups in their respective countries, as needed for each particular activity assign responsibilities amongst national government departments; select and nominate relevant project stakeholders; evaluate and assess the progress of the project; and provide advice, policy and institutional guidance to the implementing and executing agencies. In this regard, relevant governmental institutions will be requested to allocate the necessary human and technical resources to support project implementation through the PSC, where it does not already exist. The TORs for a PSC will be developed during the inception phase of the project. PSC meetings will be organised on an annual basis to discuss the progress of activities and amendments to the schedule, as needed. Additionally, the BCRC-Caribbean will provide regular project updates to the PSC.

National Working Groups (NWG) will be established for each country as needed at the onset of each activity. The NWGs will support information gathering from respective entities, review national project outputs and ensure that national priorities are being met. The NWGs will also provide advice, policy and institutional guidance to support the successful execution of project activities and the sustainability of the project. The NWG will consist of national stakeholders relevant for each activity, and will be chaired by the national focal point. Members will also include representatives from CSOs/NGOs, the private sector and gender affairs groups to ensure that gender mainstreaming is considered throughout the project. Composition of the NWG will be determined at inception for each country but will include gender affairs department. Indication of the composition of the NWG is provided in Appendix 4.

Coordination with Other Relevant Projects and Initiatives

GEF-funded programmes and projects have been carried out within the region, including the GEF #5558 and GEF #5407 projects, Minamata Initial Assessments, GEF GOLD and the Guyana National Action Plan for Artisanal and Small-Scale Gold Mining. Information on the project countries has been collected under these initiatives, and stakeholder frameworks have been developed. Further, awareness raising on the Chemicals Conventions and chemicals and waste management has been conducted which would assist with the coordination of activities under this Child Project. In this regard, the UNEP/FAO Child Project will build on the results of work conducted through these and other international, regional and national initiatives (described in Section 1a.2) existing knowledge management platforms and south-south collaboration approaches in order to capitalize on existing information, strategies and lessons learned. Coordination with other agencies will be conducted through consultations with relevant personnel and requests for their input on executed activities and outputs under this child project. Entitites contacted during the PPG phase will be invited to participate to the project meetings as observers.

Exchange of experience, when relevant as mentioned above, will be sought with projects in LDCs and Cities Impact Programmes (IPs).

7. Consistency with National Priorities. Describe the consistency of the project with national strategies and plans or reports and assessments under relevant conventions from below:

- National Action Plan for Adaptation (NAPA) under LDCF/UNFCCC
- National Action Program (NAP) under UNCCD
- ASGM NAP (Artisanal and Small-scale Gold Mining) under Mercury
- Minamata Initial Assessment (MIA) under Minamata Convention
- National Biodiversity Strategies and Action Plan (NBSAP) under UNCBD
- National Communications (NC) under UNFCCC
- Technology Needs Assessment (TNA) under UNFCCC
- National Capacity Self-Assessment (NCSA) under UNCBD, UNFCCC, UNCCD
- National Implementation Plan (NIP) under POPs
- Poverty Reduction Strategy Paper (PRSP)
- National Portfolio Formulation Exercise (NPFE) under GEFSEC
- Biennial Update Report (BUR) under UNFCCC
- Others

The ISLANDS Child Project was designed to be consistent with Caribbean SIDS' national, regional and international chemicals and waste management commitments and priorities as outlined in the baseline. Initial consultations with the project countries supported the identification of national chemicals and waste management priorities and areas in which technical assistance was needed[45]. Further consultations were conducted to ensure that the project was being developed in-line with the identified needs and that there was adequate buy-in from national representatives[46]. Existing National Plans and initiatives were also used to ensure consistency of the project with national strategies and ongoing activities.

National plans and activities are primarily guided by countries' commitments to achieving the SDGs and associated targets at the national level. Therefore, this project is in line with SDG 12 on Sustainable Consumption and Production; SDG 3 on Good Health and Well-being; and SDG 6 on Clean Water and Sanitation. The programme is designed to assist Caribbean SIDS to meet the following specific SDG targets:

[45] Regional consultations held 17-18 July 2018 and 26 – 28 August 2019 (Port of Spain, Trinidad and Tobago)
[46] Remote national consultations held May 2020

- 12.4 by 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment; and
- 12.5 by 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse. The programme is also consistent with the guiding global policy for SIDS' development, the SAMOA Pathway. On chemicals and wastes management, the SAMOA pathway recognises the need to reduce, reuse, recycle, recover and return approaches according to national capacities and priorities *inter alia* through capacity-building and environmentally appropriate technologies.

National priorities were also confirmed as being consistent with the eight priorities of the Draft Caribbean Regional Waste Action Plan developed by the Caribbean Water and Wastewater Association (CWWA) which, once implemented, would be adopted by the project countries and the UN Development Assistance Framework (UNDAF).

The relationship between the developed child project and areas identified by each country (through consultations and in National Plans) as key areas requiring technical assistance under this child project are summarized below.

Antigua and Barbuda – National capacities for chemicals testing and monitoring of imported products will be assessed and improved through activities including Activity 1.3.3 and 1.3.4. Specified waste streams of concern, including medical waste and e-waste will be addressed in Outputs 2 and 3, respectively. Additional priorities that will be addressed include improving the chemicals and waste management institutional, regulatory and management frameworks, providing opportunities for entrepreneurship in the waste sector, improved regional collaboration and awareness raising at the governmental, public and private sector levels. In line with priorities listed in the original and updated NIPs for the Stockholm Convention, the project aims to reduce UPOPs through raising awareness of the hazards associated with burning of municipal waste (Activity 2.1.4) and consider circular economy approaches to managing waste streams such as E-waste, ELVs and PVC plastics (Output 3). Further, in line with priorities listed in the Draft MIA Reports, the project aims to identify safe alternatives to mercury-added products and raise awareness on the issues posed by mercury. Overall, the project will contribute to the country's Medium Term Strategic Development Goals which include waste management and pollution control as priorities for Antigua and Barbuda.

Barbados – As with Antigua and Barbuda, Barbados indicated that development of laboratory analytical capacity was a national priority as well as the need for management strategies for difficult waste including e-waste. The NIPs indicated that disposing of existing POPs waste, preventing the generation of additional waste, prioritizing new POPs and improving the management of POP-PBDEs, PFOS stockpiles, and POPs waste and products were national priorities. These will be addressed under this child project thus further contributing to the identification of chemicals and waste as a priority in the 2009 National Chemicals Profile, the 2014 Chemicals Profile and the country's Integrated Solid Waste Management Strategy.

Belize – Belize's priorities include development of waste recovery facilities, introduction on levies for hazardous product imports, overall waste management with emphasis on wastewater/sludge treatment, e-waste, waste oils and agricultural waste, and monitoring of chemicals pollution in water bodies. The management of chemicals and waste is further highlighted in the country's 2015 National Solid Waste Management Policy and Strategy. Under the project, levies for imported EEEs will be considered (Output 3.1) and assistance will be provided to help the country build capacity for material recovery from WEEE (Output 3.2), managing other waste streams and monitoring chemicals and waste pollution. Additionally, as with the other countries, priorities highlighted in the initial and updated NIPs will be addressed through activities to reduce UPOPs emissions and POPs releases.

Dominican Republic – The project activities will address priorities identified through consultations and in the National Chemicals Profile (2013) including the development of strategies for managing mercury and its compounds (also highlighted by the MIA), implementation of GHS, inventories and strategies for hazardous waste, pesticides and e-waste management and improved recycling and resource recovery. While the ESM of marine plastics and microplastics will not be directly addressed, reduction in plastic wastes will be an indirect benefit of developed strategies for managing PVC plastics (Output 3.4) and other related activities.

Guyana – Like the other countries, improved capacity for hazardous waste management was identified as a priority by National representatives and in the 2013 NIP, the National Solid Waste Management Strategy (2013-2024) which specifies a need for resource recovery, and the Green State Development Strategy (2020-2040). Further priorities include incorporating Basel Convention text into national laws and regulations and improved management of products that contribute to releases of mercury and POPs. Mercury wastes from ASGM is a main issue in Guyana, however, this sector will not be addressed under this project as the country is currently conducting a separate national project focused on developing and implementing a National Action Plan for the ASGM sector.

Saint Kitts and Nevis – Similar priorities were highlighted by Saint Kitts and Nevis' national representatives and in the countries NIPs (2014 and 2019) and MIA Report (2018). As mentioned above, these priorities will be addressed throughout the project's execution. Further, requests for training, recommendation of environmentally accepted and cost-effective technologies and ESM of derelict vehicles and white waste will be considered through activities outlined in Outputs 1.2, 2.1, 3.2 and 3.3, respectively.

Saint Lucia – This child project will address the country's identified priorities including management of mercury added products, e-waste and POPs waste and overall hazardous waste treatment and storage. Saint Lucia will benefit from activities that will support phasing out mercury added products in keeping with its obligation to the Minamata Convention. Support for assessing sustainable and nationally appropriate waste treatment technologies will be provided as well as assistance with developing Extended Producer Responsibility schemes and implementing MEAs. The National Environmental Management Strategy (2014), 2007 and 2019 NIPs and MIA Report (2018) highlighted these areas as being integral to the country's overall development agenda.

Suriname – Sustainable management of chemicals is a priority for Suriname as per its National Chemicals Profile of 2011. Further national priorities, as with the other countries, include the disposal of POPs stockpiles (indicated in both the 2012 and 2019 NIPs), identification of alternatives to POPs containing products, financial and technical assistance for chemicals and waste management including training on hazardous materials, customs HS Codes and lab personnel, data collection and awareness raising. These will be addressed through various activities in the child project.

Trinidad and Tobago – Hazardous waste management, particularly for fluorescent bulbs, tyres, medical waste and e-waste will be addressed through the developed child project. The child project will also continue to build on the outputs of the GEF #5558 project to further fill gaps in the national framework for the environmentally sound management of POPs wastes, which was identified as a main issue in the 2015 and 2019 NIPs. Plastic waste streams are also a priority for this country as it is a producer of various types of plastics such as PVC and packaging, and it is a large generator of plastic wastes. Other key areas include access to reliable data to inform decision making, capacity building for border control and enforcement agencies, high-level government stakeholders and the public sector. The project has several expected outputs that aim to increase awareness at all levels (Component 4) and promote positive change in consumer behavior through the identification and dissemination of safe alternative products (Output 1.5). Promoting safe alternatives to chemicals added products is critical to correcting the concerns raised on mercury added products in the 2018 MIA. Mercury emissions from the extraction and use of fossil fuels will be indirectly addressed through awareness

raising initiatives. Overall, the project's outputs will contribute to the chemicals and waste management priorities listed in the National Environmental Policy 2019, the 2013 Integrated Solid Waste/Resource Management Policy and the 2016 Solid Waste Management Strategic Plan.

8. Knowledge Management. Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.

As outlined in the approved ISLANDS PFD, effective knowledge management is required to ensure that ISLANDS' Child Projects equate to more than the sum of their parts. That is, accumulated knowledge assets, derived from each of the ISLANDS Child Projects and SIDS-relevant resources from other historical and future activities, will be captured, stored, and distributed by the CCKM to key stakeholders through knowledge products, services and assets. The aim is to foster an environment of cross fertilisation between regions to ensure best practice is applied at global level thus "raising the bar" of environmental compliance, promote the use of evidence-based learning to deliver benefits across SIDS into the future, and to ensure the project acts as an efficient "hub," to the regional child project "spokes."

Under the ISLANDS Programmatic knowledge management approach, each ISLANDS Regional Child Project includes Component 4*: Coordination, knowledge management and communications*. This component is expected to lead to the outcome of SIDS' experiences being available to other SIDS, and that SIDS' learning exchange is active. Figure 8 shows the information and data flow expected throughout the Programme.

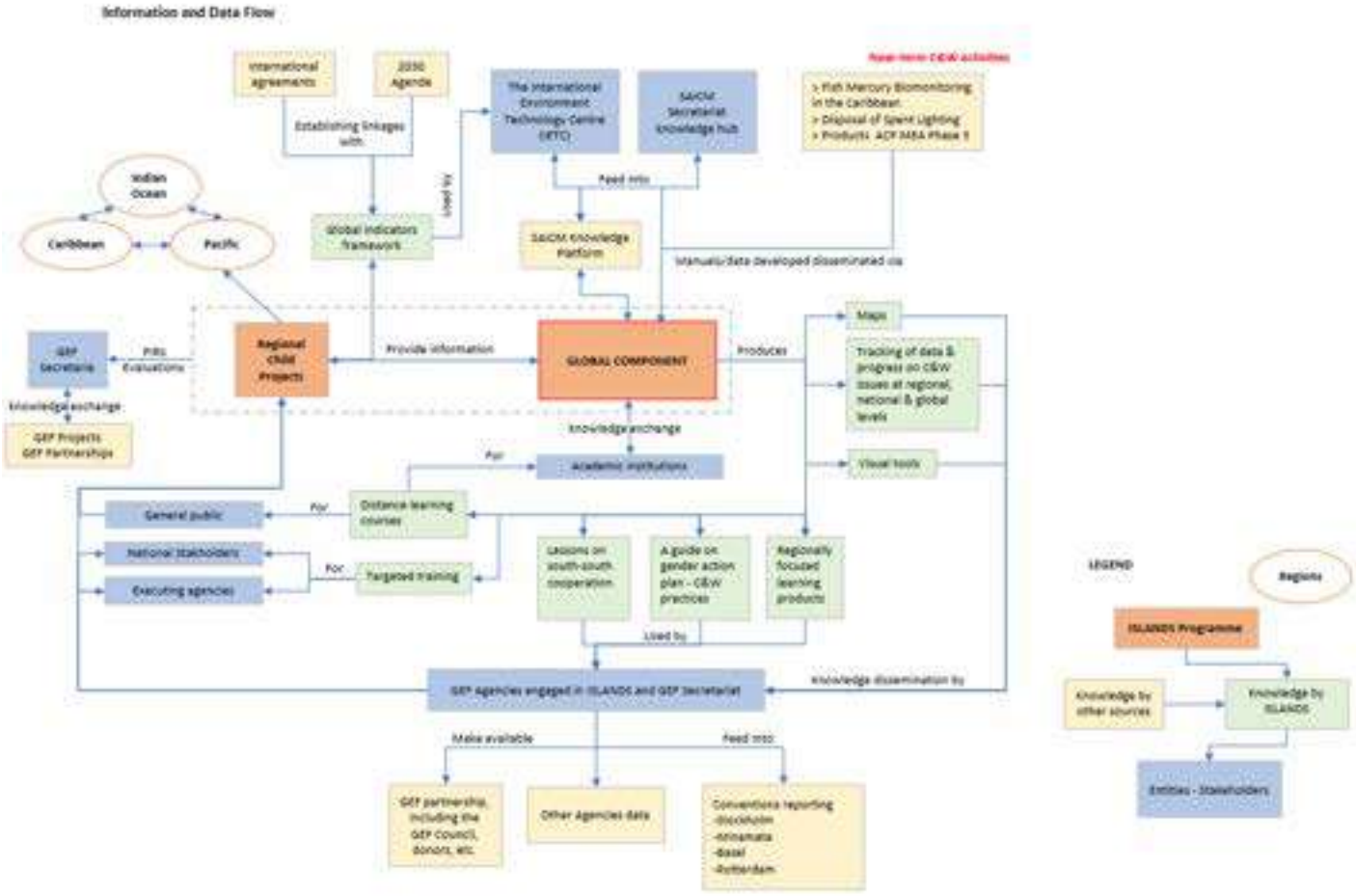


Figure 8: ISLANDS Programme flow of data and knowledge products

In the UNEP/FAO implemented Caribbean Child Project, activities under Component 4 will include dissemination of knowledge within the region using tools and material developed through the other project activities and the CCKM, as well as provide inputs to the CCKM for dissemination outside the region. The Caribbean project includes activities dedicated to the generation of case studies and sharing of lessons learned and knowledge on best practices and technologies related to chemicals and waste management for SIDS. The Child Project will also focus on developing regionally focused learning and awareness raising products derived from its completed activities. These are outlined in the Alternative Scenario (above) and budgeted under the respective Components. Key expected knowledge products include:

- Model policies and legislation to guide management of targeted waste streams and to enable EPR for WEEE
- Training plan and materials to train key stakeholders to execute training sessions on various aspects of chemicals and waste management
- Training plan and materials to fill gaps identified for implementation of the chemicals and waste MEAs; to build capacity of customs and border control agencies; to support the implementation of GHS; to sensitise stakeholders on the benefits of green procurement; to train key stakeholders on the use of developed guidelines; and to build capacity of personnel at WEEE treatment and recycling facilities
- Material Flow, Economic and Technical Assessment in order to design ELVs management scheme, considering a regional approach with a view to improve ELVs treatment capacity and develop pilot projects
- Training platform to house all training and awareness-raising material developed under the Child Project
- Strategies for improving national chemicals and waste management; implementing 8-digit or 10-digit HS Codes for specified mercury-added products; and managing and destroying PCBs, obsolete pesticides and chemicals, DDT stockpiles and selected mercury added products
- Database including findings of inventories conducted
- Guidelines to aid customs and border control agents with prescreening and inspecting imported goods and to support countries with managing hazardous waste streams specific to the Caribbean
- Awareness raising materials for identified safe alternatives to PFAS, POP-PBDEs, SCCPs, PCBs, PCNs and mercury containing products; to promote BAT/BEP and minimise UPOPs emissions from open burning; and to inform the public on developed take-back systems and other implemented waste management pilots

Detailed case studies and fact sheets will also be developed on the pilot projects conducted under the Child Project and the results of other activities.

The developed knowledge products will be disseminated regionally through training workshops with key stakeholders, awareness raising campaigns and the various online platforms that will be developed or enhanced under the project. Information will also be shared with stakeholders through PWC and NWG meetings. As previously stated, the products will be shared with other SIDS through the CCKM.

The timing of the development and delivery of these deliverables will be agreed and reviewed annually with the CCKM project, as part of the execution of the programmatic communications plan (Appendix 12). This plan will outline the links between knowledge creators with knowledge users, and sets out the timing of communications activities. The aim of the project's communications work is to increase the total number of ISLANDS beneficiaries by communicating information and disseminating knowledge on chemicals and wastes, increasing awareness among target groups, stimulating behaviour change, and expanding and extending project impact.

9. Monitoring and Evaluation. Describe the budgeted M & E plan.

Periodic monitoring by the BCRC-Caribbean, as Executing Agency, will be undertaken to ensure the timely implementation of the project activities. All monitoring activities will be in line with the requirements for Full-Sized Projects outlined in the GEF's revised Policy on Monitoring[47] (2019).

The BCRC-Caribbean will be responsible for monitoring day-to-day project activities and will develop and submit quarterly technical and financial reports UNEP and FAO on their respective components. These reports will track the progress according to the workplan and budget and identify any obstacles faced during implementation and mitigating actions to be taken. Templates for the quarterly progress and financial report will be provided by the implementing agencies.

The BCRC will develop the annual Project Implementation Report following a format provided by UNEP as lead implementing agency. The annual report will include progress towards programme-level outcomes, major milestones achieved through overall programme implementation, and engagement in regional or global fora as means to advance the overall programme goal.

In-line with the GEF Evaluation requirements the project will be subject to an independent Terminal Evaluation. Additionally, a performance assessment will be conducted at the project's mid-point. The UNEP Evaluation Office will decide whether a Mid-Term Review, commissioned and managed by the Task Manager, is sufficient or whether a Mid-Term Evaluation. Managed by the Evaluation Office, is required.

The Terminal Evaluation will be managed jointly by UNEP and FAO Evaluation Offices. The UNEP Evaluation Office will, however, lead the Terminal Evaluation (TE) and will liaise with the FAO Evaluation Office throughout the process. Key decision points in the evaluation process will be made jointly by both Evaluation Offices in a collaborative manner [finalisation of Evaluation ToRs, selection of evaluation consultants, review of draft report and acceptance of final report].

The Terminal Evaluation will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. It will have two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP, FAO, GEF, executing partners and other stakeholders. The direct costs of the evaluation will be charged against the project evaluation budget. The UNEP Task Manager will inform the UNEP Evaluation Office of the approaching Terminal Evaluation one year before the operational completion of the project.

The Terminal Evaluation report will be sent to project stakeholders for comment. Formal comments on the report will be shared by the Evaluation Offices in an open and transparent manner. The project performance will be assessed against standard evaluation criteria using a six-point rating scheme. The final determination of project ratings will be made by the Evaluation Offices of UNEP and FAO when the report is finalised. The evaluation report will be publicly disclosed and will be followed by a recommendation compliance process.

On a regional and national level, the project will be monitored by the PSC and NWGs. The PSC will meet annually to assess the project's progress and the effectiveness of its operations and technical outputs. Where needed, the PSC will also recommend changes to the work plan. NWGs will meet on an as-needed basis to review the project's national outputs and monitor its national impacts.

Table 9 Project Monitoring and Evaluation plan

M&E activity	Purpose	Responsible Party	Budget (US$)	Timeframe
Inception workshop	Review of project activities, outputs and intended outcomes; detailed work planning	EA	15,000	**Within two months of project start.Will convene virtually.**

[47] The GEF. (2019). GEF/C.56/03/Rev.01. Policy on Monitoring. https://www.thegef.org/sites/default/files/council-meeting-documents/EN_GEF.C.56.03.Rev_.01_Policy_on_Monitoring.pdf

Inception report	Provides implementation plan for progress monitoring	EA	Included in EA fee	**Immediately following Inception Workshop**
PSC meetings	Provide for project level oversight	EA	302,665	**Annually (convening virtually)**
Ongoing monitoring (project execution)	This activity will be ongoing to allow continuous monitoring of the execution of the project. This will be completed by the project coordinator and the finance and procurement officer	Project coordinator and Finance and Procurement Officer		**Ongoing**
Gender mainstreaming	A gender consultant will monitor gender mainstreaming and overall opportunities for women on an annual basis	Gender consultant	Included in activities	**Annually**
Annual reporting on progress to CCKM	This will be completed annually by the Project Coordinator	EA	Included in EA fee	**Annually**
Midterm Review	To assess project progress and to recommend corrective actions	Consultant	51,600	**At the midterm of the project**
Terminal report	Reviews effectiveness against implementation plan Highlights technical outputs Identifies lessons learned and likely design approaches for future projects, assesses likelihood of achieving design outcomes	EA	Included in EA fee	**At the end of project implementation**
Independent Terminal evaluation	Reviews effectiveness, efficiency and timeliness of project implementation, coordination mechanisms and outputs Identifies lessons learned and likely remedial actions for future projects Highlights technical achievements and assesses against prevailing benchmarks	UNEP Evaluation Office	84,852	**At end of project implementation**
Total indicative Monitoring &Evaluation cost			**$459,117**	

10. Benefits. Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

The ISLANDS programme will follow a holistic approach to chemicals and waste management that will result in environmental, social and economic benefits for SIDS in the Caribbean, Indian Ocean and Pacific. The planned project will be executed in a unique context. In following this approach, it is expected that environmental benefits for the Caribbean will stimulate better socioeconomic conditions and vice versa.

The UNEP/FAO Child Project first aims to reduce the quantities and variety of harmful chemicals and products containing harmful chemicals entering the project countries by strengthening the national and regional legislative, institutional and technical capacity to control the current and future trade of these items. The benefits of conducting such activities are the reduction in required costs for specialized waste management once these products reach their end-of-life and the reduced pressure on national waste management systems to treat and safely dispose of these complex waste streams.

A major gap identified was that of legislation. In Component 1, a detailed assessment of the existing legislation, in each of the participating countries for the specific hazardous chemicals and products and resultant waste streams. This

includes examining EEE, ELVs and mercury containing products and the existing regional or sub-regional regulatory mechanisms to manage hazardous streams. Here lessons learnt from other SIDS will be considered.

Another aim of the Child Project is to support and promote low-cost options for the environmentally sound management of hazardous chemicals and waste that cannot be avoided in the Caribbean. Achieving this aim will increase public and private sector access to safe chemicals and waste treatment and disposal options and lead to improved human and environmental health through reductions in pollution and toxic releases of chemicals such as POPs and mercury. Further, the project will seek to identify opportunities for creating a circular market for material recovery and recycling from various waste streams including WEEE and ELVs. These opportunities will engender public-private partnerships, create jobs within the chemicals and waste management sector and incorporate existing activities being conducted by formal and informal recyclers. Training of existing recyclers and waste handlers will be facilitated to improve ongoing practices, thereby reducing occupational exposure to toxic chemicals and increasing the value of the waste handled by these persons. Support will be given to project countries to identify sustainable financial mechanisms for implementing innovative circular economy solutions.

Increased capacity for ESM of hazardous chemicals and waste in the participating countries will result in the diversion of wastes from landfills which are generally not effectively designed to hold hazardous wastes and which have limited capacities. This would relieve existing pressures on landfills and increase their remaining life-span. Additionally, more effective land use in waste management through destruction of stockpiled obsolete chemicals and wastes, will increase land availability for more productive purposes.

Sound chemicals and waste management also increases resilience to other environmental issues such as environmental degradation and natural hazards. For example, HHP free farming and other alternative agricultural methods that make use of more environmentally friendly practices and generate less (hazardous) waste are less likely to increase soil erodibility, a compounding cause of environmental degradation. Furthermore, preventing hazardous chemicals and wastes from entering the natural environment leads to healthier ecosystems that are more resilient in the face of natural disasters, a significant benefit for the participating countries, some of which have primarily tourism-based economies and all of which are vulnerable to the effects of climate change. Improved resilience will also lower the future costs to be incurred for adapting to the environmental impacts of climate change.

An additional social benefit to the Child Project is increased public awareness on the impacts of chemicals and wastes and their poor management. By promoting awareness among national stakeholders, consumers and waste generators will be educated on the associated risks and will be empowered to make safer decisions which may lead to increased use of safe alternatives, increased feeder material for developed material recovery and recycling systems and improved environmental and human health. In Component 4, there is a focus on educating and empowering the youth through joining the Tide Turners movement to address plastics waste. Engaging youth to make changes in their personal plastic consumption, and in becoming community leaders, is essential to changing long-term behaviours around plastic and waste management in the Caribbean. Socially, the focus is expected to engage as opposed to marginalise, and empower, as opposed to disenfranchise youth.

List of Annexes and Appendices:

Annex A – Project Results Framework

Component 1: Preventing the Future Build-Up of Chemicals Entering SIDS						
Outcome 1	**Outcome Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP MTS Expected Result**
Countries have adopted environmentally sound policies and control the import of chemicals, materials and products that lead to the generation of hazardous waste	1. Quantity of waste and polluting chemicals avoided by the control of imports (Impact indicator 1.2) 2. No. of countries that adopted ESM policies for chemical wastes	Caribbean SIDS have varying levels of environmental legislation and controls in place to control imports of chemicals and the generation of hazardous wastes. Levels of capacity to develop, draft, enact, implement and enforce vary. Per year, project countries generate over 110,000 tonnes of WEEE; 410,000 t plastics; 190,000 t ELVs; 110,000 t waste oil; 40,000 t used tyres, and; 110,000 t used lead acid batteries. The great majority is generated in the Dominican Republic, followed by Trinidad and Tobago.	157,783 tonnes of POPs/Mercury containing waste avoided 9 countries have adopted environmentally sound policies	Policy information on national government websites Global trade data on UN Comtrade database	Countries fail to enact legislation within the lifetime of the project.	Policies and legal, institutional and fiscal strategies and mechanisms for waste prevention and sound chemicals management are developed or implemented in countries within the frameworks of relevant multilateral environmental agreements and SAICM
Component 1 Outputs	**Output Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP PoW Output**

						Reference Number
Output 1.1: The legislative and institutional framework is developed to support the environmentally sound management of hazardous chemicals in materials, products and wastes at national and regional levels in the Caribbean	3. No. of specific hazardous chemicals and wastes policies and legislation developed to support management at national and regional levels (Activity 1.1.2) (Impact Indicator 4.1) 4. No. of national strategies developed for adoption and implementation of the model policies and legislation (Activities 1.1.1, 1.1.2, 1.1.3) (Impact Indicator 4.2)	Very few countries have legislation which address hazardous chemicals in products and waste management; and none specifically highlight the products and waste streams which were identified in the updated NIPs and MIAs as problematic and those that will be considered in this output, namely, EEE, ELVs and mercury containing products. A regional legislative framework at the CARICOM level does not exist.	**Mid-term** 1 x detailed assessment of legal framework on EEEs, ELVs and MAPs **End of project** 1 x regional model policy and legislation for EEE 1 x regional model policy and legislation for ELVs 1 x regional model policy and legislation for mercury added products 9 x national strategies for adoption and implementation of model policies and legislation (one per country)	Regional model policy for EEE, ELVs and MAPs available on BCRC website Regional model legislation for EEE, ELVs and MAPs available on BCRC website Workshop reports from National Working Sessions National strategies for implementation available on BCRC website	Assumptions: 1. The required buy-in will be received from CARICOM and the relevant authorities in the Dominican Republic for the development of relevant regional models. 2. Each country has the empowering legislation to subsequently enact the model regulations or the parts thereof which are relevant to the country's needs.	5a1, 5a2, 5b1, 5b2
Output 1.2: Sustainable	5. No. of agencies personnel trained	A priority area of concern for project	**Mid-term**	TNA Report	Risk: High turnover of	5a2, 5a3, 5a5

training programme is developed to assist countries with implementing the Chemicals and Wastes MEAs at a national level	through "Training of Trainers" programme (Activities 1.2.1, 1.2.2) (Impact Indicator 10.3) 6. No. of people reached through an awareness raising programme on Chemicals and Wastes MEAs Training Platform (Activities 1.2.4, 1.2.5) (Impact Indicator 8.2)	countries is the absence of information on the waste and chemicals Multilateral Environmental Agreements (MEAs) tailored for the region, the concomitant challenge of meeting obligations under these Conventions, the limited capacity to stay abreast of the updates to the Conventions and the inherent need to improve implementation.	1 x Training Needs Assessment (TNA) 1 x sustainable training programme materials **<u>End of project</u>** 1 x Virtual "Training of Trainers" workshop 25 Trainers trained (at least 40 % female) 1 x online training platform 50 people reached by online training platform 1 x awareness raising programme 100 people reached by awareness raising programme	Press release on training from BCRC-Caribbean "Training of Trainers" Workshop report URL of online platform Survey after the completion of the Awareness Raising Programme	national focal points due to administrative changes. <u>Mitigation</u>: The BCRC-Caribbean will act as the repository for the information on its webpage and will be the custodian of the materials developed. This will allow for a standard guided approach to access the training material and a continuous update on the subject matter based on new information.	
Output 1.3: National, institutional and technical capacity to reduce/control the current and future trade of chemicals and products containing hazardous chemicals is strengthened	7. No. of formalized arrangements for inter-agency collaboration (Activity 1.3.1) (Impact Indicator 11.1) 8. No. of localized pre-screening and inspection guidelines developed and	The existing national and regional frameworks related to the control of trade in chemicals, products containing chemicals and wastes governed by the various chemicals and waste MEAs are generally weak. Some countries within the region do not have standardized	**<u>Mid-term</u>** 1 x Model Memorandum of Understanding (MOU) for formal institutional arrangements including requisite Terms of Reference for member agencies 1 x Pre-screening and Inspection Guidelines for MAPs	Model MOU Pre-screening and Inspection Guidelines for MAPs available on BCRC website Invoice for purchase of equipment for customs and border control agencies and	<u>Assumption</u>: Receipt of relevant input from Global Mercury Partnership, CARICOM and CARICOM Council for Trade and Economic Development	5a2

	tested for customs and border control agencies (Activity 1.3.2) (Impact Indicator 4.1)	systems in place for the identification and quantification of chemicals or product imports containing chemicals of concern. For items that are restricted and prohibited, several barriers exist which reduce the effectiveness and enforcement of the relevant legislation.	1 x training plan developed for customs and border control agencies on monitoring of imported chemicals. **<u>End of project</u>** 1 x pilot project to test guidelines through procurement of X-ray fluorescence devices or similar devices to detect liquid mercury. The pilot will be demonstrated in either Guyana or Suriname based on the assessment of the pre-screening and inspection procedures developed as a mid-term activity.	official confirmation of receipt Project report	(COTED) in the development of Inspection Guidelines and Training Plan. <u>Risk</u>: Availability of information from Customs agencies to complete analysis of potentially hazardous imports.	
Output 1.4: Increased capacity for the development and implementation of national and regional chemicals and products standards including GHS	9. No. of regional standards for classification and labelling of chemicals and products containing harmful chemicals developed (Activity 1.4.1) (Impact Indicator 4.1) 10. No. of roadmaps to support countries with developing and implementing national and regional standards developed	Each project country has a department with responsibility for the development of national standards with respect to goods, services, processes and practices. These departments also generally have responsibility for testing of products to ensure compliance with developed standards; however, limited capacity for testing in most countries has been noted. There is a need for the	**<u>Mid-term</u>** 1 x Assessment of existing national and regional labelling and product standards 1 x Assessment of GHS implementation in each project country MOU between BCRC-Caribbean and CROSQ **<u>End of project</u>** 2 x regional standards based on national	Assessment Report of GHS Implementation in 9 project countries and Gap Analysis benchmarked on GHS "Purple Book" Signed MOU between BCRC-Caribbean and CROSQ 2 Regional standards available on BCRC website	<u>Risks</u>: 1. National implementation is dependent on Cabinet and Parliamentary approvals. 2. Administrative changes and political will may affect implementat	5a1, 5a2

	(Activities 1.4.1, 1.4.2) (Impact Indicator 4.1)	development and implementation of product standards which can assist countries with regulating the import of products with harmful chemicals to support the identification of imports by border control officers.	priorities identified in the assessment 9 x national roadmaps for GHS Implementation	National roadmaps for implementation available on BCRC website	ion in some countries.	
Output 1.5: Sustainable Procurement is promoted to key stakeholders to reduce the manufacture/import of products containing hazardous chemicals	11. Number of alternatives available for PFAS, POP-PBDEs, SCCPs/PCBs/PCNs and mercury added products (Activities 1.5.1, 1.5.2, 1.5.3) (Impact Indicator	There are relatively low levels of investment in funding for alternative and sustainable production practices. Private and/or public funding for agroecological research and development is limited. Investment in the promotion of sustainably produced commodities is not sufficient. The ability of governments to access and exchange information and to be able to afford to apply this information is lacking.	**Mid-term** 1 x regional training workshop to increase awareness raising and capacity for Sustainable Procurement produced **End of project** 2 sustainable suitable alternatives to PFAS, POP-PBDEs, SCCPs/PCBs/PCNs and mercury added products assessed and selected	Assessment reports on enabling environment and suitable alternatives 5 Training workshop reports Communication Product on two (2) suitable alternatives for mercury- and POP-containing products which are imported into the region	Risks: Availability of suitable alternative products. Cost of suitable alternative products. Cost of retrofitting equipment to facilitate uptake of alternative products into operations.	5a1, 5a5
Component 2: Safe Management and Disposal of Existing Chemicals, products and materials						
Outcome 2	**Outcome Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP MTS Expected Result**

Harmful chemicals and materials present and/or generated in the countries are being disposed of in an environmentally sound manner	12. Quantities of harmful chemicals and materials present and/or generated in Caribbean SIDS that are being disposed of in an environmentally sound manner (Impact Indicators 1.1)	The project countries are at varying stages of ratification of the BRS and Minamata Conventions. Hazardous chemicals and waste systems in the Caribbean region are in the process of modernization, but practices vary based on income level and other limiting factors. There are large amounts of PBDE, HBCD, PFOS and Hg products present in the countries as well as uPOPs emissions. A rapid inventory assessment of obsolete equipment in 2016 (except Guyana and DR) identified 46.54 tonnes of PCBs oil and contaminated equipment for disposal abroad. Another inventory is underway in 4 project countries (ANU, BZE, SLU and SUR) as part of the GEF 5558 project. Dominican Republic and Guyana estimates 114 tonnes (2009 NIP) and 20 tonnes (2013 NIP) of PCBs and equipment.	**End of project** At least 75 tonnes of PCBs eliminated regionally. At least 200 tonnes of obsolete pesticides, DDT and other chemicals eliminated regionally. At least 2 tonnes mercury added products eliminated regionally. Reduction by at least 15 g TEQ/yr of PCDDs/Fs emissions regionally.	Project reports Chemicals destruction certificates Shipping documentation		Policies and legal, institutional and fiscal strategies and mechanisms for waste prevention and sound chemicals management are developed or implemented in countries within the frameworks of relevant multilateral environmental agreements and SAICM
Component 2 Outputs	**Output Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP PoW Output**

						Reference Number
Output 2.1: Capacity for environmentally sound management of SC POPs and MC Hg products strengthened, and obsolete pesticides and chemicals, PCBs and DDT eliminated	13. Number of regional strategies available for sound management and disposal of hazardous wastes 14. No. of relevant stakeholders reached through awareness campaign to promote application of BAT/BEP to minimize uPOPS emissions from open burning at illegal dumpsites (Activity 2.1.3) (Impact Indicator 8.2)	It is recognized that the Caribbean region is import dependent with very few countries having a developed manufacturing sector. Component 1 dealt with implementing to control the import of avoidable hazardous chemicals and chemicals in products into the countries. However, for chemicals and products containing hazardous chemicals that are already in the countries, those that are considered intrinsic to daily life and those without suitable alternatives, systems need to be in place to safely manage them on a national level and, where possible, as a region.	**Mid-term** 1 x development of regional strategy for the destruction/stabilisation of PCBs, obsolete pesticides and chemicals, DDT stockpiles and selected mercury added products 1 x app to empower the public to report illegal open dumpsites to the relevant authorities. Enforcement action taken against 10% of illegal activities reported. **End of project** 500 downloads of illegal dumping reporting app across both Android and iOS devices.	Regional strategy available on BCRC website Destruction certificates on BCRC website Waste manifests on BCRC website Revised UPOPs inventories for the year 2025 Illegal dumping reporting app available in Google Store and Apple's App Store	Assumption: PCB waste and obsolete chemicals will be exported under this project rather than through other regional or national initiatives. Risk: Limited resources for domestic enforcement of penalties for cases of illegal dumping reported through app. Shipping costs and market prices will determine the feasibility of the export operation. There is potential to involve private sector here, but their interest may fluctuate. If equipment or chemicals are stored improperly or in an unsecure environment	5a2, 5a5

					where there is potential for leaks or larceny, this will affect the quantity of materials which can be managed sustainably. It will also affect the feasibility of the export operation. <u>Mitigation</u>: This activity will be conducted in the second half of the project to enable as large as possible quantities of these chemicals to be accumulated to have maximum impact.	
Output 2.2: Capacity to manage other hazardous waste streams specific to the Caribbean improved	15. No. of guidelines/ roadmaps developed for the preparation and implementation of national hazardous waste management strategies (Activities 2.2.1, 2.2.2) (Impact Indicator 4.1) 16. No. of waste management professionals trained on	Several of the project countries lack Waste Management Strategies and Integrated Waste Management systems with the considerations for problematic and hazardous waste streams generally absent in the region. There are several challenges with the integration of the rural areas of the larger Project Countries into the waste management systems and	**<u>Mid-term</u>** One (1) regional model developed for strategic planning in the waste sector 9 x national roadmaps for hazardous waste management strategies (one for each country) 3 x regional guidelines for management of priority waste sectors or scenarios	Regional model for strategic planning available on BCRC website Draft roadmaps Draft regional guidelines Regional training report National hazardous waste management	<u>Assumption</u>: There are sufficient female professionals in the waste management sector to facilitate meeting the target of 40% of females trained on management of priority waste sectors. <u>Risks</u>:	5b1, 5b2, 5b3

	management of priority waste sectors or scenarios regionally (Activity 2.2.2) (Impact Indicator 10.1) 17. No. of national waste management plans prepared (Activity 2.2.3) (Impact Indicator 4.2)	this is reflected in the significant gaps of waste collection in these areas. In addition, the tourism industry is identified as a key contributor to waste generation rates in several of the countries, and there is a recognized need for the current waste management systems of the region to address this and other priority and emergent waste streams such as disaster waste.	At least 25 waste management professionals trained on management of priority waste sectors or scenarios regionally (at least 40% female) 1 x model national hazardous waste management plan with consideration to waste management in rural areas for regional use **End of project** 2 x demonstration projects (1 rural hazardous waste management, 1 agrochemical waste management)	strategies available on BCRC website Demonstration project designs available on BCRC website	Uptake of model by individual countries will depend on national priorities. Mitigation: Training resources will be available online, as the BCRC-Caribbean will serve as the repository for all training material developed.	
Component 3: Safe Management of Products entering SIDS/Closing Material and Product loops for Products						
Outcome 3	**Outcome Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP PoW Output Reference Number**
Build-up of harmful materials and chemicals is prevented through establishment of effective circular and life-cycle management systems in partnership with the private sector	18. Quantities of harmful materials and chemicals not disposed on dump sites (Impact Indicator 1.2)	In the Caribbean, private sector entities are contracted by governments and businesses for waste collection and disposal and landfill management. Additionally, most recycling, material recovery, waste treatment and waste/material export	**End of project** 50 tonnes of e-waste recycled regionally 50, 000 tonnes of plastics recycled regionally	Confirmation of receipt of Notification Document from Basel Convention competent authorities of States concerned in transboundary movement	Risks: Citizenship of country selected as e-waste hub may oppose the import of waste as per the “Not in My Backyard” mindset.	Policies and legal, institutional and fiscal strategies and mechanisms for waste prevention and sound chemicals management

		activities are led by the private sector and are driven by prices in the international recycling commodity markets. These activities occur in several Caribbean countries for a few hazardous waste streams including waste oil, e-wastes, and spent lead acid batteries as well as the recycling of non-hazardous wastes. Nonetheless, private sector waste management in the Caribbean is generally poorly developed and there are limited public-private partnerships to support chemicals and waste management.		Waste Manifests on BCRC website Destruction certificates on BCRC website	Limited shipping routes within Caribbean countries	are developed or implemented in countries within the frameworks of relevant multilateral environmental agreements and SAICM
Outputs	**Output Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP PoW Output Reference Number**
Output 3.1: EPR and Regional Approach to manage WEEE pilot tested in three participating countries	19. No. of EPR legislation drafted and enacted (Activities 3.1.1, 3.1.2) (Impact Indicator 4.1) 20. No. of EPR pilot projects designed and implemented (Activities 3.1.1,	WEEE management is a priority issue for the project countries. The baseline revealed that only the private sector (formal and informal) is involved in WEEE management and since it is unregulated, the majority of WEEE actually ends up in	**Mid-term** 3 x no. of legislation developed based on findings of Feasibility Assessment 1 x regional feasibility assessment on EPR for the management of WEEE	Feasibility Assessment on BCRC website EPR legislation drafted and on BCRC website EPR roadmaps on BCRC website	Risks: Persons may be concerned about security breaches during the recycling of their electronic devices. Uptake of legislation by	5b3, 5b4

	3.1.2) (Impact Indicator 3.1) 21. Regional pilot project designed and implemented (Activity 3.1.3) (Impact Indicator 3.1)	landfills. The baseline revealed that very few project countries have legislated EPR schemes and they consider only returnable containers or plastics.	3x EPR roadmaps for pilot projects developed based on findings of Feasibility Assessment Regional pilot project designed **<u>End of project</u>** 3 x EPR pilot projects implemented and at least 300 tonnes of WEEE collected through take-back systems. The countries in which pilot schemes will be implemented will be determined based on the feasibility study. Collect and treat at least 5 tonnes of potential POPs - containing WEEE through the regional pilot project Divert at least 50 tonnes of e-waste from landfills.	Regional pilot project roadmap on BCRC website M&E Report on each EPR pilot project.	individual countries Shipping costs and market prices will determine the feasibility of the export operation. Private sector interest may fluctuate. Limited shipping routes between countries. <u>Mitigation</u>: Recycling facility must provide evidence that best practices/ industrial standards are followed for data management.	
Output 3.2: Capacity built for the ESM of ELVs	22. No. of existing national ELV treatment facilities improved (Activities 3.2.1, 3.2.2, 3.2.3)	There is a lack of: information regarding quantities and flows of vehicles and ELVs; formal inter-ministerial and inter-stakeholder coordination mechanisms	**<u>Mid-term</u>** 1 x Regional Material Flow Assessment 1 x Regional Technical Assessment 1 x Regional Economic Assessment	Regional reports on material flow, technical and economic assessments	<u>Risks</u>: Limited air and sea routes by carriers between Caribbean countries. Some shipping lines	5b3, 5b4

	(Impact Indicator 3.1)	and exchange of information and weak institutional frameworks for ELVs management; specific policies and legal framework to ensure ESM of ELVs; formal processes for the deregistration of vehicles for their disposal; storage and treatment capacity and inadequate final disposal alternatives, and; there is a high level of used vehicle imports.	1 x BAT/BEP guidelines developed for collection, storage, transport and treatment at ELV management facilities regionally 1 x Training Workshop on BEP/BAT guidelines with at least 15 waste management professionals trained on ESM of ELVs in each project country (at least 40% female) **<u>End of project:</u>** Detailed assessment of 1 existing facility in 3 project countries based on technical, material flow and economic assessments. Customised roadmap for establishing an adequate and sufficient ELVs treatment facility in 3 project countries, selected based on technical, material flow and economic assessments	BAT/BEP Guidelines published on BCRC-Caribbean website Social media post on availability of guidelines Workshop on BAT/BEP guidelines Training Workshop Report Assessment report for existing facilities Customised roadmaps on BCRC website M&E Report on up-scaled facility	may not carry certain types of hazardous waste, e.g. wet ULABs, which are components of ELVs.	
Output 3.3: Improved management of plastics (including PVC) through the life-cycle approach	23. No. of recommendations enacted by the cruise industry (Activity 3.3.1)	From the baseline, it is evident that project countries are taking measures to recycle certain plastic waste streams; however, there	**<u>Mid-term</u>** Assessment of plastic waste flows from the cruise ship sector in the Dominican Republic	Material flow assessment reports for cruise ship waste in DR and PVC plastics in TTO and GUY	<u>Assumptions</u>: Continued support and collaboration with Carnival Cruise Line and	5b1, 5b2, 5b3, 5b4

and coordination with the public and private sectors	(Impact Indicator 3.1) 24. No. of policies developed for cruise ship waste (Activity 3.3.1) (Impact Indicator 4.1) 25. No. of recommendations developed to manage PVC plastics waste (Activities 3.3.2, 3.3.3) (Impact Indicator 4.1)	remains a gap in the knowledge and management of other types of plastics that are not typically recycled in the region nor disposed of in an environmentally sound manner. The baseline also noted that no project country has policies or legislation to manage PVC waste or promote its separation from general waste streams, whether considered as part of construction and demolition waste, EPR or as standalone policies.	XXX recommendations on ESM of plastic waste from cruise ship industry (quantity tbd during inception phase). XXX draft policies on ESM of cruise plastic wastes developed (quantity tbd during inception phase) Assessment of PVC waste flows in Trinidad & Tobago and Guyana **<u>End of project</u>** At least 1 cruise ship waste demonstration pilot project in the DR 20 % of plastics from cruise ship waste in DR diverted from landfills 1 x pilot project to demonstrate separation and diversion of PVC plastics waste from landfills in TTO 20% of PVC plastics diverted from landfills	Press releases on recommendations enacted by the cruise industry Recommendations to manage PVC plastics on BCRC website Policies on the ESM of cruise plastic waste on BCRC website Project reports for each pilot project Press release on pilot projects in DR and TTO	required buy-ins and approvals from stakeholders in Dominican Republic and Trinidad and Tobago for pilot projects	
Component 4: Knowledge Management and Communication						
Outcome 4	**Outcome Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP PoW Output Reference Number**

Knowledge generated by the project is disseminated to, and applied by, SIDS in all regions	No. of beneficiaries and users from SIDS adopting good practices and BAT as a result of improved awareness	Knowledge generated by projects and activities in SIDS is not currently shared, disseminated or communicated in a systematic way. As a result, and fuelled by geographic and language barriers, Caribbean SIDS rarely learn from each other, nor from the experiences of other SIDS.	700 beneficiaries and users from SIDS adopting good practices and BAT	KAP survey results on BCRC website List of Tide Turner Challenge Badge Earners	Assumptions: The ISLANDS programme accurately identifies SIDS stakeholders requiring information, and this information is used	Policies and legal, institutional and fiscal strategies and mechanisms for waste prevention and sound chemicals management are developed or implemented in countries within the frameworks of relevant multilateral environmental agreements and SAICM
Outputs	**Output Indicators**	**Baseline**	**Targets and Monitoring Milestones**	**Means of Verification**	**Assumptions & Risks**	**UNEP PoW Output Reference Number**
Output 4.1 Caribbean communities are informed and engaged with in the sound management of chemicals and waste	26. No. of knowledge assets generated and disseminated to Caribbean SIDS (Activity 4.1.1) (Impact Indicator 8.1) 27. No. of beneficiaries changing practices as a result of improved	The ISLANDS Programme has not yet started. Therefore, no products have been developed or placed on the website as yet. With respect to the Tide Turners Plastic Challenge, pilots are being implemented in three Caribbean countries	**Mid-term** KAP Survey on chemicals and waste management in the Caribbean developed and distributed via social media and intranet of public and private offices 1,000 responses **End of project**	Training materials available on website and website statistics KAP surveys and survey responses List of participants enrolled in Tide Turner Challenge	Assumptions: Communities are receptive to the introduction of sustainable financing measures.	5a5, 5b5

	awareness (Activity 4.1.2) (Impact Indicator 8.3) 28. No. of Tide Turner Challenge Badges issued (Activity 4.1.3) (Impact Indicator 8.2)	this year, namely Saint Lucia, Belize and in Antigua and Barbuda, through CYEN and local high schools with a small seed budget of 20,000 USD. The expansion of this programme will increase environmental awareness in youth and stimulate their behavioural change, which can influence the behaviour of the entire community.	2 Training Videos produced and uploaded to website 500 respondents show increase in knowledge on chemicals and waste management in the Caribbean according to KAP survey 200 Tide Turner Challenge Badges issued in Antigua and Barbuda, Barbados, Belize, Dominican Republic, Saint Lucia, Suriname, Trinidad and Tobago (TBC upon further research by Tide Turners)	List of Tide Turner Challenge Badge Earners		
Output 4.2 Programme reports on project activities developed and disseminated	29. No. of quarterly Programmatic update reports provided to the CCKM (Activities 4.2.1, 4.2.2) (Impact Indicator 9.1)	Cooperation and collaboration between SIDS on chemicals and waste management issues is currently very limited. The ISLANDS Programme has not yet started and therefore there is no quarterly communications or reporting.	**Mid-term** 10 x quarterly update reports provided to the CCKM **End of project** 10 x quarterly update reports provided to the CCKM	Reports	**Assumptions:** SIDS are interested in cooperating and collaborating on chemicals and waste management issues.	5a5, 5b5

Annex B – Response to project reviews

Annex B: Response to Project Reviews if applicable (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council, and responses to comments from the Convention Secretariat and STAP).

Response to GEF Secretariat Review

GEF noted that the co-financing of the PMC is less than the GEF amount. In the majority of projects, the practice is for the co-financing to be equal or greater than the GEF amount.

The co-financing for PMC is now greater than the GEF contribution. Significant co-financing is coming from SPREP towards project management.

Response to STAP Reviews

STAP reviewed the PFD, concurred with the ISLANDS Programme, and made the following comments on the concept of ISLANDS PFD that are relevant to this project (https://www.thegef.org/sites/default/files/web-documents/10185_STAP_Screen.pdf). These comments and the responses are included below:

• *The project has the potential to generate Global Environment Benefits (GEBs) beyond the chemicals and waste focal area including: biodiversity benefits (through the prevention of harmful impacts of chemicals and waste on terrestrial and marine ecosystems); international waters benefits (through the prevention of chemical pollution and plastic pollution of international waters); and climate change benefits (through the mitigation of greenhouse emissions from poor waste management). It is recommended that a detailed analysis of these co-benefits should be carried out at the PPG stage and the final interventions designed to maximize these co-benefits. STAP also suggests that detailed information about how the chemicals and waste GEBs were estimated should be provided at the PPG stage.*

Agency response: Noted. Section on GEBs addressed co-benefits in the areas of biodiversity, international waters, and climate change benefits. This section also includes details on the basis for GEB calculations.

• *Component 2: one of the proposed interventions includes infrastructure, for example, engineered landfills. Given the limited land mass of SIDS and the susceptibility of SIDS to the impacts of climate change, for example, sea-level rise and increased frequency of extreme weather events, it is recommended that other alternatives should be assessed to ascertain that landfill is the best option. If landfill is the best option, it is recommended that the BAT be deployed that includes effective leachate management, methane recovery and waste-to-energy applications.*

Agency response: This has been noted and BAT will be deployed.

• *Stakeholders: The proposal contains a good representation of stakeholders, but their expected role in the project is not specified. STAP believes that academic and research institutions, especially local ones, are important stakeholders for this type of project that involves the assessment of BAT, knowledge management and dissemination. It is therefore recommended that relevant academic and research institutions should be engaged.*

Agency response: This is noted and the project will ensure knowledge assets are shared with a network of SIDS based academic stakeholders. In addition, representatives from SIDS based academic institutions will be targeted to join the communities of practice.

• *Risks: The proposal presents a good preliminary analysis of the potential risks to the success of the project. STAP appreciates that the potential impact of climate change and sea-level rise is recognized and included in the preliminary risk analysis. It is important that ways of mitigating these risks be designed at the PPG stage and*

incorporated during project implementation. Beyond the identified risks, STAP recommends that the project proponents consider other potential risks, including political risk and coordination challenges for a large program.

Agency response: This is noted. Political risks are now included. During PPG an assessment of climate risks and mitigation measures was undertaken. The result of this are included in the Section on Risk and in the Risk Mitigation Plan.

Response to Country comments on the PFD

GEF Council members made the following comments on the project. Where these comments pertain to this child project, a response is provided in the righthand column

Country	Comment	Agency Response
Canada	- The project appears to address some of the systemic issues facing SIDS that prevent them from fully implementing the Minamata Convention. While not highlighted in the project proposal, greater control of imports and waste could also assist countries in fulfilling their reporting requirements under the Convention. - This project is in line with previously adopted Stockholm COP decisions and proposed actions to the GEF in the 2018-2022 priority areas.	Noted. UNEP concurs and under Component 1 work is planned to reduce imports and waste. This will assist Caribbean countries in fulfilling requirements under the Convention.
Germany	Germany welcomes this proposal, which addresses the major chemicals and waste issues in the SIDS through an interregional and intersectoral approach. At the same time, Germany has the following comments that it suggests be addressed in the next phase of finalizing the project proposal: Suggestions for improvements to be made during the drafting of the final project proposal: - The risks associated to the complex management structure should be addressed in the risk section of the PIF, as well as associated risk mitigation measures. As UNEP-Chemicals has already limited management capacities, Germany recommends to ensure that sufficient resources are provided in an early stage of project preparation. - In Component 1, the activity on "promotion and introduction of alternatives to identified priority chemicals and products (e.g. alternatives to POPs and Hg containing products, alternatives to HHPs, alternatives to certain plastics)(…)" does not clarify how identification is processed. Germany would welcome additional information on this component - In many sectors recording on chemical components contained in products is insufficient and incomplete. Germany therefore recommends to include the recording of chemicals and products as thematic building blocks in the component on strengthening regulatory/policy frameworks in the final proposal.	The global CCKM project will gather, synthesize and disseminate information on recording chemicals components contained in products. The Caribbean project will use and disseminate this information to inform stakeholders and change behaviours in the Caribbean region.

Norway/Denmark	- We are pleased that such a program is suggested for SIDS as they are especially vulnerable to these issues and have limited resources. - Please note (1) that the programme document itself states that there have been many initiatives on chemicals and waste across SIDS in the past. A common feature of many of these has been the failure to learn from experience (both positive and negative) and, to build on results and successes. The programme intends to address this issue which is very positive. - Several of the components refer to strengthening the national governments capacity to implement the BRS and Minamata Conventions, plus SAICM. One should be aware that there may be an overlap with UN Environment Special programme. How will this be addressed? - Indicator 5.3 concerns the amount of Marine Litter Avoided. The target is set at 185,400.00 Metric Tons (expected at PIF) which is higher than the total target set for GEF-7. Will GEF-7's target be increased? It is also noted that marine litter estimates are based on available country baseline data in term of marine litter generated. It is noted that some of these studies are dated and the data will be confirmed, and hopefully increased during PPG. - It is difficult to get a full overview of the elements of the program and these should be more detailed. It is positive that import control, substitution and collaboration with sectors generating waste are elements of the program. It is also positive that work is planned to promote regional management solutions as these are essential to ensure environmentally and economically sustainable waste solutions.	The potential overlap with countries with Special Programme activities is noted. During project preparation UNEP consulted both the Special Programme Secretariat and countries with Special Programme projects, to ensure national activities were complimentary, as opposed to duplicative of Special Programme activities.
US	- We believe that the overall goals of the ISLANDS program are positive and address important chemical and waste priorities, including those related to reducing plastic pollution. However, in the United States' view, the inclusion of project activities directed at advancing new national efforts to ban single-use plastic products or develop extended producer responsibility (EPR) mechanisms is not consistent with the GEF mandate, which is to achieve global environmental benefits. Single-use plastic bans do not yet have a demonstrated net environmental benefit, as analyses of the full economic and environmental impacts, including life-cycle analysis of the impact of plastic alternatives, are lacking. GEF interventions should focus on waste management to	The project does not propose single use plastic bans, however project countries that independently of the project introduce plastic bans during project execution, will contribute to the reduction of marine litter in core indicator 5.3. The project is focused on waste management to combat plastic

	combat plastic pollution. Unless activities related to the ban of single-use plastics and EPR are removed during further project development, the United States will not be in a position to support the Pacific Regional, Caribbean Regional, Indian Regional and Caribbean Incubator Child Projects at the CEO endorsement stage. - The United States would appreciate additional information on whether the Basel Convention Regional Centre for Training and Technology Transfer (BCRC Caribbean) has the demonstrated competency and experience in the promotion and implementation single-use plastic bans. The below comments from the United States were provided prior to the Council meeting. An initial agency response was provided and can be found in the list of documents specific to the project in the GEF Portal. - Can the GEF please provide a breakdown of the relative funding directed to each country	pollution. A tentative breakdown per country has been provided.

Annex C – PPG status

Annex C: Status of Utilization of Project Preparation Grant (PPG) and significant PPG outputs (If requesting for PPG reimbursement, please provide details in the table below:

UNEP – implemented PPG ($220,000)

Project Preparation Activities Implemented	***GETF/LDCF/SCCF Amount ($)***		
	Budgeted Amount	***Amount Spent To date***	***Amount Committed***
BCRC Contract	195,000	150,033	44,767
Lead Consultant	25,000	25,000	
Total	220,000	169,233	50,767

FAO – implemented PPG ($80,000)

Project Preparation Activities Implemented	***GETF/LDCF/SCCF Amount ($)***		
	Budgeted Amount	***Amount Spent To date***	***Amount Committed***
BCRC Contract	20,000	6,000	14,000
Consultants	42,000	29,775	12,225
Technical services	12,423	8,835	3,588
Travel	5,577	5,577	0
Total	80,000	50,187	29,813

Annex D – Reflow (not applicable)

Annex E – Maps and Coordinates

Please attach the geographical location and map of the project area, if possible.

Potentially Contaminated Sites in each of the participating Countries.


ATLANTIC OCEAN
VENEZUELA
Haags Bosch Sanitary Landfill
GUYANA
SURINAME
BRAZIL
Area claimed by Suriname
ISLANDS Caribbean
Potentially Contaminated Sites in
GUYANA


CARIBBEAN SEA
Canaries Landfill
RBL International Airport
JNF General Hospital
SAINT KITTS AND NEVIS
New Castle Fire Station
Low Ground Landfill
ISLANDS Caribbean
Potentially Contaminated Sites in
SAINT KITTS AND NEVIS


ATLANTIC OCEAN
CARIBBEAN SEA
Deglos Sanitary Landfill
SAINT LUCIA
Pesticide storage site (Soufriere)
Vieux Fort Solid Waste Management Facility
Fire Service Training Area
©1998, Encyclopædia Britannica, Inc.
ISLANDS Caribbean
Potentially Contaminated Sites in
SAINT LUCIA


Cheltenburg Dumpsite
Onverwacht Landfill
Domestic Waste Landfill Wageningen
Johan Adolf Pengel International Airport
Marienburg Pesticide Storage Site
Paoepost Pesticide Storage Site
ATLANTIC OCEAN
SURINAME
GUYANA
FRENCH GUIANA
BRAZIL
Area claimed by Suriname
Note:
- Broad areas within Suriname have also been described as potentially contaminated
- Estimated 35,000 ha of rice fields were sprayed in the 1980s/70s with PCP containing PCDD/Fs
- Former bauxite mines
ISLANDS Caribbean
Potentially Contaminated Sites in
SURINAME

Annex F – Core indicators

GEF 7 Core Indicator Worksheet

Use this Worksheet to compute those indicator values as required in Part I, Table F to the extent applicable to your proposed project. Progress in programming against these targets for the program will be aggregated and reported at anytime during the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCF.

Core Indicator 5	**Area of marine habitat under improved practices to benefit biodiversity**					***(Hectares)***
Indicator 5.1	Number of fisheries that meet national or international third-party certification that incorporates biodiversity considerations					
Third party certification(s):			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 5.2	Number of large marine ecosystems (LMEs) with reduced pollution and hypoxial					
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 5.3	Amount of Marine Litter Avoided					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
			150,000	*150,000*		
Core Indicator 9	**Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products**					***(Metric Tons)***
			Metric Tons (9.1+9.2+9.3)			
			Expected		Achieved	
			PIF stage	PIF stage	MTR	TE
			419.222	*451.67*		
Indicator 9.1	Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)					
POPs type			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		DDT	0	*0*		
		PCB	*17.79*	*152*		
		PFOS	*146*	*3.7*		
		PBDE	*2.42*	*6.9*		
		OBDE	0.122	*1.7*		
		HHP	*220*	*220*		
Indicator 9.2	Quantity of mercury reduced					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
			33	*69*		
Indicator 9.3	Hydrochloroflurocarbons (HCFC) Reduced/Phased out					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE

Indicator 9.4	Number of countries with legislation and policy implemented to control chemicals and waste					
			Number of Countries			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
			9	*9*		
Indicator 9.5	Number of low-chemical/non-chemical systems implemented particularly in food production, manufacturing and cities					
		Technology	Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		EPR	*9*	*9*		
Indicator 9.6	Quantity of POPs/Mercury containing materials and products directly avoided					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	PIF stage	Endorsement
			9,008	*157,785*		
Core Indicator 10	**Reduction, avoidance of emissions of POPs to air from point and non-point sources**					***(grams of toxic equivalent gTEQ)***
Indicator 10.1	Number of countries with legislation and policy implemented to control emissions of POPs to air					
			Number of Countries			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 10.2	Number of emission control technologies/practices implemented					
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Core Indicator 11	**Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment**					***(Number)***
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		Female	1,495,500	1,450,818		
		Male	1,495,500	*1,450,818*		
		Total	*2,813,000*	*2,901,636*		

Annex G – Taxonomy

GEF Project Taxonomy Worksheet

Use this Worksheet to list down the taxonomic information required under Part I, item G by ticking the most relevant keywords/ topics/themes that best describe this project.

Level 1	Level 2	Level 3	Level 4
☒ **Influencing models**			
	☒ **Transform policy and regulatory environments**		
	☒ **Strengthen institutional capacity and decision-making**		
	☒ **Convene multi-stakeholder alliances**		
	☒ **Demonstrate innovative approaches**		
	☐ **Deploy innovative financial instruments**		
☒ **Stakeholders**			
	☒ **Indigenous Peoples**		
	☒ **Private Sector**		
		☐ Capital providers	
		☐ Financial intermediaries and market facilitators	
		☒ Large corporations	
		☒ SMEs	
		☒ Individuals/Entrepreneurs	
		☐ Non-Grant Pilot	
		☐ Project Reflow	
	☒ **Beneficiaries**		
	☒ **Local Communities**		
	☒ **Civil Society**		
		☒ Community Based Organization	
		☒ Non-Governmental Organization	
		☒ Academia	
		☐ Trade Unions and Workers Unions	
	☒ **Type of Engagement**		
		☒ Information Dissemination	
		☐ Partnership	
		☒ Consultation	
		☒ Participation	
	☒ **Communications**		
		☒ Awareness Raising	
		☒ Education	
		☒ Public Campaigns	
		☒ Behavior Change	
☒ **Capacity, Knowledge and Research**			
	☐ **Enabling Activities**		
	☒ **Capacity Development**		
	☒ **Knowledge Generation and Exchange**		
	☐ **Targeted Research**		
	☒ **Learning**		
		☒ Theory of Change	
		☒ Adaptive Management	
		☒ Indicators to Measure Change	
	☒ **Innovation**		
	☒ **Knowledge and Learning**		
		☒ Knowledge Management	
		☒ Innovation	
		☒ Capacity Development	

		☒Learning	
	☒**Stakeholder Engagement Plan**		
☒**Gender Equality**			
	☒**Gender Mainstreaming**		
		☒Beneficiaries	
		☒Women groups	
		☒Sex-disaggregated indicators	
		☒Gender-sensitive indicators	
	☒**Gender results areas**		
		☐Access and control over natural resources	
		☐Participation and leadership	
		☒Access to benefits and services	
		☒Capacity development	
		☒Awareness raising	
		☒Knowledge generation	
☒**Focal Areas/Theme**			
	☐**Integrated Programs**		
		☐Commodity Supply Chains ([48]Good Growth Partnership)	
			☐Sustainable Commodities Production
			☐Deforestation-free Sourcing
			☐Financial Screening Tools
			☐High Conservation Value Forests
			☐High Carbon Stocks Forests
			☐Soybean Supply Chain
			☐Oil Palm Supply Chain
			☐Beef Supply Chain
			☐Smallholder Farmers
			☐Adaptive Management
		☐Food Security in Sub-Sahara Africa	
			☐Resilience (climate and shocks)
			☐Sustainable Production Systems
			☐Agroecosystems
			☐Land and Soil Health
			☐Diversified Farming
			☐Integrated Land and Water Management
			☐Smallholder Farming
			☐Small and Medium Enterprises
			☐Crop Genetic Diversity
			☐Food Value Chains
			☐Gender Dimensions
			☐Multi-stakeholder Platforms
		☐Food Systems, Land Use and Restoration	
			☐Sustainable Food Systems
			☐Landscape Restoration
			☐Sustainable Commodity Production
			☐Comprehensive Land Use Planning
			☐Integrated Landscapes
			☐Food Value Chains
			☐Deforestation-free Sourcing
			☐Smallholder Farmers
		☐Sustainable Cities	
			☐Integrated urban planning
			☐Urban sustainability framework
			☐Transport and Mobility
			☐Buildings
			☐Municipal waste management
			☐Green space
			☐Urban Biodiversity
			☐Urban Food Systems

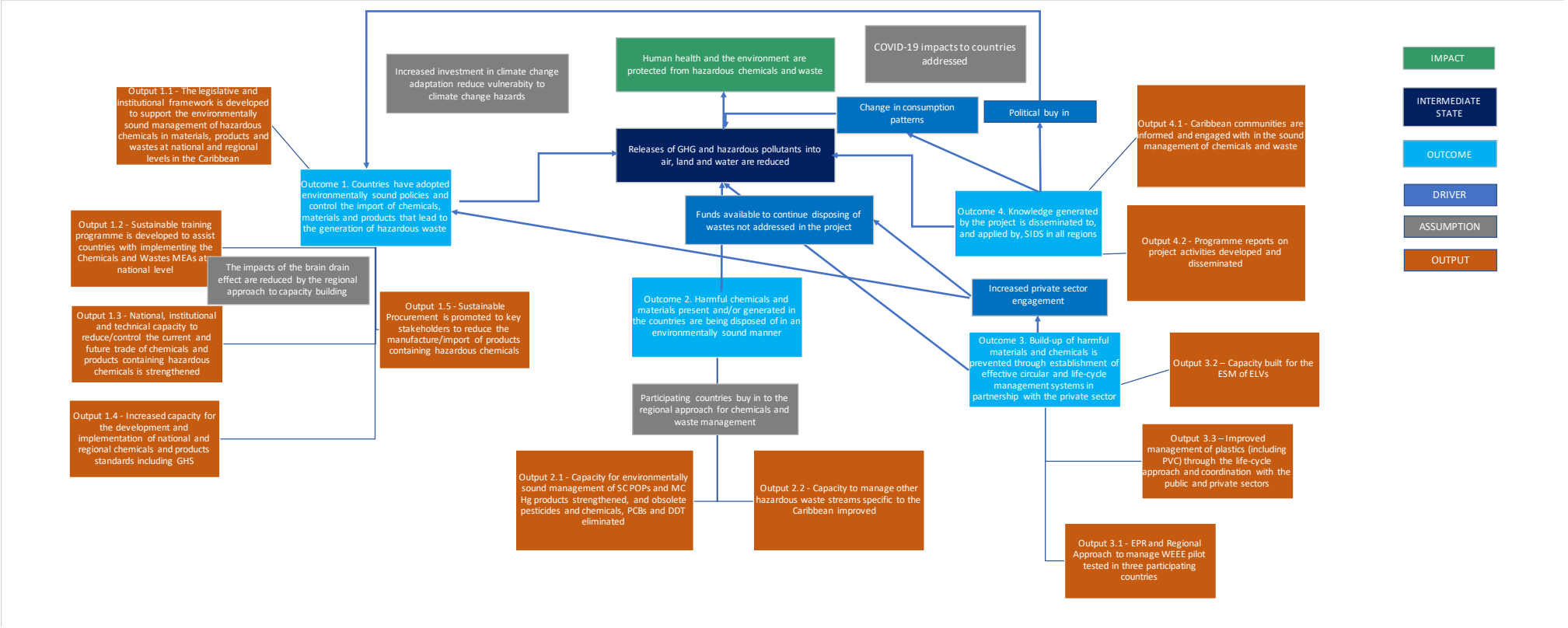
48

			☐ Energy efficiency
			☐ Municipal Financing
			☐ Global Platform for Sustainable Cities
			☐ Urban Resilience
	☐ **Biodiversity**		
		☐ Protected Areas and Landscapes	
			☐ Terrestrial Protected Areas
			☐ Coastal and Marine Protected Areas
			☐ Productive Landscapes
			☐ Productive Seascapes
			☐ Community Based Natural Resource Management
		☐ Mainstreaming	
			☐ Extractive Industries (oil, gas, mining)
			☐ Forestry (Including HCVF and REDD+)
			☐ Tourism
			☐ Agriculture & agrobiodiversity
			☐ Fisheries
			☐ Infrastructure
			☐ Certification (National Standards)
			☐ Certification (International Standards)
		☐ Species	
			☐ Illegal Wildlife Trade
			☐ Threatened Species
			☐ Wildlife for Sustainable Development
			☐ Crop Wild Relatives
			☐ Plant Genetic Resources
			☐ Animal Genetic Resources
			☐ Livestock Wild Relatives
			☐ Invasive Alien Species (IAS)
		☐ Biomes	
			☐ Mangroves
			☐ Coral Reefs
			☐ Sea Grasses
			☐ Wetlands
			☐ Rivers
			☐ Lakes
			☐ Tropical Rain Forests
			☐ Tropical Dry Forests
			☐ Temperate Forests
			☐ Grasslands
			☐ Paramo
			☐ Desert
		☐ Financial and Accounting	
			☐ Payment for Ecosystem Services
			☐ Natural Capital Assessment and Accounting
			☐ Conservation Trust Funds
			☐ Conservation Finance
		☐ Supplementary Protocol to the CBD	
			☐ Biosafety
			☐ Access to Genetic Resources Benefit Sharing
	☐ **Forests**		
		☐ Forest and Landscape Restoration	
			☐ REDD/REDD+
		☐ Forest	
			☐ Amazon
			☐ Congo
			☐ Drylands
	☐ **Land Degradation**		
		☐ Sustainable Land Management	

			☐ Restoration and Rehabilitation of Degraded Lands
			☐ Ecosystem Approach
			☐ Integrated and Cross-sectoral approach
			☐ Community-Based NRM
			☐ Sustainable Livelihoods
			☐ Income Generating Activities
			☐ Sustainable Agriculture
			☐ Sustainable Pasture Management
			☐ Sustainable Forest/Woodland Management
			☐ Improved Soil and Water Management Techniques
			☐ Sustainable Fire Management
			☐ Drought Mitigation/Early Warning
		☐ Land Degradation Neutrality	
			☐ Land Productivity
			☐ Land Cover and Land cover change
			☐ Carbon stocks above or below ground
		☐ Food Security	
	☒ **International Waters**		
		☐ Ship	
		☐ Coastal	
		☐ Freshwater	
			☐ Aquifer
			☐ River Basin
			☐ Lake Basin
		☐ Learning	
		☐ Fisheries	
		☐ Persistent toxic substances	
		☒ SIDS : Small Island Dev States	
		☐ Targeted Research	
		☒ Pollution	
			☐ Persistent toxic substances
			☒ Plastics
			☐ Nutrient pollution from all sectors except wastewater
			☐ Nutrient pollution from Wastewater
		☐ Transboundary Diagnostic Analysis and Strategic Action Plan preparation	
		☐ Strategic Action Plan Implementation	
		☐ Areas Beyond National Jurisdiction	
		☐ Large Marine Ecosystems	
		☐ Private Sector	
		☐ Aquaculture	
		☐ Marine Protected Area	
		☐ Biomes	
			☐ Mangrove
			☐ Coral Reefs
			☐ Seagrasses
			☐ Polar Ecosystems
			☐ Constructed Wetlands
	☒ **Chemicals and Waste**		
		☒ Mercury	
		☒ Artisanal and Scale Gold Mining	
		☐ Coal Fired Power Plants	
		☐ Coal Fired Industrial Boilers	
		☐ Cement	
		☐ Non-Ferrous Metals Production	
		☐ Ozone	
		☒ Persistent Organic Pollutants	
		☒ Unintentional Persistent Organic Pollutants	
		☒ Sound Management of chemicals and Waste	

		☒ Waste Management	
			☒ Hazardous Waste Management
			☒ Industrial Waste
			☒ e-Waste
		☒ Emissions	
		☒ Disposal	
		☒ New Persistent Organic Pollutants	
		☒ Polychlorinated Biphenyls	
		☒ Plastics	
		☒ Eco-Efficiency	
		☒ Pesticides	
		☒ DDT - Vector Management	
		☐ DDT - Other	
		☒ Industrial Emissions	
		☒ Open Burning	
		☒ Best Available Technology / Best Environmental Practices	
		☐ Green Chemistry	
	☒ **Climate Change**		
		☒ **Climate Change Adaptation**	
			☐ Climate Finance
			☐ Least Developed Countries
			☒ Small Island Developing States
			☒ Disaster Risk Management
			☒ Sea-level rise
			☒ Climate Resilience
			☐ Climate information
			☐ Ecosystem-based Adaptation
			☐ Adaptation Tech Transfer
			☐ National Adaptation Programme of Action
			☐ National Adaptation Plan
			☐ Mainstreaming Adaptation
			☐ Private Sector
			☐ Innovation
			☐ Complementarity
			☐ Community-based Adaptation
			☐ Livelihoods
		☐ **Climate Change Mitigation**	
			☐ Agriculture, Forestry, and other Land Use
			☐ Energy Efficiency
			☐ Sustainable Urban Systems and Transport
			☐ Technology Transfer
			☐ Renewable Energy
			☐ Financing
			☐ Enabling Activities
		☐ **Technology Transfer**	
			☐ Poznan Strategic Programme on Technology Transfer
			☐ Climate Technology Centre & Network (CTCN)
			☐ Endogenous technology
			☐ Technology Needs Assessment
			☐ Adaptation Tech Transfer
		☐ **United Nations Framework on Climate Change**	
			☐ Nationally Determined Contribution

Appendix 1 – Theory of Change



Appendix 2 – GEF Budget

				ALLOCATION PER COMPONENT							ALLOCATION BY CALENDAR YEAR					
				Total	Component 1	Component 2	Component 3	Component 4	M&E	PMC	Y1	Y2	Y3	Y4	Y5	Total
UNEP BUDGET LINE/OBJECT OF EXPENDITURE				US$	US$	US$	US$	US$	US$	US$	US$	US$	US$	US$	US$	US$
10	UMOJA CODES	PROJECT PERSONNEL COMPONENT														
		1100	Project Personnel (Project Management 5% of overall total)													
	1161	1101	Project Coordinator	365,950.00	0.00	0.00	0.00	0.00	0.00	365,950.00	73,190.00	73,190.00	73,190.00	73,190.00	73,190.00	365,950.00
	1161	1102	Agricultural Officer (Technical Assistance)	348,000.00	323,000.00	25,000.00	0.00	0.00	0.00	0.00	63,800.00	73,800.00	86,300.00	71,300.00	52,800.00	348,000.00
		1199	Sub-Total	713,950.00	323,000.00	25,000.00	0.00	0.00	0.00	365,950.00	136,990.00	146,990.00	159,490.00	144,490.00	125,990.00	713,950.00
		1200	Consultants w/m													
	1161	1201	Regional Legal and Institutional Expert	160,000.00	160,000.00	0.00	0.00	0.00	0.00	0.00	80,000.00	80,000.00	0.00	0.00	0.00	160,000.00
	1161	1202	Regional Legal and Procurement Expert	50,000.00	50,000.00	0.00	0.00	0.00	0.00	0.00	0.00	25,000.00	25,000.00	0.00	0.00	50,000.00
	1161	1203	Regional expert on customs and border control of chemicals (agriculture)	54,000.00	54,000.00	0.00	0.00	0.00	0.00	0.00	0.00	37,000.00	17,000.00	0.00	0.00	54,000.00
	1161	1204	Regional Private Sector Partnership Expert	58,500.00	58,500.00	0.00	0.00	0.00	0.00	0.00	0.00	31,750.00	26,750.00	0.00	0.00	58,500.00
	1161	1205	Regional expert on Public Procurment of Pesticides	35,000.00	35,000.00	0.00	0.00	0.00	0.00	0.00	0.00	20,000.00	15,000.00	0.00	0.00	35,000.00
	1161	1206	Regional Expert on Bio-pesticides	59,000.00	59,000.00	0.00	0.00	0.00	0.00	0.00	0.00	35,000.00	24,000.00	0.00	0.00	59,000.00
	1161	1207	Regional Expert on Consumer Risk Assesment (MRL)	33,460.00	33,460.00	0.00	0.00	0.00	0.00	0.00	0.00	20,000.00	13,460.00	0.00	0.00	33,460.00
	1161	1208	Regional expert on Pesticide Stock Management	110,000.00	0.00	110,000.00	0.00	0.00	0.00	0.00	0.00	0.00	55,000.00	55,000.00	0.00	110,000.00
	1161	1209	Regional Expert on Pesticide Container Management	55,000.00	0.00	55,000.00	0.00	0.00	0.00	0.00	0.00	35,000.00	20,000.00	0.00	0.00	55,000.00
	1161	1210	Regional Gender/Vulnerable Groups and Socio-Economic Expert	104,191.00	104,191.00	0.00	0.00	0.00	0.00	0.00	30,237.00	30,237.00	17,487.00	17,487.00	8,743.00	104,191.00
	1161	1211	Regional Pesticide Management Expert (life-cycle)	208,512.00	208,512.00	0.00	0.00	0.00	0.00	0.00	50,412.00	45,900.00	45,900.00	45,900.00	20,400.00	208,512.00
	1161	1212	Regional Expert on Alternatives to Pesticides	87,440.00	87,440.00	0.00	0.00	0.00	0.00	0.00	21,860.00	21,860.00	21,860.00	21,860.00	0.00	87,440.00
	1161	1213	Regional Technical Consultant for Standards Development	30,000.00	30,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,000.00	15,000.00	30,000.00
	1161	1214	Regional Technical and Economic Consultant on Alternatives	80,000.00	80,000.00	0.00	0.00	0.00	0.00	0.00	0.00	40,000.00	40,000.00	0.00	0.00	80,000.00
	1161	1215	Regional Private Sector Partnership Expert	38,993.00	38,993.00	0.00	0.00	0.00	0.00	0.00	11,000.00	11,000.00	6,871.50	6,871.50	3,250.00	38,993.00
	1161	1216	Regional GHS Expert	65,350.00	65,350.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50,350.00	15,000.00	0.00	65,350.00
	1161	1217	Regional expert on Labelling Practice for Pesticides	45,000.00	45,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35,000.00	10,000.00	0.00	45,000.00
	1161	1218	Regional Training Consultant	577,000.00	387,000.00	150,000.00	40,000.00	0.00	0.00	0.00	104,000.00	189,000.00	247,000.00	37,000.00	0.00	577,000.00
	1161	1219	Regional Capacity Development Consultant	130,925.00	130,925.00	0.00	0.00	0.00	0.00	0.00	31,615.00	28,615.00	28,065.00	21,315.00	21,315.00	130,925.00
	1161	1220	Regional Hazardous Waste Management Consultant	200,000.00	0.00	200,000.00	0.00	0.00	0.00	0.00	0.00	0.00	40,000.00	80,000.00	80,000.00	200,000.00
	1161	1221	National Hazardous Waste Disposal Contractor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1161	1222	Regional Communications expert with technical support	40,000.00	0.00	40,000.00	0.00	0.00	0.00	0.00	0.00	0.00	40,000.00	0.00	0.00	40,000.00
	1161	1223	Regional Software developer with technical support	170,483.00	99,683.00	70,800.00	0.00	0.00	0.00	0.00	23,111.60	22,111.60	74,486.60	33,286.60	17,486.60	170,483.00
	1161	1224	Regional Consulting team (Hazardous waste management consultant , Communcations expert, Socio-economic expert)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1161	1225	Regional Legal Consultant	100,000.00	0.00	0.00	100,000.00	0.00	0.00	0.00	0.00	100,000.00	0.00	0.00	0.00	100,000.00

	1161	1226	Regional EEE Expert	**100,000.00**	0.00	0.00	100,000.00	0.00	0.00	0.00	0.00	50,000.00	50,000.00	0.00	0.00	**100,000.00**
	1161	1227	Regional Economist	**60,000.00**	0.00	0.00	60,000.00	0.00	0.00	0.00	0.00	40,000.00	20,000.00	0.00	0.00	**60,000.00**
	1161	1228	Regional Consulting team (Hazardous waste management consultant ELVs Expert, Economics Expert, Training Consultant , Legal Expert)	**520,000.00**	0.00	400,000.00	120,000.00	0.00	0.00	0.00	0.00	250,000.00	270,000.00	0.00	0.00	**520,000.00**
	1161	1229	Regional Technical Expert in plastics and material flows	**25,000.00**	0.00	0.00	25,000.00	0.00	0.00	0.00	0.00	10,000.00	15,000.00	0.00	0.00	**25,000.00**
	1161	1230	Regional Communications Consultants	**76,220.00**	0.00	0.00	0.00	76,220.00	0.00	0.00	28,200.00	24,200.00	13,200.00	5,310.00	5,310.00	**76,220.00**
	1161	1231	National Consultants	**1,456,750.00**	328,500.00	606,750.00	121,500.00	400,000.00	0.00	0.00	174,500.00	314,000.00	275,000.00	181,250.00	512,000.00	**1,456,750.00**
	1161	1232	Regional Technical Advisor	**102,711.00**	3,500.00	4,000.00	3,000.00	92,211.00	0.00	0.00	19,000.00	25,000.00	20,500.00	19,500.00	18,711.00	**102,711.00**
		1299	Sub-Total	**4,833,535.00**	2,059,054.00	1,636,550.00	569,500.00	568,431.00	0.00	0.00	573,935.60	1,485,673.60	1,506,930.10	564,780.10	702,215.60	**4,833,535.00**
		1300	**Administrative Support**													
	1161	1301	Administrative assistant	**53,000.00**	0.00	0.00	0.00	0.00	0.00	53,000.00	10,000.00	10,000.00	10,000.00	11,000.00	12,000.00	**53,000.00**
		1302	HR, procurement and financial management	**67,850.00**	0.00	0.00	0.00	0.00	0.00	67,850.00	13,000.00	13,850.00	14,000.00	14,000.00	13,000.00	**67,850.00**
		1600	**Travel on official business (above staff)**													
	1561	1601	Travel	**159,100.00**	57,650.00	63,450.00	38,000.00	0.00	0.00	0.00	14,750.00	61,150.00	50,750.00	19,200.00	13,250.00	**159,100.00**
		1699	Sub-Total	**279,950.00**	57,650.00	63,450.00	38,000.00	0.00	0.00	120,850.00	24,750.00	71,150.00	60,750.00	30,200.00	25,250.00	**279,950.00**
		1999	**Component Total**	**5,827,435.00**	**2,439,704.00**	**1,725,000.00**	**607,500.00**	**568,431.00**	**0.00**	**486,800.00**	**735,675.60**	**1,703,813.60**	**1,727,170.10**	**739,470.10**	**853,455.60**	**5,827,435.00**
20		**SUB CONTRACT COMPONENT**														
		2100	**Sub contracts (UN Organizations) (*not relevant)**													
	2261	2101		**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
		2199	Sub-Total	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
		2200	**Sub contracts (SSFA, PCAs, non UN) (*not relevant)**													
		2201	University of West Indies on sustainable procurement and tarining (farmers, distributors)	**72,500.00**	72,500.00	0.00	0.00	0.00	0.00	0.00	0.00	72,500.00	0.00	0.00	0.00	**72,500.00**
		2299	Sub-Total	**72,500.00**	72,500.00	0.00	0.00	0.00	0.00	0.00	0.00	72,500.00	0.00	0.00	0.00	**72,500.00**
		2999	**Component Total**	**72,500.00**	72,500.00	0.00	0.00	0.00	0.00	0.00	0.00	72,500.00	0.00	0.00	0.00	**72,500.00**
30		**TRAINING COMPONENT**														
		3200	**Group training (field trips, WS, etc.)**													
	3302 and 3303	3201	Training materials	**316,192.00**	244,192.00	50,000.00	22,000.00	0.00	0.00	0.00	59,064.00	118,064.00	110,064.00	29,000.00	0.00	**316,192.00**
		3299	Sub-Total	**316,192.00**	244,192.00	50,000.00	22,000.00	0.00	0.00	0.00	59,064.00	118,064.00	110,064.00	29,000.00	0.00	**316,192.00**
		3300	**Meetings/conferences**													
		3301	Inception workshop	**15,000.00**	0.00	0.00	0.00	0.00	15,000.00	0.00	15,000.00	0.00	0.00	0.00	0.00	**15,000.00**
		3302	National technical workshops	**648,000.00**	201,000.00	260,000.00	115,000.00	72,000.00	0.00	0.00	45,000.00	355,000.00	167,000.00	36,000.00	45,000.00	**648,000.00**
		3303	National training workshops	**116,000.00**	46,000.00	0.00	70,000.00	0.00	0.00	0.00	0.00	76,000.00	30,000.00	10,000.00	0.00	**116,000.00**
		3304	Regional technical workshop	**495,500.00**	340,500.00	155,000.00	0.00	0.00	0.00	0.00	50,000.00	180,500.00	170,000.00	55,000.00	40,000.00	**495,500.00**
		3305	Regional training workshop	**180,000.00**	120,000.00	60,000.00	0.00	0.00	0.00	0.00	0.00	150,000.00	30,000.00	0.00	0.00	**180,000.00**
	3302 and 3303	3306	Steering committee meetings	**302,665.00**	0.00	0.00	0.00	0.00	302,665.00	0.00	21,333.00	70,333.00	70,333.00	70,333.00	70,333.00	**302,665.00**
		3399	Sub-Total	**1,757,165.00**	707,500.00	475,000.00	185,000.00	72,000.00	317,665.00	0.00	131,333.00	831,833.00	467,333.00	171,333.00	155,333.00	**1,757,165.00**

		3999	**Component Total**	**2,073,357.00**	**951,692.00**	**525,000.00**	**207,000.00**	**72,000.00**	**317,665.00**	**0.00**	**190,397.00**	**949,897.00**	**577,397.00**	**200,333.00**	**155,333.00**	**2,073,357.00**
40		**EQUIPMENT and PREMISES COMPONENT**														
		4100	**Expendable equipment (under 1,500 $)**													
	4261	4101	Operational costs	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
		4199	Sub-Total	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
		4200	**Non expendable equipment**													
	4261	4201	Computer, fax, photocopier, projector	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
		4202	Software	**222,306.00**	128,806.00	73,500.00	0.00	20,000.00	0.00	0.00	43,666.00	78,476.00	72,582.00	27,582.00	0.00	**222,306.00**
		4203	XRF Equipment	**55,000.00**	55,000.00	0.00	0.00	0.00	0.00	0.00	0.00	55,000.00	0.00	0.00	0.00	**55,000.00**
		4204	Alternatives	**100,000.00**	100,000.00	0.00	0.00	0.00	0.00	0.00	0.00	30,000.00	70,000.00	0.00	0.00	**100,000.00**
		4205	Consolidation, Packaging and Disposal/Stabilisation of Hazardous Waste	**1,385,000.00**	0.00	1,385,000.00	0.00	0.00	0.00	0.00	0.00	0.00	75,000.00	655,000.00	655,000.00	**1,385,000.00**
		4206	Equipment support for EPR pilot projects	**391,450.00**	0.00	0.00	391,450.00	0.00	0.00	0.00	0.00	0.00	187,500.00	203,950.00	0.00	**391,450.00**
		4207	Equipment support for Regional Hub upgrade	**150,000.00**	0.00	0.00	150,000.00	0.00	0.00	0.00	0.00	0.00	0.00	150,000.00	0.00	**150,000.00**
		4208	Equipment to support pilot plastic projects	**200,000.00**	0.00	0.00	200,000.00	0.00	0.00	0.00	0.00	0.00	100,000.00	100,000.00	0.00	**200,000.00**
		4299	Sub-Total	**2,503,756.00**	283,806.00	1,458,500.00	741,450.00	20,000.00	0.00	0.00	43,666.00	163,476.00	505,082.00	1,136,532.00	655,000.00	**2,503,756.00**
		4999	**Component Total**	**2,503,756.00**	**283,806.00**	**1,458,500.00**	**741,450.00**	**20,000.00**	**0.00**	**0.00**	**43,666.00**	**163,476.00**	**505,082.00**	**1,136,532.00**	**655,000.00**	**2,503,756.00**
50		**MISCELLANEOUS COMPONENT**														
		5200	**Reporting costs (publications, maps, NL)**													
	5161	5201	Translation	**344,500.00**	101,000.00	93,500.00	33,000.00	117,000.00	0.00	0.00	41,400.00	102,400.00	100,400.00	56,900.00	43,400.00	**344,500.00**
		5299	Sub-Total	**344,500.00**	101,000.00	93,500.00	33,000.00	117,000.00	0.00	0.00	41,400.00	102,400.00	100,400.00	56,900.00	43,400.00	**344,500.00**
		5300	**Sundry (communications, postages)**													
	5161	5301	Communications (postage, bank transfers, etc)	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
		5399	Sub-total	**0.00**	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	**0.00**
		5500	**Monitoring and evalutation**													
		5501	Financial audit	**37,000.00**	0.00	0.00	0.00	0.00	0.00	37,000.00	7,000.00	7,000.00	7,000.00	8,000.00	8,000.00	**37,000.00**
		5502	Mid term Review	**56,600.00**	0.00	0.00	0.00	0.00	56,600.00	0.00	0.00	0.00	56,600.00	0.00	0.00	**56,600.00**
		5503	Final Evaluation	**84,852.00**	0.00	0.00	0.00	0.00	84,852.00	0.00	0.00	0.00	0.00	0.00	84,852.00	**84,852.00**
		5599	Sub-total	**178,452.00**	0.00	0.00	0.00	0.00	141,452.00	37,000.00	7,000.00	7,000.00	63,600.00	8,000.00	92,852.00	**178,452.00**
		5999	**Component Total**	**522,952.00**	**101,000.00**	**93,500.00**	**33,000.00**	**117,000.00**	**141,452.00**	**37,000.00**	**48,400.00**	**109,400.00**	**164,000.00**	**64,900.00**	**136,252.00**	**522,952.00**
		TOTAL		**11,000,000.00**	3,848,702.00	3,802,000.00	1,588,950.00	777,431.00	459,117.00	523,800.00	1,018,138.60	2,999,086.60	2,973,649.10	2,141,235.10	1,800,040.60	**11,000,000.00**

Appendix 2 – Workplan

GEF ISLANDS

UNEP/FAO Child Project 10279

Workplan November 2020

Project Outcomes, Outputs and Activites		Year 1				Year 2				Year 3				Year 4				Year 5			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Outcome 1 – Countries have in place effective mechanisms to control the import of chemicals, and products that lead to the generation of hazardous waste																					
Output 1.1	**The legislative and institutional framework is adapted to support the environmentally sound management of hazardous wastes at national and regional levels**																				
Activity 1.1.1	Assess relevant legislation, infrastructure and institutional capacities to manage hazardous wastes at national and regional levels.																				
Activity 1.1.2	Specific hazardous waste and chemicals policies and legislation developed to support hazardous waste management at national and regional levels.																				
Activity 1.1.3	National strategies (one per country) developed for adoption and implementation of the model policies and legislation																				
Output 1.2	**Sustainable training programme to assist countries implement the Chemicals and Wastes MEAs at a national level**																				
Activity 1.2.1	Conduct a Training Needs Assessment (TNA) for implementation of the Chemicals and Wastes MEAs																				
Activity 1.2.2	Develop a “Training of Trainers” programme to extend the capacity in key agencies mandated with the implementation of and the monitoring of Chemicals and Wastes MEAs																				
Activity 1.2.3	Develop training material and conduct training for the gaps identified from the Training Needs Assessment																				
Activity 1.2.4	Develop adapt or utilize an appropriate training platform which is designed to promote sustainability																				
Activity 1.2.5	Develop and implement an awareness raising programme on Chemicals and Wastes MEAs Training Platform																				
Output 1.3	**Strengthening of national and regional legislative, institutional and technical capacity to reduce/control the current and future trade of chemicals and products containing hazardous chemicals**																				
Activity 1.3.1	Develop a formal mechanism for inter-agency collaboration and communication as it relates to the trade of restricted or controlled chemicals, products and waste and management of data generated by relevant agencies																				
Activity 1.3.2	Improve capacity of customs and border control agencies for the identification of trade in restricted and prohibited hazardous chemicals, products containing chemicals and waste																				
Output 1.4	**Increased capacity for the development and implementation of national and regional chemicals and products standards including GHS**																				
Activity 1.4.1	Develop two (2) regional standards and create national roadmaps to support countries with future development and implementation of labeling and product standards for relevant chemicals and products																				
Activity 1.4.2	Detailed multi-institutional assessment of current implementation of GHS, gap analysis and recommendations as it relates to capacity to respond and control chemicals imports at the borders																				
Output 1.5	**Promote Sustainable Procurement to reduce the manufacture/import of products containing hazardous chemicals**																				
Activity 1.5.1	Assess enabling environment for Sustainable Procurement in countries and determine which products lend themselves to such policy																				
Activity 1.5.2	Assess and select sustainable suitable alternatives to PFAS, POP-PBDEs, SCCPs/PCBs/PCNs and mercury added products.																				
Activity 1.5.3	Training and sensitization of stakeholders on the benefits of Sustainable Procurement																				
Outcome 2 – Harmful chemicals and materials present and/or generated in the countries are being disposed of in an environmentally sound manner																					
Output 2.1	**Environmentally sound management of SC POPs and MC Hg strengthened, and PCBs and DDT eliminated**																				
Activity 2.1.1	Develop management and destruction/stabilisation strategies to eliminate PCBs, obsolete pesticides, DDT stockpiles and selected mercury added products																				
Activity 2.1.2	Safeguarding, centralization and destruction of obsolete chemicals, PCBs, DDT and mercury added products																				
Activity 2.1.3	Awareness campaign to promote or apply BAT/BEP to minimize UPOPs emissions from open burning																				
Output 2.2	**Capacity to manage hazardous waste improved**																				
Activity 2.2.1	Develop roadmaps for the preparation and implementation of national hazardous waste management strategies in nine (9) project countries																				
Activity 2.2.2	Establish regional guidelines for the management of various hazardous waste streams specific to the Caribbean Region in nine (9) project countries.																				
Activity 2.2.3	Assess hazardous waste management in the rural areas and develop a model hazardous waste management strategy																				
Outcome 3 – Build-up of harmful materials and chemicals is prevented through establishment of effective circular and life-cycle management systems in partnership with the private sector																					
Output 3.1	**Extended Produced Responsibility (EPR) system for environmentally sound management of WEEE developed in the project countries**																				
Activity 3.1.1	Feasibility assessment for EEE management, focussing on EPR and a Regional Approach																				
Activity 3.1.2	Extended Producer Responsibility (EPR) system for environmentally sound management of WEEE developed in the project countries																				
Activity 3.1.3	Improve the Capacity of WEEE Management through a regional approach																				
Output 3.2	**Promoting Environmentally Sound Mangement (ESM) of End -of-life vehicle (ELVs)**																				

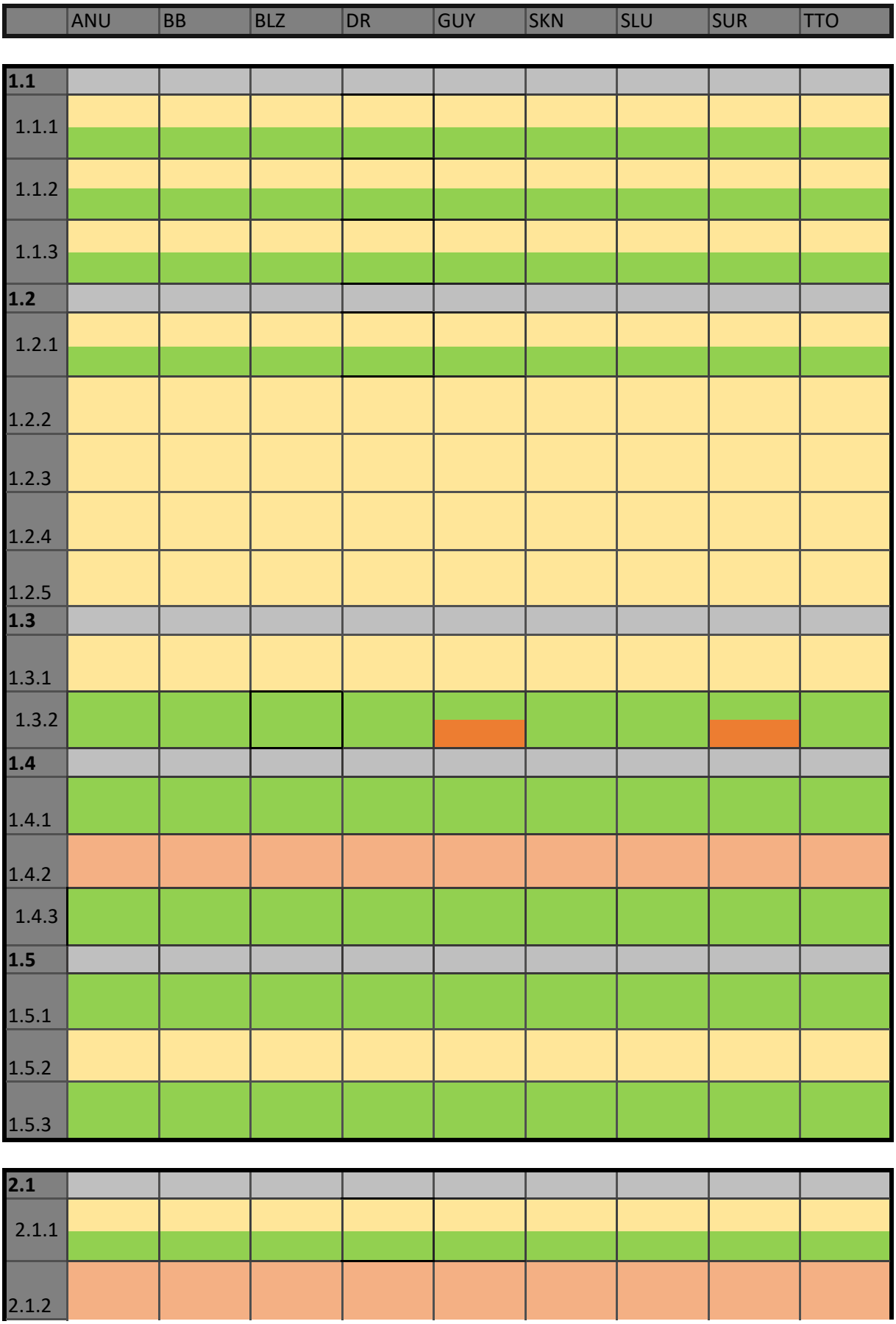
Activity 3.2.1	Material Flow, Economic and Technical Assessment in order to design ELVs management scheme, considering a regional approach																						
Activity 3.2.2	Improve national capacity and training on the ESM of ELVs																						
Activity 3.2.3	Demonstrate improvement of three (3) existing national ELV treatment facilities																						
Output 3.3	**Improve management of plastics (including PVCs) through the life-cycle approach and coordination with the public and private sectors**																						
Activity 3.3.1	Assess plastic waste generation from the cruise ship sector in the Dominican Republic, identifying ways to process cruise ship plastic streams parallel to municipal waste in an environmentally sound manner																						
Activity 3.3.2	Assess the material flow of PVC wastes from selected sectors in 3 pilot countries and identify environmentally sound management options.																						
Outcome 4 Knowledge generated from the Child Project is disseminated to Participating Countries and the CCKM and applied by SIDS																							
Output 4.1	**Generate and disseminate knowledge from the project activities as well as from the wider programme**																						
Activity 4.1.1	Creation and dissemination of knowledge products based on project implementation.																						
Activity 4.1.2	Behavioural change activities related to a POPs and Hg free Caribbean including indigenous peoples and CSOs.																						
Activity 4.1.3	Raising awareness on plastic pollution among Caribbean youth through implementation of the Tide Turners Challenge Badge																						
Output 4.2	**Programme reports on project activities developed and disseminated, including through the CCKM Project**																						
Activity 4.2.1	Quarterly reporting to the Communication, Coordination and Knowledge Management Project on project activities																						
Activity 4.2.2	Regular receipt of knowledge assets and information from Communication, Coordination and Knowledge Management Project packaged and distributed to relevant stakeholders.																						
Activity 4.2.3	Global guidance and tools on sound management of pesticides developed by FAO are disseminated to participating countries and applied by SIDS																						

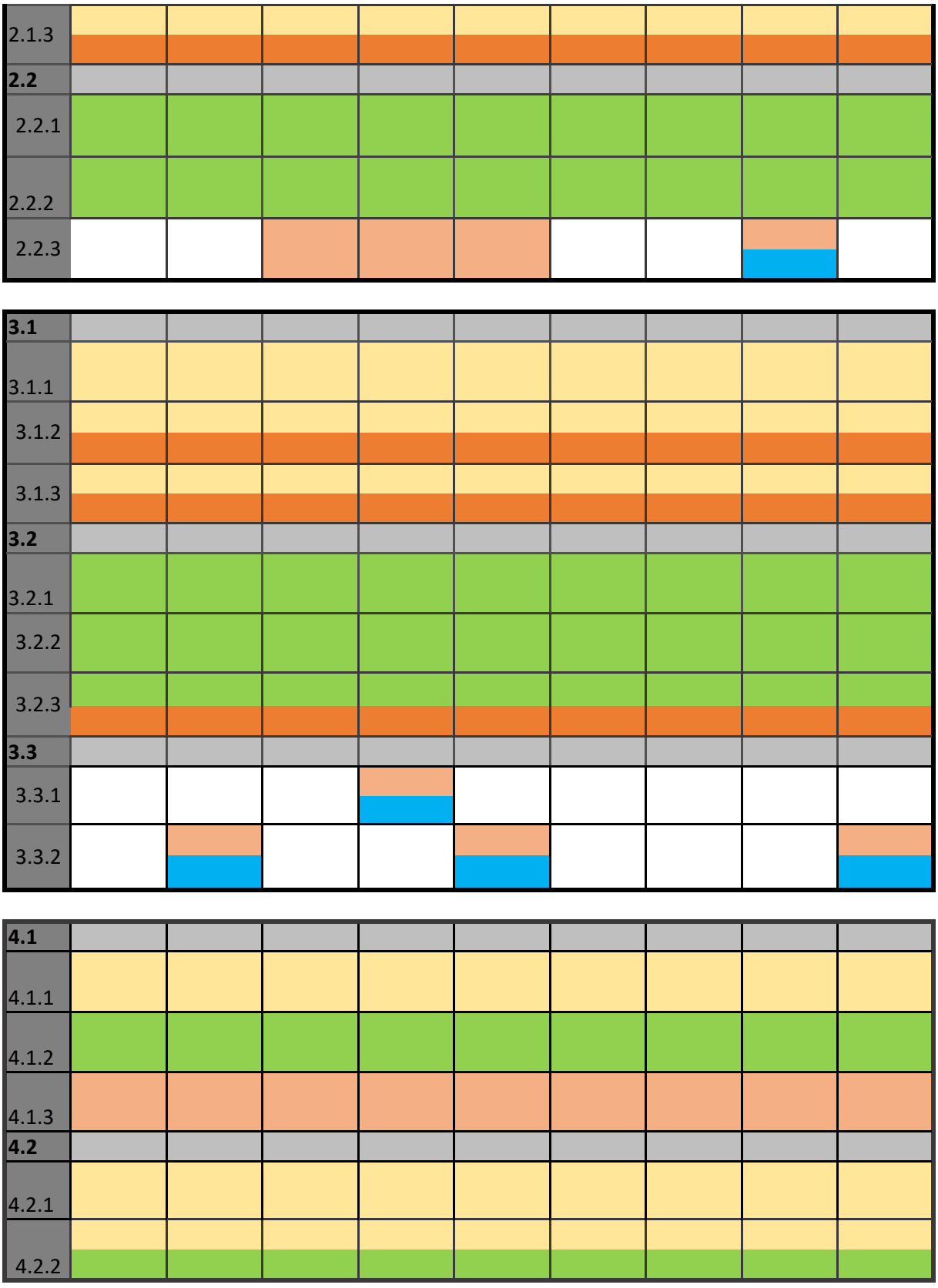
Appendix 2 – Country distribution and country activity matrix

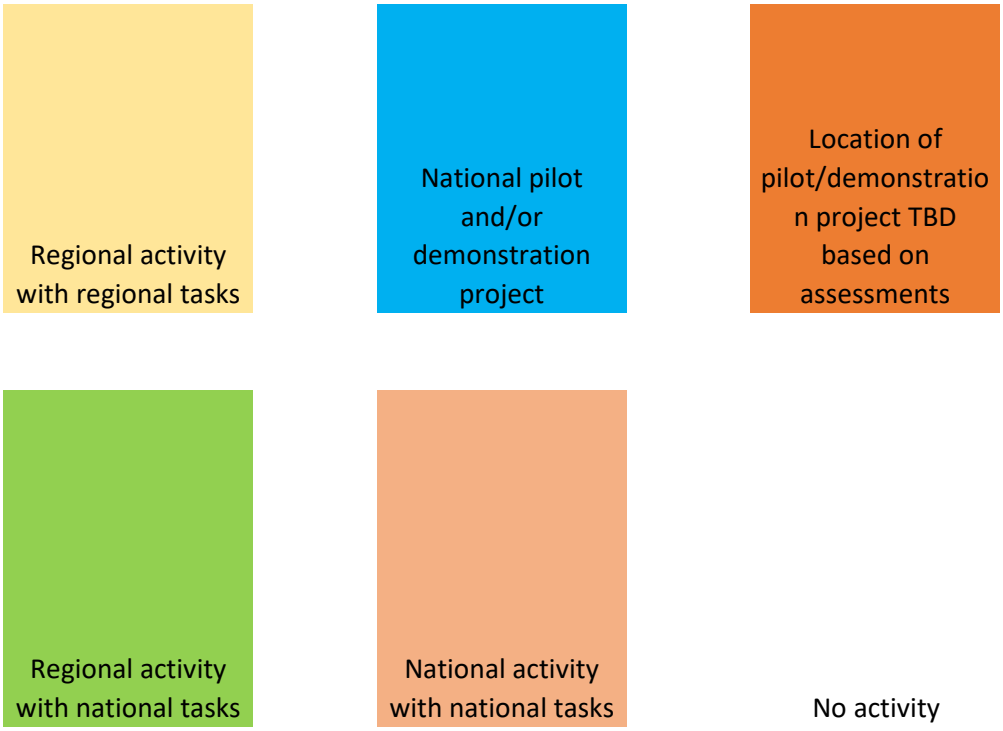
	ANU	BB	BLZ	DR	GUY	SKN	SLU	SUR	TTO
Allocation for Alternatives	10000	10000	10000	20000	10000	10000	10000	10000	10000
Allocation for XRF Pilot					32500			32500	
Allocation for Plastic Pilots		50000		50000	50000				50000
Allocation for Project Activities	1216208	1154033	1216208	1154034	1134034	1216208	1216208	1174034	1154033
TOTAL	1226208	1214033	1226208	1224034	1226534	1226208	1226208	1216534	1214033

Note: The above values are subject to change during project execution, based on decisions made following assessments to determine the optimal locations for pilot projects related to the development of EPR schemes to manage WEEE, upgrade of ELV facilities in three project countries, the development of a mobile software application for reporting of environmental crimes (specifically dumping and open burning as this is linked to the emission of UPOPs),

Appendix 2: Country Activities Matrix




2.1.3
2.2
2.2.1
2.2.2
2.2.3
3.1
3.1.1
3.1.2
3.1.3
3.2
3.2.1
3.2.2
3.2.3
3.3
3.3.1
3.3.2
4.1
4.1.1
4.1.2
4.1.3
4.2
4.2.1
4.2.2


Regional activity with regional tasks
National pilot and/or demonstration project
Location of pilot/demonstration project TBD based on assessments
Regional activity with national tasks
National activity with national tasks
No activity

Appendix 3 – Co-finance budget

Project implementation period: **From:** **1-Jan-2021** **31-Dec-2025**

No.	Co-finance partner		Nature of co-finance		Co-finance contribution per project Output in US$						Total in US$	Description of co-finance contributions *(in line with co-finance letters received from partners)*
	Name	Source	Type	Investment Mobilized	Ouctome 1	Outcome 2	Ouctome 3	Oiutcome 4	M&E	PMC		
1	Anitgua and Barbuda - Ministry of Health, Wellness and the Environment	Recipient Country Government	In-Kind	Recurrent expenditures	250,000	450,000		100,000	100,000	200,000	**1,100,000**	The Ministry will provide in-kind co-financing consisting of: • Salary of government personel involved in the project. • Office facility and services including, office equipment, space / meeting rooms, utilities and communication. • Capital and operational costs associated with equipment, land and staff expected to be utilised. • Other Chemicals and Waste management projects being conducted during the project's duration .
2	Barbados - Ministry of Environment and National Beautification	Recipient Country Government	In-Kind	Recurrent expenditures	83,500					180,600	**264,100**	The Ministry will provide in-kind co-financing consisting of: • Salary of government personel involved in the project. • Office facility and services including, office equipment, space, meeting rooms, utilities and communication. • Transportation.
3	Belize - Ministry of Fisheries, Forestry, the Environment and Sustainable Development	Recipient Country Government	In-Kind	Recurrent expenditures	112,500	225,000				400,000	**737,500**	The Ministry will provide in-kind co-financing consisting of: • Salary of government personel involved in the project. • Office facility and services including, office equipment, space / meeting rooms, utilities and communication. • Capital and operational costs associated with equipment, land and staff expected to be utilised. • Other Chemicals and Waste management projects being conducted during the project's duration .
4	Dominican Republic	Recipient Country Government	In-Kind	Recurrent expenditures							**-**	
5	Guyana - Environmental Protection Agency	Recipient Country Government	In-Kind	Recurrent expenditures	200,000					123,500	**323,500**	The Agency will provide in-kind co-financing consisting of: • Salary of government personel involved in the project. • Office facility and services including, office equipment, space / meeting rooms, utilities and communication.
6	Saint Kitts and Nevis - Solid Waste Management Corporation	Recipient Country Government	In-Kind	Recurrent expenditures	112,400						**112,400**	The Corporation will provide in-kind co-financing consisting of: • Salary of government personel involved in the project. • Office facility and services including, office equipment, space / meeting rooms, utilities and communication.

7	Saint Kitts and Nevis - Bureau of Standards	Recipient Country Government	In-Kind	Recurrent expenditures	300,000	325,000		100,000		200,000	**925,000**	The Bureau will provide in-kind co-financing consisting of: • Salary of government personel involved in the project. • Office facility and services including, office equipment, space / meeting rooms, utilities and communication.
8	Saint Lucia - Ministry of Education, Innovation, Gender Relations and Sustainable Development	Recipient Country Government	In-Kind	Recurrent expenditures	104,500	128,800		100,000		286,200	**619,500**	The Ministry will provide in-kind co-financing consisting of: • Salary of government personel involved in the project. • Office facility and services including, office equipment, space / meeting rooms, utilities and communication. • Capital and operational costs associated with equipment, land and staff expected to be utilised.
9	Saint Lucia - Ministry of Education, Innovation, Gender Relations and Sustainable Development	Recipient Country Government	Public Investment	Recurrent expenditures		558,300					**558,300**	The Ministry will provide in-kind co-financing consisting of: • Other Chemicals and Waste management projects being conducted during the project's duration .
10	Suriname - Cabinet of the President, Coordination Environment/National Environmental Authority	Recipient Country Government	In-Kind	Recurrent expenditures	370,000	1,460,000				480,000	**2,310,000**	The Ministry will provide in-kind co-financing consisting of: • Salary of government personel involved in the project. • Office facility and services including, office equipment, space / meeting rooms, utilities and communication. • Capital and operational costs associated with equipment, land and staff expected to be utilised. • Other Chemicals and Waste management projects being conducted during the project's duration .
11	Trinidad and Tobago - Environment Management Authority	Recipient Country Government	In-Kind	Recurrent expenditures	399,000	285,000	1,000,000	1,800,000		236,500	**3,720,500**	The Authority will provide in-kind co-financing consisting of: • Salary of government personel involved in the project. • Office facility and services including, office equipment, space / meeting rooms, utilities and communication. • Capital and operational costs associated with equipment, land and staff expected to be utilised. • Other Chemicals and Waste management projects being conducted during the project's duration .
12	IUCN	Civil Society Organization	Other	Investment mobilized			1,000,000	500,000			**1,500,000**	IUCN will provide in-kind co-financing consisting of: • Project collaboration on component 3. • Participation to dissemination efforts through component 4.
13	Carnival Cruise	Private Sector	Grant	Investment mobilized			15,000,000	5,000,000			**20,000,000**	Carnival Cruise will provide in-kind co-financing consisting of: • Project collaboration on component 3. • Participation to dissemination efforts through component 4.
14	OECS	Other	Other	Investment mobilized			300,000	2,700,000			**3,000,000**	OECS will provide in-kind co-financing consisting of: • Project collaboration on component 3. • Participation to dissemination efforts through component 4.

15	BCRC Caribbean	Other	In-Kind	Recurrent expenditures					500,000	100,000	**600,000**	BCRC Caribbean will provide in-kind co-financing consisting of: • Monitoring and Evaluation • Participation to dissemination efforts through component 4.
16	FAO	GEF Agency	Grant	Recurrent expenditures	856,260	9,964,800		450,000	100,000		**11,371,060**	FAO will provide in-kind co-financing consisting of: • Monitoring and Evaluation • Participation to dissemination efforts through component 4.
Total					**2,788,160**	**13,396,900**	**17,300,000**	**10,750,000**	**700,000**	**2,206,800**	**47,141,860**	

44,935,060
47,141,860

Appendix 3 – Cofinance letters

BCRC
CARIBBEAN
Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean

#8 Alexandra Street, St Clair,
Port-of-Spain
Trinidad and Tobago
Tel: 1-868-628-8369
Fax: 1-868-628-2151
E-mail: info@bcrc-caribbean.org
Website: www.bcrc-caribbean.org

November 11th 2020

Kelly West
GEF Coordinator
Corporate Services Division
United Nations Environment Programme
P.O.Box 30552-00100 Nairobi, Kenya
Phone :+254207624147
Email: unepgef@unep.org/Kelly.west@un.org

SUBJECT: Co-financing Commitment for the GEF 7 Global Programme:"Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS) Programme" in the Caribbean Region

Dear Ms. West

We are pleased to inform you of our full support to UNEP for the implementation of the GEF ISLANDS Child Project: "Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States" [Antigua and Barbuda, Barbados, Belize, Dominican Republic, Guyana, Saint Kitts and Nevis, Saint Lucia, Suriname, Trinidad and Tobago].

In supporting this project, the Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean (BCRC - Caribbean)confirms its commitment in the form of an **in-kind contribution** amounting to Six Hundred Thousand USD (USD 600, 000.00) for the entire five- year project duration. This in-kind financing is applicable for the period 2021 - 2026 and includes salary of personnel and operational expenses of the Centre.

We are pleased to contribute to the implementation of the GEF ISLANDS Caribbean Child Projects, and we look forward to the successful execution of this programme.

Sincerely

Director (Ag.)
Jewel Batchasingh

GOVERNMENT OF ANTIGUA AND BARBUDA

Department of Environment
Ministry of Health, Wellness and the Environment
#1 Victoria Park, Botanical Garden
P.O. Box W693
St. John's
Antigua, W.I.
Tel: (268) 462-6265
Fax: (268) 462-4625
Email: doe@ab.gov.ag

September 2, 2020

Kelly West
GEF Portfolio Manager
Office for Operations
United Nations Environment Programme
P.O.Box 30552-00100 Nairobi, Kenya
Phone : +254207624147
Email: unepgef@unep.org /Kelly.west@un.org

SUBJECT: Co-financing Commitment for the GEF 7 Global Programme:"Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS) Programme" in the Caribbean Region

Dear Ms. West

In my capacity as the GEF Operational Focal Point for Antigua and Barbuda, and on behalf of the Department of the Environment, we are pleased to inform you of our full support to UNEP for the implementation of the GEF ISLANDS Child Project: "Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States".

In supporting this project, the Department of the Environment confirms its commitment in the form of in-kind contribution amounting to 1,100,000 USD for the entire five-year project duration broken down as follows:

	Activity	*Amount ($)*
1	*Salary of government personnel involved in the project*	*450,000*
2	*Office facility and services including, office equipment, space/ meeting rooms, utilities and communication*	*200,000*
3	*Capital and operational costs associated with equipment, land and staff expected to be utilised*	*150,000*
4	*Other chemicals and waste management projects being conducted during the project's duration*	*210,000*
TOTAL IN-KIND CO-FINANCING		*1,100,000*

We are pleased to contribute to the implementation of the GEF ISLANDS Caribbean Child Projects, and we look forward to the successful execution of this programme.

Sincerely

.....
Ambassador Diann Black-Layne
GEF Operational Focal Point
Antigua and Barbuda

Copied:

Kevin Helps, Senior Programme Office / Portfolio Manager, UNEP-GEF Chemicals and Waste, Economy Division, UNEP, kevin.helps@un.org

Ludovic Bernaudat, Senior Task Manager, Chemicals and Health Branch, Economy Division, UNEP, ludovic.bernaudat@un.org

Oxana Perminova, Agricultural Officer, Plant Production and Protection Division, FAO, oxana.perminova@fao.org

Gerard Alleng, Climate Change Senior Specialist, gerarda@iadb.org

Linroy Christian, Director of Analytical Services, Ministry of Agriculture, Fisheries and Barbuda Affairs, linroy.christian@ab.gov.ag

MINISTRY OF ENVIRONMENT
AND NATIONAL BEAUTIFICATION

PUBLIC SECTOR REFORM
Making Barbados Work Better

REF. NO: GEF 3/3 Vol. II **DATE:** 19 May 2020

Ms. Kelly West
GEF Coordinator
Corporate Services Division
United Nations Environment Programme
P.O. Box 30552-00100 Nairobi, Kenya
Phone : +254207624147
E-mail: unepgef@unep.org /Kelly.west@un.org

Dear Ms. West

Co-financing Commitment for the GEF 7 Global Programme: "Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS) Programme" in the Caribbean Region

In my capacity as the GEF Operational Focal Point for Barbados and on behalf of the Environmental Protection Department, Ministry of Environment and National Beautification, Barbados, we are pleased to inform you of our full support to UNEP for the implementation of the GEF ISLANDS Child Project: "Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States"

In supporting this project, the Environmental Protection Department, Ministry of Environment and National Beautification, Barbados, confirms its commitment in the form of in-kind contribution amounting to $ 264,087.66 for the entire five-year project duration broken down as follows:

	Activity	Amount ($)
1	*Salary of government personnel involved in the project*	*$83,679.14*
2	*Office facility and services including, office equipment, space/ meeting rooms, utilities and communication*	*$177,953.92*
3	*Transportation*	*$2,454.60*
TOTAL IN-KIND CO-FINANCING		***$ 264,087.66***

We are pleased to contribute to the implementation of the GEF ISLANDS Caribbean Child Projects, and we look forward to the successful execution of this programme.

Yours sincerely

Daphne Kellman

Daphne Kellman (Ms.)
Permanent Secretary
GEF Operational Focal Point

cc:
Kevin Helps, Senior Programme Office / Portfolio Manager, UNEP-GEF Chemicals and Waste, Economy Division, UNEP, kevin.helps@un.org

Ludovic Bernaudat, Senior Task Manager, Chemicals and Health Branch, Economy Division, UNEP, ludovic.bernaudat@un.org
Oxana Perminova, Agricultural Officer, Plant Production and Protection Division, FAO, oxana.perminova@fao.org
Gerard Alleng, Climate Change Senior Specialist, IDB, gerarda@iadb.org Anthony Headley, Director, Environmental Protection Department, anthony.headley@epd.gov.bb and epd.secretary@epd.gov.bb

GOVERNMENT OF BELIZE

Ministry of Fisheries, Forestry, the Environment and Sustainable Development

2nd Floor, Old Lands Building
Market Square, City of Belmopan
Belize

Tel: +501-822-0160
+501-822-0162
Fax: +501-822-0433
Email:ceo.sec@environment.gov.bz

Please Quote

Ref No: **ED/GEN/9/01/2020 (42)**

30th June, 2020

Ms. Kelly West
GEF Coordinator
Corporate Services Division
United Nations Environment Programme
P.O.Box 30552-00100
Nairobi, Kenya

Dear Ms. West

SUBJECT: Co-financing Commitment for the GEF 7 Global Programme: "Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS) Programme" in the Caribbean Region

In my capacity as the GEF Operational Focal Point for Belize and on behalf of the Ministry of Fisheries, Forestry, the Environment and Sustainable Development we are pleased to inform you of our full support to UNEP for the implementation of the GEF ISLANDS Child Project: "Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States"

In supporting this project, the Ministry of Fisheries, Forestry, the Environment and Sustainable Development confirms its commitment in the form of in-kind contribution amounting to $737,0500 USD for the entire five-year project.

	Activities	***Amount ($) USD***
1	Salary of Government personnel involved in the project	$212,500
2	Office facility and services including, office equipment, space/meeting rooms, utilities, and communication	$300,000
3	Capital and Operational costs associated with equipment, land and staff expected to be utilized	$125,000

4	Other chemicals and waste management projects being conducted during the project's duration	$100,000
	TOTAL IN-KIND CO-FINANCING	$737,500

We are pleased to contribute to the implementation of the GEF ISLANDS Caribbean Child Projects, and we look forward to the successful execution of this programme.

Sincerely

Dr. Percival Cho
Chief Executive Officer
GEF Operational Focal Point
Belize

cc: **Kevin Helps, Senior Programme Office / Portfolio Manager, UNEP-GEF Chemicals and Waste, Economy Division, UNEP, kevin.helps@un.org**

Ludovic Bernaudat, Senior Task Manager, Chemicals and Health Branch, Economy Division, UNEP, ludovic.bernaudat@un.org

Oxana Perminova, Agricultural Officer, Plant Production and Protection Division, FAO, oxana.perminova@fao.org

Gerard Alleng, Climate Change Senior Specialist, gerarda@iadb.org

October 20, 2020

Ms. Kelly West
Director, GEF Coordination Office
UN Environment
International Environment House 1 – C201
Chemin des Anemones 11-15
Chatelaine, 1219 Geneva
Switzerland

Subject: Co-financing letter for the Full-Sized Project entitled the GEF ISLANDS 10279 "Caribbean Regional Child Project"

Dear Ms. West,

Carnival Corporation is pleased to inform you of its support to UNEP for the preparation of the abovementioned project. There are ample opportunities to connect relevant efforts of the GEF ISLANDS Programme, especially under Component 3 of the Programme, "preventing build-up of harmful materials and chemicals through establishment of effective circular and life-cycle management systems in partnership with the private sector", with the ongoing work of Carnival in the Dominican Republic.

Carnival is committed to supporting sustainable development in the Caribbean region and has voluntarily undertaken initiatives to improve pollution prevention, by adopting waste management guidelines and procedures and researching new technologies. In particular, Carnival has contributed to waste management globally and in particular in the region through robust waste segregation and recycling operations on its fleet of cruise ships. In the Dominican Republic, and specifically at its port near Puerto Plata *("Amber Cove")*, Carnival has implemented proactive waste reduction initiatives. Carnival is also trialing several waste volume reduction technologies and is investing in food waste digester technologies to materially reduce or eliminate the discharge of food waste to sea and shore. Collectively at its various private destinations in the Caribbean, Carnival has implemented a large spectrum of initiatives that include composting, tree planting, recycling, removal/reduction of single use plastics items, energy and water use efficiency, and others. The value of the global food waste discharge/landing reduction program alone is estimated to cost $20 million US dollars. A significant portion of this is destined for ships principally sailing in the Caribbean region.

We welcome the start of activities under the GEF ISLANDS Programme, which are in line with Carnival's waste management objectives. In view of the common aims of Carnival and the GEF ISLANDS Programme, Carnival's efforts above can be considered as an associated contribution.

Hoping that your project will bring a substantial contribution to the Caribbean waste management sector, we wish you success in your endeavours and remain,

Yours sincerely,

Richard Pruitt
Vice President, Environmental Operations
Carnival Cruise Line

منظمة الأغذية والزراعة للأمم المتحدة
联合国粮食及农业组织
Food and Agriculture Organization of the United Nations
Organisation des Nations Unies pour l'alimentation et l'agriculture
Продовольственная и сельскохозяйственная организация Объединенных Наций
Organización de las Naciones Unidas para la Alimentación y la Agricultura

Viale delle Terme di Caracalla, 00153 Rome, Italy Fax: +39 0657053152 Tel: +39 0657051 www.fao.org

Our Ref.: Your Ref.:

16 November 2020

Dear Ms West,

Reference is made to co-financing of the project entitled: "**Implementing Sustainable Low and Non-chemicals Development in Small Island Developing States (ISLANDS) - Caribbean Child Project",** to hereby confirm co-financing by several activities implemented by the Food and Agriculture Organization of the United Nations (FAO) Pest and Pesticide Management team, based in the Plant Production and Protection Division.

For your further information, please find below details of the co-financing proceeds:

- FAO Technical Cooperation (GCP/GLO/888/EC) project funds (**USD 358 760**) for decision making in chemicals management. IOMC Toolbox for decision making in chemicals management - Phase III: From design to action (To promote the implementation of guidance materials and build capacities for sound management of chemicals). The project activities will contribute to build capacities in the region in the sound management of chemicals, strengthening environmental governance in these countries through building capacity on Pesticide Registration.

- FAO Technical Cooperation (GCP/GLO/006/EC) project funds (**USD 9 964 800**) for capacity building related to multilateral environmental agreements in ACP Countries/ Phase III. This project aims to promote environmental sustainability in ACP countries by strengthening environmental governance and the implementation of Multilateral Environmental Agreements (MEAs) including the Convention on Biological Diversity, the Basel, Rotterdam and Stockholm Conventions (BRS). It will develop new policy, guidance, tools and good practices on eliminating risks of pesticides, especially Highly Hazardous Pesticides, to environment and biodiversity, and conservation of biodiversity in agriculture. Activities will complement work on risk assessment at environmental level and development supporting policies and tools linked to national implementation of HHP plans.

- FAO Technical Cooperation (GCP /GLO/155/SWE) project funds **(USD 497 500)** for building capacity for pesticide risk reduction through the Code of Conduct on Pesticides Management. Activities will strengthen institutions and stakeholders capacities in addressing key challenges posed by the management of pesticides and specifically of HHPs, by encouraging the implementation of the International Code of Conduct on Pesticide Management.

Ms Kelly West
Global Environment Facility (GEF) Coordinator
United Nations Environmental Programme (UNEP)
Nairobi
Kenya

- FAO General Funds (USD 450 000) on pesticide management, which aims to develop international guidelines and tools through FAO/WHO Joint Meeting on Pesticide Management in support of implementation of an International Code of Conduct on Pesticide Management and addressing emergency issues in lifecycle of pesticide management. The program will complement development of global guidelines and tools on sound management of agrochemicals.

Consequently, the total amount of **USD 11 371 060,** from the abovementioned contributions, will be managed as an integral part of the GEF project by FAO and will be assessed and recorded each year by the project team in accordance with GEF policies and procedure.

Yours Sincerely,

Baogen Gu
Senior Agricultural Officer, Team leader
Pest and Pesticide Management
Plant Production and Protection Division

Government of the Co-operative Republic of Guyana
Environmental Protection Agency

July 10 2020

Kelly West
GEF Portfolio Manager
Office for Operations
United Nations Environment Programme
P.O. Box 30552-00100, Nairobi, Kenya
Phone : +254207624147
Email: unepgef@unep.org/Kelly.west@un.org

SUBJECT: Co-financing Commitment for the GEF 7 Global Programme: "Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS) Programme" in the Caribbean Region

Dear Ms. West,

In my capacity as the GEF Operational Focal Point for Guyana, and on behalf of the Government of Guyana, we are pleased to inform you of our full support to UNEP for the implementation of the GEF ISLANDS Child Project: "Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States"

In supporting this project, the Government of Guyana confirms its commitment in the form of in-kind contribution amounting to US$ 323,526 for the entire five-year project duration. This in-kind financing is applicable for the period 2020 – 2025 and includes salary of personnel and operational expenses.

We are pleased to contribute to the implementation of the GEF ISLANDS Caribbean Child Projects, and we look forward to the successful execution of this programme.

Sincerely,

Dr. Vincent Adams
GEF Operational Focal Point

Guyana

cc: Hon. Dawn Hastings-Williams, Minister of State, Ministry of the Presidency

Hon. Ronald Bulkan, Minister of Communities

Hon. Raphael Trotman, Minister of Natural Resources

Ms. Sonya Roopnauth, Director of Budget, Ministry of Finance

Kevin Helps, Senior Programme Office / Portfolio Manager, UNEP-GEF Chemicals and Waste, Economy Division, UNEP, kevin.helps@un.org

Ludovic Bernaudat, Senior Task Manager, Chemicals and Health Branch, Economy Division, UNEP, ludovic.bernaudat@un.org

Oxana Perminova, Agricultural Officer, Plant Production and Protection Division, FAO, oxana.perminova@fao.org

Gerard Alleng, Climate Change Senior Specialist, gerarda@iadb.org

IUCN
Rue Mauverney 28
1196 Gland
Switzerland

Tel. +41 22 999 0000
Fax +41 22 999 0002
mail@iucn.org
www.iucn.org

Ms. Kelly West
Director, GEF Coordination Office
UN Environment
International Environment House 1 – C201
Chemin des Anemones 11-15
Chatelaine, 1219 Geneva
Switzerland

18 September 2020

Subject: Co-financing letter for the Full-Sized Project entitled the GEF ISLANDS 10279 "Caribbean Regional Child Project"

Dear Ms West,

The International Union for the Conservation of Nature (IUCN) is pleased to inform you of its support to UNEP for the preparation of the abovementioned project. There are ample opportunities to connect relevant efforts of the GEF ISLANDS Programme with the ongoing work of IUCN in the Caribbean. Opportunities are especially clear under Component 3 of the Programme on "preventing build-up of harmful materials and chemicals through establishment of effective circular and life-cycle management systems in partnership with the private sector", and Component 4 on Knowledge Management and Communications.

IUCN is committed to supporting sustainable development in the Caribbean region. In particular, IUCN has developed and applied a methodology to perform a Material Flow Analysis of all categories of Plastic across multiple sectors. The methodology has been developed in 2 projects, MARPLASTIC and PLASTIC WASTE FREE ISLANDS. The methodology allows the full quantification of plastic waste generated per sector/county/year.

The expected results of the Plastic Waste Free Island include supporting a transition from linear to circular economy in Tourism, Fisheries and Waste Management. Creation of new value-chains with the repurposed plastic waste. Evaluate and propose the most suitable technology adapted to the national context to safely eliminate plastic that cannot be used in the above mentioned value-chains.

IUCN foresees strong complementary in some components of Plastic Waste Free Islands project in support of component 3 and 4 of the GEF ISLANDS.

The value of this tasks are estimated at USD 1,5 Million.

We welcome the start of activities under the GEF ISLANDS Programme, which are in line with IUCN objectives. We are confident that ISLANDS will be able to build on past waste management achievements and continue and expand current activities. In view of the common aims of IUCN and the GEF ISLANDS Programme, the abovementioned projects can be considered as associated financing.

Hoping that your project will bring a substantial contribution to the Caribbean waste management sector, we wish you success in your endeavors and remain,

Yours sincerely,

Minna Epps

Director, Global Marine and Polar Programme, IUCN

Organisation of Eastern Caribbean States

The OECS Commission
Morne Fortune, PO Box 179, Castries, Saint Lucia
T +1 758 455 6327 • F +1 758 453 1628 • www.oecs.int

10th November, 2020

Ms. Kelly West
Director, GEF Coordination Office
UN Environment
International Environment House 1 – C201
Chemin des Anemones 11-15
Chatelaine, 1219 Geneva
Switzerland

Dear Ms West,

Subject: Co-financing letter for the Full-Sized Project entitled the GEF ISLANDS 10279 "Caribbean Regional Child Project"

The Organisation of Eastern Caribbean States (OECS) presents its compliments to you and is pleased to inform of its support to UNEP for the preparation of the abovementioned project. There are ample opportunities to connect relevant efforts of the GEF ISLANDS Programme with the ongoing work of OECS in Antigua and Barbuda, Saint Kitts and Nevis, and Saint Lucia. Opportunities are especially noted under Component 3 of the Programme on "preventing build-up of harmful materials and chemicals through establishment of effective circular and life-cycle management systems in partnership with the private sector", and Component 4 on Knowledge Management and Communications.

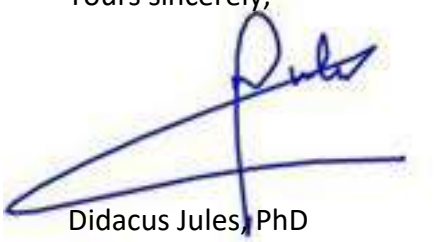
The OECS has been supporting sustainable development in the Caribbean region for many years. Currently, the OECS is facilitating implementation of waste management initiatives in the region through the "Building Resilience in the Eastern Caribbean through Reduction of Marine Litter and Pollution" (REMLit 2019-2022) project which is estimated at USD3 Million and funded by the Government of Norway.

…/2

We welcome the start of activities under the GEF ISLANDS Programme, which are in line with OECS objectives under its Chemicals, Waste and Pollution Management programme. We are confident that ISLANDS will be able to build on past waste management achievements and continue and expand current activities in the region. In view of the common aims of the OECS and the GEF ISLANDS Programmes, the REMLit project can be considered as associated financing. Please note that under the REMLit project, activities to be conducted in the three OECS Member States identified under the ISLANDS programme (valued at approximately USD300,000) may allow for synergies to be made with Components 2 and 3 of the ISLANDS project. Additionally, REMLit and ISLANDS will collaborate on two-way sharing of experience and lessons learnt from other SIDS participating in either project through component 4.

Hoping that your project will bring a substantial contribution to the Caribbean waste management sector, we wish you success in your endeavours and remain,

Yours sincerely,



Didacus Jules, PhD
Director General

SKNBS
St. Kitts and Nevis Bureau of Standards

Promoting Confidence, Safety and Quality

May, 19th 2020

Kelly West
GEF Portfolio Manager
Office for Operations
United Nations Environment Programme
P.O.Box 30552-00100 Nairobi, Kenya
Phone : +254207624147
Email: unepgef@unep.org /Kelly.west@un.org

SUBJECT: Co-financing Commitment for the GEF 7 Global Programme:"Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS) Programme" in the Caribbean Region

Dear Ms. West

On behalf of the St. Kitts and Nevis Bureau of Standards (SKNBS), we are pleased to inform you of our full support to UNEP for the implementation of the GEF ISLANDS Child Project: "**Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States.**"

The in-kind financial contribution from the St. Kitts and Nevis Bureau of Standards will be totalling EC $300, 000 or US $112,360. This in-kind financing is applicable for the period 2020 – 2025 and includes salary of personnel, equipment, chemicals and operational expenses.

I confirm that the above resources have been committed by the St. Kitts and Nevis Bureau of Standards to contribute towards the achievement of the objective and outputs of the proposal that is submitted to UNEP. We are pleased to contribute to the implementation of the GEF ISLANDS Caribbean Child Projects, and we look forward to the successful execution of this programme.

Sincerely

.....

Mr. Stuart LaPlace
Director

POSTAL ADDRESS
P O Box 186
La Guerite
Basseterre
St. Kitts

LOCATION
La Guerite
Basseterre
St. Kitts

Tel: 869 465 5279
FAX: 869 465 3852
Email: stuart.laplace@gov.kn | sknbs@gov.kn

SKNBS
St. Kitts and Nevis Bureau of Standards

Promoting Confidence, Safety and Quality

cc:
Kevin Helps, Senior Programme Office / Portfolio Manager, UNEP-GEF Chemicals and Waste, Economy Division, UNEP, kevin.helps@un.org
Ludovic Bernaudat, Senior Task Manager, Chemicals and Health Branch, Economy Division, UNEP, ludovic.bernaudat@un.org
Oxana Perminova, Agricultural Officer, Plant Production and Protection Division, FAO, oxana.perminova@fao.org
Gerard Alleng, Climate Change Senior Specialist, gerarda@iadb.org
Franklyn Connor, Chemist, Stockholm Convention Focal Point, franklyn.connor@gov.kn
Stuart LaPlace, Director, St. Kitts and Nevis Bureau of Standards, stuart.laplace@gov.kn
Marcus Natta, Research, St. Kitts and Nevis Bureau of Standards, marcus.natta@gov.kn
Kiethley Phillip, General Manager, St. Kitts Solid Waste Management Authorization kphillip@stkittsswmc.com
Andrew Hendrickson, General Manager, Nevis Solid Waste Management Authorization gm.nswma@mail.kn, solidwastenev@sistrisles.kn

POSTAL ADDRESS
P O Box 186
La Guerite
Basseterre
St. Kitts

LOCATION
La Guerite
Basseterre
St. Kitts

Tel: 869 465 5279
FAX: 869 465 3852
Email: stuart.laplace@gov.kn | sknbs@gov.kn

P.O. Box 1280 Taylor's Range, Basseterre, St. Kitts
HQ: 1 869-465-9507 | Landfill: 1 869-466-1471
Office Cell: 1 869-662-4859/2902
info@stkittsswmc.com

Kelly West
GEF Coordinator
Corporate Services Division United Nations Environment Programme
P.O. Box 30552-00100
Nairobi, Kenya

10th July, 2020.

SUBJECT: Co-financing Commitment for the GEF 7 Global Programme: "Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS) Programme" in the Caribbean Region

Dear Ms. West,

On behalf of the Solid Waste Management Corporation (SWMC) St. Kitts, I am pleased to confirm our support to UNEP for the implementation of the GEF ISLANDS Child Project ***"Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS) Programme"***.

We anticipate that our in-kind support for the project over the period 2020–2025 will amount to XCD$2500,000 or USD$925052.25 and is inclusive of salaries, operational expenses, equipment and technical assistance.

Please be assured that the above resources have been committed by the Solid Waste Management Corporation (SWMC) St. Kitts, towards the achievement of the objectives and outputs of the proposal submitted to UNEP.

The Corporation is pleased to contribute to the implementation of the GEF ISLANDS Caribbean Child Projects, and we look forward to the successful execution of this programme.

Sincerely

SOLID WASTE MANAGEMENT CORPORATION

……..
Ivor Keithley Phillip
GENERAL MANAGER

ST. CHRISTOPHER AND NEVIS

MINISTRY OF SUSTAINABLE DEVELOPMENT
BLADEN'S COMMERCIAL DEVELOPMENT
WELLINGTON ROAD
BASSETERRE
ST. KITTS W.I.

July 21, 2020

Ms. Kelly West
GEF Coordinator
Corporate Services Division
United Nations Environment Programme (UNEP)
P. O. Box 30552-0010
Nairobi
Kenya

Dear Ms. West,

Subject: Co-financing Commitment for the GEF-7 Global Programme: Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS) Programme in the Caribbean Region

In my capacity as the GEF Operational Focal Point for St. Kitts and Nevis we are pleased to inform you of our full support to the United Nations Environment Programme (UNEP) for the implementation of the GEF ISLANDS Child Project: "Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States". In support of this project the total in kind financial contribution from the Government of St. Kitts and Nevis (GSKN) will be US$1,037,412.25 for the five year duration of the project.

The contributions from the St. Kitts and Nevis Bureau of Standards (SKNBS) and the Solid Waste Management Corporation (SWMC) St. Kitts are outlined in the attached official correspondences. The contribution will be assessed and recorded annually by the project team and in accordance with the GEF policies and procedures and reporting on co-financing.

St. Kitts and Nevis is pleased to contribute to the implementation of the GEF ISLANDS Caribbean Child Project and look forward to the successful execution of this programme.

Yours sincerely,

.....

Lavern Queeley
St. Kitts and Nevis Global Environment Facility (GEF) Operational Focal Point

MINISTRY OF EDUCATION, INNOVATION, GENDER RELATIONS AND SUSTAINABLE DEVELOPMENT

Department of Sustainable Development

Communication on this subject should be addressed to:
The Permanent Secretary

Georgianna Court
John Compton Highway
Castries
SAINT LUCIA, W.I.
Tel No: (758) 468-5833
Fax No: (758) 456-0490

June 04, 2020

Kelly West
GEF Coordinator
Corporate Services Division
United Nations Environment Programme
P.O. Box 30552-00100 Nairobi, Kenya
Phone : +254207624147
Email: unepgef@unep.org /Kelly.west@un.org

Dear Ms. West,

Co-financing Commitment for the GEF 7 Global Programme: "Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS) Programme" in the Caribbean Region

In my capacity as the GEF Political Focal Point for Saint Lucia and on behalf of the Ministry of Education, Innovation, Gender Relations and Sustainable Development, we are pleased to inform you of our full support to UNEP for the implementation of the GEF ISLANDS Child Project: "Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States"

In supporting this project, the Ministry confirms its commitment in the amount of US$ 558, 293 in cash, and US$ 619,483 in-kind for the entire five-year project duration broken down as follows:

.../2 Salary of

	Activity	***Amount (in US$)***
1	Salary of government personnel involved in the project	**304,480**
2	Office facility and services including, office equipment, space/ meeting rooms, utilities and communication	**186,180**
3	Capital and operational costs associated with equipment, land and staff expected to be utilised	***128,823***
4	Other chemicals and waste management projects being conducted during the project's duration	**558,293**
TOTAL CO-FINANCING		**1,177,776.00**

We are pleased to contribute to the implementation of the GEF ISLANDS Caribbean Child Projects, and we look forward to the successful execution of this programme.

Yours sincerely,

……
Caroline Eugene (Ms.)
Permanent Secretary

cc: Samanthia Justin, GEF Operational Focal Point, Department of Sustainable Development
Email: sajustin@gosl.gov.lc
Claudius Emmanuel, Permanent Secretary, Department of Economic Development, Transport and Civil Aviation
Email: cemmanuel@gosl.gov.lc
Justin Sealy, General Manager, Saint Lucia Solid Waste Management Authority
Email: gm@sluswma.org

…3/ Annette Rattigan-Leo

June 04,2020
Subject: Co-financing Commitment for the GEF 7 Global Programme: "Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS) Programme" in the Caribbean Region

Annette Rattigan-Leo, Focal Point for Basel, Minamata and Stockholm Conventions, Department of Sustainable Development
Email: annetteleo.sde@gmail.com
Kevin Helps, Senior Programme Office / Portfolio Manager, UNEP-GEF Chemicals and Waste, Economy Division, UNEP
Email: kevin.helps@un.org
Ludovic Bernaudat, Senior Task Manager, Chemicals and Health Branch, Economy Division, UNEP
Email: ludovic.bernaudat@un.org
Oxana Perminova , Agricultural Officer, Plant Production and Protection Division, FAO
Email: oxana.perminova@fao.org
Gerard Alleng - Climate Change Senior Specialist
Email: gerarda@iadb.org

CABINET OF THE PRESIDENT OF THE REPUBLIC OF SURINAME
COORDINATION ENVIRONMENT
Tel.: No: +597-472917/+597-471216/Email: co.environment@gov.sr
Swalmbergstraat no. 7, Paramaribo, Suriname

May 11, 2020

Kelly West
GEF Coordinator
Corporate Services Division
United Nations Environment Programme
P.O.Box 30552-00100 Nairobi, Kenya
Phone : +254207624147
Email: unepgef@unep.org / Kelly.west@un.org

SUBJECT: Co-financing Commitment for the GEF 7 Global Programme: "Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS) Programme" in the Caribbean Region

Dear Ms. West

In my capacity as the GEF Operational Focal Point for Suriname and on behalf of the Cabinet of the President – Coordination Environment/ National Environmental Authority we are pleased to inform you of our full support to UNEP for the implementation of the GEF ISLANDS Child Project: "Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States"

In supporting this project, the Cabinet of the President – Coordination Environment/ National Environmental Authority confirms its commitment in the form of in-kind contribution amounting to DOLLAR AMOUNT USD for the entire five-year project duration broken down as follows:

	Activity	Amount ($)
1	*Salary of government personnel involved in the project*	*370,000.00*
2	*Office facility and services including, office equipment, space/ meeting rooms, utilities and communication*	*480,000.00*
3	*Capital and operational costs associated with equipment, land and staff expected to be utilized*	*60,000.00*
4	*Other chemicals and waste management projects being conducted during the project's duration: Improving Environmental Management in the Mining Sector of Suriname, with Emphasis on Artisanal and Small Scale Gold Mining (ASGM)*	*1,400,000.00*
TOTAL IN-KIND CO-FINANCING		***2,310,000.00***

We are pleased to contribute to the implementation of the GEF ISLANDS Caribbean Child Projects, and we look forward to the successful execution of this programme.

Sincerely,

GEF Operational Focal Point

11/5/20

Mrs. I. Patterzon LLM
Senior Legal & Policy Advisor
Cabinet of the President- Coordination Environment
Suriname

cc:

Kevin Helps, Senior Programme Office / Portfolio Manager, UNEP-GEF Chemicals and Waste, Economy Division, UNEP, kevin.helps@un.org

Ludovic Bernaudat, Senior Task Manager, Chemicals and Health Branch, Economy Division, UNEP, ludovic.bernaudat@un.org

Oxana Perminova, Agricultural Officer, Plant Production and Protection Division, FAO, oxana.perminova@fao.org

Gerard Alleng, Climate Change Senior Specialist, IABD, gerarda@iadb.org

Our Ref.: EMA-ISLANDS-2020-032

June 03, 2020

Ms. Kelly West
GEF Coordinator
Corporate Services Division
United Nations Environment Programme
P.O.Box 30552-00100
Nairobi
KENYA

Via E-Mail: unepgef@unep.org; kelly.west@un.org

Dear Ms. West,

CO-FINANCING COMMITMENT FOR THE GEF 7 GLOBAL PROGRAMME: "IMPLEMENTING SUSTAINABLE LOW AND NON-CHEMICAL DEVELOPMENT IN SMALL ISLAND DEVELOPING STATES (ISLANDS) PROGRAMME" IN THE CARIBBEAN REGION

In my capacity as the GEF Operational Focal Point for Trinidad and Tobago we are pleased to inform you of our full support to UN Environment for the implementation of the GEF ISLANDS Child Project: "Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States".

In support of this Project, the total in-kind financial contribution from the Government of the Republic of Trinidad and Tobago will be USD 3,720,429.78 for the five-year duration of the project. A breakdown of the contributions from various government agencies is attached for reference. The contribution will be assessed and recorded annually by the project team in accordance with GEF policies and procedures and reporting on co-financing.

We are pleased to contribute to the implementation of the GEF ISLANDS Caribbean Child Projects and we look forward to the successful execution of this programme.

Yours sincerely,
ENVIRONMENTAL MANAGEMENT AUTHORITY

Hayden Romano
MANAGING DIRECTOR
GEF OPERATIONAL FOCAL POINT

electronic encl. (1)

TB/sm

8 Elizabeth Street, St. Clair, Port of Spain, Trinidad & Tobago, West Indies.
Tel: (868) 226-4EMA(4362) Fax: (868) 628-9123; E-Mail: ema@ema.co.tt

cc. By E-Mail

Mr. Kevin Helps, Senior Programme Office/Portfolio Manager, UNEP-GEF Chemicals and Waste, Economy Division, UNEP. E-Mail: kevin.helps@un.org

Mr. Ludovic Bernaudat, Senior Task Manager, Chemicals and Health Branch, Economy Division, UNEP. E-Mail: ludovic.bernaudat@un.org

Ms. Oxana Perminova, Agricultural Officer, Plant Production and Protection Division, FAO. E-Mail: oxana.perminova@fao.org

Mr. Gerard Alleng, Climate Change Senior Specialist, IDB. E-Mail: gerarda@iadb.org

Ms. Joanne Deoraj, Political Focal Point /Permanent Secretary, Ministry of Planning and Development, Trinidad and Tobago. E-Mail: joanne.deoraj@planning.gov.tt

Dr. David Persaud, Environmental Manager, Environmental Policy and Planning Division, Ministry of Planning and Development, Trinidad and Tobago. E-Mail: David.Persaud@planning.gov.tt

Mr. Richie Toppin, Administrator, Division of Infrastructure, Quarries and the Environment, Tobago House of Assembly, Trinidad and Tobago. E-Mails: diqetobago.tha@gmail.com; infrastructure.tha@gmail.com

Mr. Linford Beckles, Director, Department of Environment, Division of Infrastructure, Quarries and the Environment, Tobago House of Assembly, Trinidad and Tobago. E-Mail: linfordbeckles@yahoo.com

Mrs. Dianne Baker-Henry, Administrator, Division of Health, Wellness and Family Development, Tobago House of Assembly, Trinidad and Tobago. E-Mail: administrator@dhwfd.gov.tt

Ms. Jasiyah Ibrahiim, Project Engineer, Division of Health, Wellness and Family Development, Tobago House of Assembly, Trinidad and Tobago. E-Mail: jasiyahibrahiim@gmail.com

Mr. Asif Ali, Permanent Secretary (Ag.), Ministry of Health, Trinidad and Tobago. E-Mails: psmoh@health.gov.tt; asif.ali@health.gov.tt

Mr. Hasmath Ali, Pesticides and Toxic Chemicals Inspectorate, Ministry of Health, Trinidad and Tobago. E-Mail: hasmath.ali@health.gov.tt

Mr. Farz Khan, Chemistry, Food and Drugs Division, Ministry of Health, Trinidad and Tobago. E-Mail: farz.khan@health.gov.tt

Ms. Desdra Bascombe, Permanent Secretary, Ministry of Rural Development and Local Government, Trinidad and Tobago. E-Mail: LocalGovPS@gov.tt

Mr. Raymond Seepaul, Deputy Permanent Secretary, Ministry of Rural Development and Local Government, Trinidad and Tobago. E-Mail: seepaulraymond@gov.tt

Mr. Derek Luk Pat, Executive Director, Trinidad and Tobago Bureau of Standards, Trinidad and Tobago. E-Mail: Derek.LukPat@ttbs.org.tt

Mr. Kevin Thompson, Chief Executive Officer, Solid Waste Management Company Limited, Trinidad and Tobago. E-Mail: kthompson@swmcol.co.tt

Ms. Jewel Batchasingh, Director (Ag.), Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean Region, Trinidad and Tobago. E-Mail: jewel.batchasingh@bcrc-caribbean.org

Appendix 4 – Implementation Arrangements

Implementation Arrangements

The BCRC-Caribbean, in its capacity as the executing agency, will work alongside the United Nations Environment Programme (UNEP) and the Food and Agricultural Organization of the United Nations (FAO) as the implementing agencies on the day-to-day management and monitoring of project activities and consultants under the GEF ISLANDS 10279 Child Project.

In order to support project execution and ensure that the outputs of the project are aligned with national priorities and that project activities are coordinated among national stakeholders within the scope of the project, each project country will appoint members to their National Working Group (NWG). In this regard, there will be nine (9) NWGs and each may include, but will not be limited to, at least one person from the following offices:

1. Ministry of Legal Affairs (or equivalent environmental law background in the public sector);
2. Ministry of the Environment (or equivalent);
3. National environmental agency;
4. Ministry of Agriculture;
5. Pesticide Inspectorate;
6. National Waste Management Authority;
7. Customs and Excise;
8. Bureau of Standards;
9. Ministry of Gender Affairs (or equivalent);
10. Ministry of Indigenous Affairs (if available);
11. Fire Services Department;
12. Electrical companies;
13. Waste management companies;
14. Medical and Dental Associations, and;
15. Chambers of Commerce.

In countries where an inter-sectoral committee with oversight on chemicals and waste management already exists, it is recommended that this committee be integrated into the NWG and supplemented as necessary in order to ensure correspondence with the composition suggested above. The National Focal Points of the Basel, Stockholm, Rotterdam and Minamata Conventions should also be represented on the NWG.

NWG members will not be contracted by the project. NWG members will be appointed in each country at the discretion of the Government and in accordance with the Terms of Reference which will be developed at the project's inception. A Chair and a National Project Coordinator (NPC) shall also be appointed for each NWG by the National Government and shall also be qualified and function in accordance with the Terms of Reference which will be developed at the project's inception. The Chair will be responsible for arranging and chairing meetings of the NWG. The NPC will be responsible for coordinating the day-to-day management of project activities in his/her country and for liaising with the project team and national stakeholders. The NWG shall provide guidance to the NPC in the execution of project activities. The Chair of the NWG and the National Project Coordinator shall also belong to the membership of the Project Steering Committee (PSC) and shall represent their country's interests at PSC meetings.

Table 1 suggests a list of NWG members by country. This list is not exhaustive and is subject to change based on the decisions of the National Governments and administrative changes which may occur within Governments.

Table 1: Possible Composition of the NWG by Country

Country	Institution
Antigua and Barbuda	Antigua and Barbuda Department of Environment, Ministry of Health and the Environment

	Department of Analytical Services, Ministry of Agriculture, Land, Fisheries and Barbuda Affairs
	Pesticides and Toxic Chemicals Control Board
	Antigua and Barbuda Bureau of Standards
	Customs and Excise Division of Antigua and Barbuda
	National Solid Waste Management Authority, Ministry of Health and the Environment
	Antigua and Barbuda Chamber Industry of Commerce
	Directorate of Gender Affairs
Barbados	Ministry of Environment and Natural Beautification
	Environmental Protection Department
	Customs and Excise Department
	Ministry of Agriculture and Food Security
	Pesticides Control Unit
	Bureau of Gender Affairs
	Barbados National Standards Institution
	Barbados Chamber of Commerce and Industry
Belize	Belize Department of the Environment
	Belize Customs and Excise
	Pesticide Control Board Belize
	Ministry of Sustainable Development, Climate Change and Disaster Risk Management
	Ministry of Human Development, Families and Indigenous Peoples' Affairs
	Belize Solid Waste Management Authority
	Belize Chamber of Commerce and Industry
	Belize Bureau of Standards
Dominican Republic	Ministry of Environment and Natural Resources
	Instituto Dominicano para la Calidad (Dominican Institute for Quality)
	Direccion General de Aduanas (General Directorate of Customs)
	Santo Domingo Chamber of Commerce
	Ministry of Agriculture
Guyana	Ministry of Agriculture
	Pesticides and Toxic Chemicals Control Board
	Environmental Protection Agency

	Ministry of Natural Resources
	Guyana National Bureau of Standards
	Guyana Revenue Authority
	Ministry of Amerindian Affairs
	Georgetown Chamber of Commerce and Industry
	Gender Affairs Committee
Saint Kitts and Nevis	Ministry of Sustainable Development
	St Kitts and Nevis Bureau of Standards
	Saint Kitts Solid Waste Management Corporation
	Nevis Solid Waste Management Authority
	Saint Kitts and Nevis Customs Department
	Saint Kitts and Nevis Chamber of Industry and Commerce
	Department of Gender Affairs
Saint Lucia	Department of Sustainable Development Ministry of Education, Innovation, Gender Relations and Sustainable Development
	Ministry of Agriculture, Fisheries, Physical Planning, Natural Resources and Cooperation
	Saint Lucia Bureau of Standards
	Saint Lucia Solid Waste Management Authority
	Saint Lucia Chamber of Commerce, Industry and Agriculture
	Customs and Excise Saint Lucia
Suriname	Coordination Environment Office of the President of the Republic of Suriname
	Ministry of Spatial Planning and Development
Trinidad and Tobago	Ministry of Planning and Development
	Pesticides and Toxic Chemicals Inspectorate
	Environmental Management Authority
	Department of Quarries, Infrastructure and the Environment, Tobago House of Assembly
	Solid Waste Management Company Limited
	Trinidad and Tobago Bureau of Standards
	Trinidad and Tobago Industry of Commerce
	Trinidad and Tobago Fire Services
	Trinidad and Tobago Electricity Commission
	Gender and Child Affairs under the Office of the Prime Minister

The NWG shall meet at their discretion and shall consult other national stakeholders when required, for example, the Ministry of Youth and Community Development (or equivalent) for the execution of project activities related to youth and public awareness, or the Ministry of Local Government and Rural Development for the execution of project activities related to the removal of hazardous waste in rural areas, or Chambers of Commerce, as appropriate.

A Project Steering Committee (PSC) will also be established at the inception phase of the project. The PSC shall meet annually to review the project execution against the scope of project activities, the review of annual workplans and budget in accordance with the approved project document, and the provision of other technical support for project execution as necessary. The PSC will make decisions alongside the UNEP, FAO and GEF as part of the monitoring and evaluation activities.

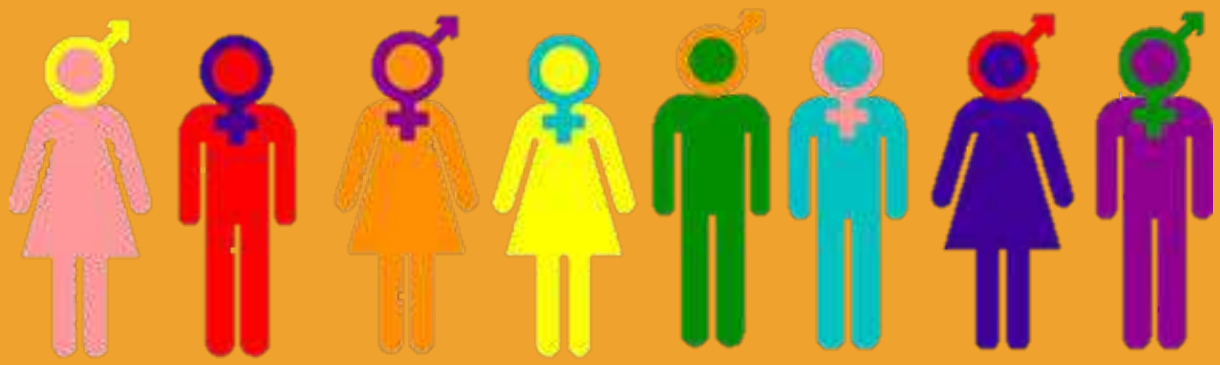
The BCRC-Caribbean will serve as the secretary to the PSC and shall attend in an *ex officio* capacity. The BCRC-Caribbean will also work in conjunction with national consultants who will be contracted under the project to deliver the outputs under each of the project's components throughout the project cycle. These national consultants will be responsible for the national coordination of project activities as required and will serve as a liaison between the project team and other national stakeholders who are interested in or have the potential to influence or be impacted by project activities.

The PSC will be comprised of the following stakeholders who will hold decision rights: 1 GEF representative, 1 UNEP representative, 1 FAO representative, and nine (9) national focal points (1 per country). An additional nine (9) nominated alternatives to the focal points will also be included. Finally, key stakeholders will be participating to the PSC to provide guidance but without decision rights. These include but are not limited to the following stakeholders:

1. Inter-American Development Bank (IADB)
2. Organization of Eastern Caribbean States (OECS)
3. International Union for the Conservation of Nature (IUCN)
4. Carnival Cruise Line
5. Cartagena Convention Secretariat
6. Norwegian Agency for Development Cooperation (NORAD)
7. United States Agency for International Development (USAID)
8. United States Environmental Protection Agency (USEPA)
9. Japan International Cooperation Agency (JICA)
10. UK Department for Environment, Food and Rural Affairs (DEFRA)
11. Representatives from European Overseas Countries and Territories in the Caribbean, where relevant

Appendix 5 –Gender Mainstreaming

GENDER MAINSTREAMING PLAN



Draft

Prepared by Candice Ramessar

For the PPG Phase of the Project: "Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS)"

August 19, 2020

BCRC
CARIBBEAN

August 2020

Gender Mainstreaming Plan for Chemicals and Waste Management in the Caribbean Countries of Antigua and Barbuda, Barbados, Belize, Dominican Republic, Guyana, Saint Kitts and Nevis, Saint Lucia, Suriname and Trinidad and Tobago

Prepared for the PPG Phase of the ISLANDS Project

Contents

List of Acronyms

BCRC-Caribbean	Basel Convention Regional Centre for Training and Technology Transfer in the Caribbean
CARICOM	Caribbean Community
EOI	Expression of Interest
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FAO	Food and Agricultural Organization
GAD	Gender and Development
GBV	Gender Based Violence
GEF	Global Environment Facility
IDB	Inter-American Development Bank
ISLANDS	Implementing Sustainable Low and Non-Chemical Development in SIDS
LDCs	Least Developed Countries
M&E	Monitoring and Evaluation
NGOs	Non-Governmental Organizations
SIDS	Small Island Developing States
W&Cs	Wastes and Chemicals
WID	Women in Development

Introduction and Background

As Caribbean countries and other Small Island Developing States (SIDS) progress, their import-dependent development pathways, the quantity and diversity of imported products and their associated resulting waste, would invariably increase. Constrained by their small size and narrow resource base, the capacity of SIDS to effectively manage the large quantity and types of hazardous and toxic wastes, must be strengthened.

In an attempt to improve access to finance for public and private sector actors that are interested in sustainable management of chemicals and waste in the Caribbean, the Basel Convention Regional Centre for Training and Technology Transfer (BCRC) in the Caribbean has entered into a technical cooperation agreement to prepare the Project Preparation Grant (PPG) for the development of the Caribbean Incubator Facility. With assistance from the Inter-American Development Bank (IDB), the incubator facility will be developed under the Global Environment Facility (GEF) funded programme, Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS).

The aim of this ISLANDS programme is to support SIDS in entering into a safe chemical development pathway, thereby strengthening countries' abilities to control the flow of chemicals, products and materials into their territories. The IDB child project will focus on ensuring that chemicals and waste considerations are incorporated into existing projects and also that chemical and waste specific projects are bankable and reach a readiness stage where they are technically and financially feasible and sound and therefore eligible to be funded, scaled up and implemented in collaboration with other IDB programs and platforms. The ISLANDS programme consists of the following five (5) components as shown below:

Component 1: Preventing the Future Build-Up of Chemicals Entering SIDS

- SIDS have in place effective mechanisms to control the import of chemicals, and products that lead to the generation of hazardous waste

Component 2: Safe Management and Disposal of Existing Chemicals, Products and Materials

- Harmful chemicals and materials present and/or generated in SIDS are being disposed of in an environmentally sound manner

Component 3: Safe Management of Products entering SIDs/Closing Material and Product loops

- Build-up of harmful materials and chemicals is prevented through establishment of effective circular and life-cycle management systems in partnership with the private sector

Component 4: Knowledge Management and Communication

- Knowledge generated by the programme is disseminated to, and applied by, SIDS in all regions

Component 5: Monitoring and Evaluation

In keeping with the first component of the IDB project, the consultancy aims to design a gender-responsive plan to be applied, whenever possible, to each of the sub-projects financed by the Incubator Facility and that will also support the Gender actions under the GEF ISLANDS global platform for the Caribbean countries of Antigua and Barbuda, Barbados, Belize, Dominican Republic, Guyana, Saint Kitts and Nevis, Saint Lucia, Suriname and Trinidad and Tobago. The plan will incorporate, if applicable, access to the available gender tools at the IDB and GEF.

Project Specific Gender Information and Considerations

This gender mainstreaming plan is informed by a gender analysis that was conducted for the project. The gender analysis identified some specific gender considerations (limitations and opportunities) in the project countries that are important in the mainstreaming of gender in the project through the plan.

The factors are listed below:

- There is a general lack of information and data on gender in the chemicals? and waste management sectors of the project countries. A complete picture of gender in the waste and chemical sectors was therefore not possible.
- The associated policies of the waste management sector of the project countries lack gender-responsiveness. Gender nor women are not mentioned nor considered in the policies and strategies.
- Gender policies do exist nationally in all the countries and the national development strategies have gender considerations with varying degrees. However, it is not mainstreamed throughout the various sectors of the economy especially the chemicals and waste management sectors.
- There is also very little coordination and collaboration between the agencies focused on chemicals and waste management and the gender agencies. There is some collaboration between Non-Governmental Organizations (NGOs) focused on women issues and the national agencies. However, the weight of their inputs into the national agencies is not discernible.
- In some countries, for example Guyana, gender mainstreaming is being driven by the implementation of international environmental conventions in general and the ones associated with the chemicals and waste management sector such as Basel, Stockholm, SAICM and Minamata in particular. However, even in these instances' collaboration with gender bureaus and agencies is limited or non-existent.
- The absence of gender-responsiveness in the policies and strategies translated to a lack of gender-mainstreaming in the sectors and the lack of collection of gender-related data. Data is the foundation of sound plans, policies and programmes and lack of data affects the ability to recognize and mainstream gender and develop gender sensitive and responsive policies. At present gender data is not informing programmes in the sector.
- The lack of data also results in the lack of visibility of gender roles, particularly for women. The true picture of women's contribution to the sector is not possible without the collection of gender and sex-disaggregated data.
- Men and women are affected by the lack of sustainable chemicals and waste management in the project countries. For men, their higher participation in the agricultural (all project countries), mining and quarrying, manufacturing and energy sectors imply that they are more exposed to chemicals in their productive roles.
- Women's exposure to chemicals comes from their lesser participation in the sectors associated with chemicals use and their involvement in the domestic spheres and reproductive roles, hotel and tourism and manufacturing sectors. Indigenous women

in countries with indigenous populations are more vulnerable to chemical exposure due to their diets and interactions with natural environments.

- Women work both formally and informally in the chemical and waste management sector as recyclers, waste pickers, sorters, intermediaries, business owners, and employees of municipal waste service providers[1].
- For some, especially women in the lower income groups, employment in this sector allows for the combination of childcare and household responsibilities with income earning.
- Participation in the chemicals and waste management industry poses several direct and indirect health risks for women. Women often spend longer times at dumpsites since they are sorting through waste and hence, they experience greater exposure to pollutants and the associated health risks.
- Women are also exposed to greater risks of sexual harassment, violence and abuse. Adherence to traditional gender roles that impede attracting, hiring, promoting, and retaining women; a male-dominated culture; overt or covert discrimination; and lack of exposure to the benefits of working in the waste management and recycling sector restrict women's ability to contribute fully and equally at all activity and decision-making levels in the sector.
- For the national agencies for the majority of countries, women are actively participating in the development and implementation of policies in both sectors. The analysis revealed that whilst the number of women in managerial and technical positions is lower than men (40 percent for countries that responded) it is more favourable compared to other developing countries (USAID 2019). This is in sync with the high numbers of women in the public sector of the project countries. However, women are still the majority in the non-managerial and non-technical positions of the agencies especially in the administrative sections. In the waste management sectors, women rank low in actual waste workers (20 percent in Barbados, being the highest).
- For the private sector waste enterprises, women ownership of businesses surveyed is lower than men. Anectodical information suggests this is the case in the other countries (despite in both Barbados and Trinidad and Tobago, two of the leading business owners in the waste sector are women). Barriers to higher female participation in the countries include sectoral and gendered impediments to credit and business in general. The social normative values of waste management being a man's business affects women ability to participate at all levels of the value chain but in particular the profitable enterprise sections.
- Women are highly educated and open to innovation it should therefore be easy to close the gender gap both in the business and technical areas of chemicals and waste management by attracting women through awareness, sensitization and support.

[1] USAID (2020) *Factsheet: Women in Solid Waste Management and Recycling: Latin America and the Caribbean Landscape.* Available at: https://www.alnap.org/help-library/womens-economic-empowerment-and-equality-in-solid-waste-management-and-recycling-latin

Gender Implications of the Project Interventions

The project intervention of the pipeline incubator, without gender mainstreaming, will be gender positive for men and gender neutral[2] for women. Men at present are the participatory majority in the sectors associated with chemicals and waste management in the project countries and in the commercial sector. Without gender mainstreaming, it is logical that they will benefit positively from the project activities. The project will also have a positive impact on the livelihoods and incomes of men, as again, men are more likely to benefit overwhelmingly from any livelihood activities generated as a result of the project activities.

The project proposes to address an environmental and social issue, chemical pollution and improper waste management, that is of concern to women, non-governmental and the third sector[3]. This offers an opportunity for these actors to monetize a social and environmental issue using the social entrepreneurship approach[4][5]. This opportunity is further enhanced by the high education levels among the female population of the project countries. The gender analysis confirmed that social norms rather than education levels or training capacity is likely the main reason that women and youths are not attracted to the sector despite the possible economic benefits.

Gender related barriers of access to credit, equipment and Gender Based Violence (GBV) in the sector may limit women's participation in the sector and the pipeline incubator activities. These must be addressed in the gender mainstreaming plan and implementation plans of the pipeline projects if women are to gain fully from benefits. At the decision-making levels, the small number of women at the decision-making levels in the private sector businesses present the ability to hinder the mainstreaming of gender in the project activities and the possibility of hostility towards gender equity initiatives from the enterprises. Since women are prominent in the leadership of the organizations in the non-governmental and third sector, they are more likely to benefit from and be involved in the decision-making levels of pipeline incubator activities slated for those actors.

Gender Mainstreaming Focus and Institutionalization

Web of Institutionalization

The gender action plan will be the main tool for mainstreaming gender and achieving gender transformative actions in the pipeline project. The gender action plan will have an associated budget, a stakeholder engagement plan, knowledge management and monitoring and evaluation elements. The implementation of the plan will be led by a gender and social inclusion officer. The plan and strategy will be bolstered in the following 1) gender policy for the project, 2) gender equity in project management 3) Other critical elements of the process

[2] Women will not benefit directly (may benefit from multiplier effects including increased household incomes for male employees, but their present situation will not be impacted negatively).
[3] The third sector is the community sector, and nonprofit sector, in contrast to the public sector and the private sector. Wikipedia
[4] Wikipedia (2020) Social entrepreneurship is an approach by individuals, groups, start-up companies or entrepreneurs, in which they develop, fund and implement solutions to social, cultural, or environmental issues. Found at the following link: https://en.wikipedia.org/wiki/Social_entrepreneurship

will be the conscientization of policy makers thereby ensuring political commitment to the strategy and plan. Creating awareness among other staff is a part of the process as it is essential in the mainstreaming process and creating transformative projects and programmes. The process is outlined below in Figure 1

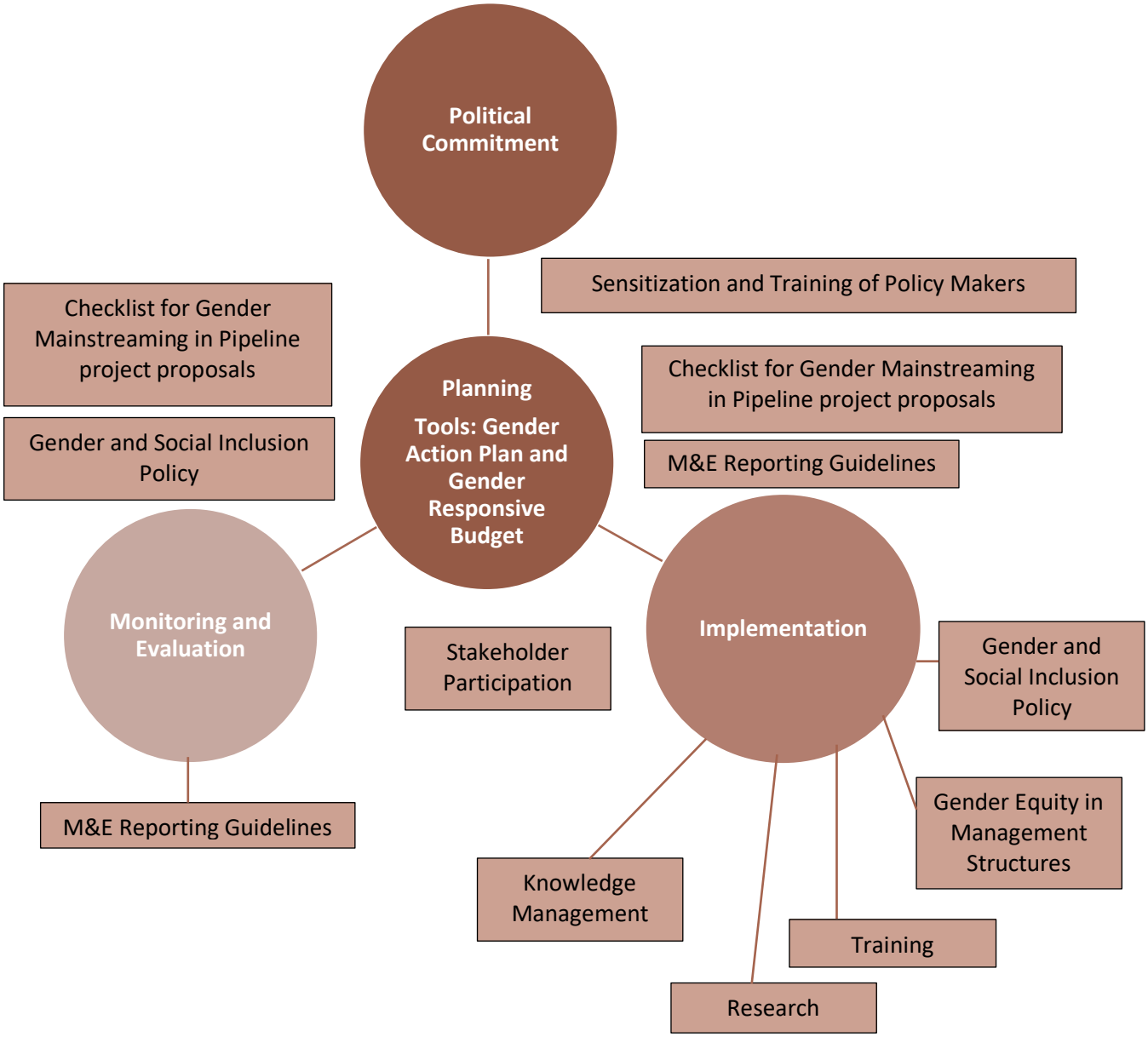


Figure 1: Gender Mainstreaming Process

Gender Dimensions in Waste and Chemicals Management

Women and men must have the same opportunity to participate in and benefit from the project activities including the sub-projects. This is not only essential for the project's success but also in keeping with the norms and policies of the GEF and IDB. Equal opportunity to participate can be achieved through a robust gender mainstreaming or action plan. Gender is relevant in all of the project components. Cultural, demographic, labour participation, involvement of men and women in businesses, access to credit and other local variations across the project countries must be factored into the gender mainstreaming plans.

Decision-making Processes

It is important that there is gender equity in the decision-making processes of the project. Whilst at the project management level of the BCRC, women are well represented, this must be carried through to the national level management of the project and in the grantee organizations of the sub-projects. In the process/es for the decision making of the implementer or intermediaries of the sub-grants gender equity and social inclusion must be achieved. This can be done by several gender related actions stated in the action plan. A requirement of project grantees/recipients of the pipeline projects should be a commitment to gender mainstreaming/women economic empowerment in enterprises. Enterprises must be encouraged to work towards possible gender certification seals such as the W+ s and WEE standards.[6]

Rights to, Access and Control of, Resources and Assets

Whilst there are no legal barriers in any of the project countries to prevent women's access to credit, resources and equipment for enterprise involvement in the sector, social and cultural norms impede their access. As a result, women are lagging in both access to credit and ownership of equipment in the sector. The lack of women-led and owned business in the pipeline for the incubator facility needs to be investigated and the necessary actions develop to increase gender diversity in possible sub-projects.

Roles, Responsibilities, Practices and Knowledge

The differential roles and responsibilities of men and women in both the domestic and productive sectors influences their use of chemicals and waste, needs for chemicals and the effects of the improper management of chemicals and waste as well as their involvement in livelihoods and enterprise activities associated with the sector. This understanding is important to the discernment of women's role and to ensure they are not invisible in the projects and sub-project activities. It is also essential in all aspects of the project activities from the design and disseminating of call for proposals, management processes, programs implementation and development.

[6] The W+ Standard is a unique certification label developed by Women Organizing for Change in Agriculture and Natural Resources Management that endorses projects that create increased social and economic benefits for women participating in economic development or environment projects, including those that provide renewable energy technologies, time and labor saving devices, forest and agriculture activities, and employment opportunities.

Capacity Building and Information

Addressing the issue of differential access and control of resources and assets can only be achieved with capacity building and awareness targeted towards the gender and social groups that are lagging in ownership of resources and less empowered to take part in the project activities i.e. women. Targeted gender responsive training and awareness must be done in order to increase women's participation in the sector and increase their numbers for. The mainstreaming of gender in technological training, exchange visits etc. and ensuring both genders and their experiences are represented in the training materials are important in the gender mainstreaming plan.

Objectives and Outline of Gender Mainstreaming Plan

The objectives of this gender mainstreaming plan are as follows:

1. To ensure that men and women have equal opportunity to participate and benefit from the pipeline incubator activities
2. To prevent any negative impacts on both genders as a result of the pipeline incubator activities
3. To provide mechanisms for the mainstreaming of gender in the pipeline incubator projects according to the GEF and IDB gender policies

As a multi-country or regional project, the gender mainstreaming plan is cognizant of variations within countries and across countries. In addition, the plan also notes that the pipeline incubator projects will be of varying sizes and operational scales. Given these factors the plan proposes a three-pronged approach:

1. Mechanisms that addresses gender mainstreaming in the pipeline/sub-projects
2. Processes on mainstreaming gender in other supportive processes such as knowledge management, capacity building and awareness, grant/sub-project management
3. Monitoring and Evaluation to assess the projects effectiveness in mainstreaming gender in the sub-projects

The approach of the gender mainstreaming plan is one of Women in Development (WID) and Gender and Development (GAD). This hybrid approach was deemed necessary for the project gender conditions. The plan therefore seeks to provide specific actions for women as well as focus on transformative actions that address systemic gender disparities in the sectors.

Gender Mainstreaming Plan for Sub-Projects

The following gender actions are proposed for the pipeline incubator facility. The actions are premised on coordinated gender integration throughout the facility structures and processes and managed through a gender and social inclusion officer or someone with gender and development expertise on the project management team. It is bolstered by a gender responsive budget. The activities outlined here will be a part of the adaptive management of the project and sub-project and the funds to implement the activities will be reflected in annual and other plans.

Gender-related activity	Indicator	Target	Baseline	Budget (USD)	Timeline	Responsibility
Component: Project Management						
Development of a gender and social inclusion policy for all project management structures at the national and sub-national levels	Implementation of gender policy by all project management committees	Gender policies for all management structures at the national and sub-national level	0	5,000	Year 1	Project Manager, Social and Gender Inclusion Officer, National Focal Points and National Gender Agencies
Include gender balance and social inclusion in positions for committees and sub-committees at the country level	Gender balance in all committees at the national and sub-national levels	All committees include men and women	0	5,000	Year 1	Idem
Establish a quota and use positive affirmation to mandate national level committee's composition	A minimum of 33 percent women on all national and sub-national level committees	All committees have a minimum of 33 percent women members	0	2500	Year 1	Idem
Develop and implement committee's processes that are inclusive and consider the needs of all gender	All members of the committees are empowered and encouraged to provide inputs in all activities	100 % of committees process are gender responsive	0	5000	Year 1	Project Manager, Social and Gender Inclusion Officer, National Focal Points and National Gender Agencies

Gender-related activity	Indicator	Target	Baseline	Budget (USD)	Timeline	Responsibility
Developing and deliver a training program on gender and Chemicals and Waste Management for the Project Management team	Project management staff empowered to mainstream gender in project management activities	All project management staff receive training	TBD	0 (cost of Social and Gender Inclusion Officer)	All years of the project	Project Manager, Social Inclusion and Gender Officer, National Focal Points and National Gender Agencies
Conduct gender awareness and sensitization training for all national level project committees and sub-committees and project management teams	Project Committees members are knowledgeable on gender mainstreaming (by post training evaluation) and empowered to implement mainstreaming activities	100 % of project committees members receive training	0	10,000	Year 1	Idem
Area: Institutionalization of Gender at Decision-Making/Policy Level						
Develop and implement national/regional level workshops on gender, waste and chemicals management and economic opportunities for decision makers (Permanent Secretaries of Ministries of Gender, Social Development, Business etc.)	Increased level of understanding among 100 % of policy makers and national level stakeholders of gender issues in chemicals and waste management assed through post training evaluation of participants	1 workshop per project country in year 1 of the project	0 %	100,000 (20,000 per country)	Year 1	International/national Gender Expert with support from the Social inclusion and gender officer, National Gender Agencies and National Focal Point Agencies
Establish a national gender committee of the project at the national or regional level consisting of project staff,	National Gender Committee on Chemicals and Waste Management	1 National Gender Committee per	0	20,000	Year 1	Idem

Gender-related activity	Indicator	Target	Baseline	Budget (USD)	Timeline	Responsibility
national focal points, and partner ministries for the promotion of gender mainstreaming in the project and sectors	established and advising the pipeline incubator					
Area: Collection of Baseline Data						
Conduct detailed national level analysis on barriers to women participation in the sectors including hiring practices, school-to-work transition, workplace policies, work environment etc.	Barriers to women participation in the sector identified and action plan to address developed	1 national level assessment per project country	0	10,000 per country	Year 1	International/national Gender Expert with support from the Social inclusion and gender officer, National Gender Agencies and National Focal Point Agencies
Conduct training for national focal point agencies on gender responsive data collection in the sector	Gender data and sex-disaggregated data plans developed for all project countries	All project countries have a gender database	0	5000 per country		Idem
Conduct an analysis of ventures founded by women to identify factors of success and failures.	Report on factors of success and failures for women ventures in the sector	1 Regional study on women ventures in chemicals and waste management	0	20,000	Year 1	International/national Gender Expert with support from the Social inclusion and gender officer, National Gender Agencies and National Focal Point Agencies

Gender-related activity	Indicator	Target	Baseline	Budget (USD)	Timeline	Responsibility
Conduct national level assessment on women's involvement in pipeline streams identified, state of readiness, needs etc.	Report on women involvement in pipeline streams	1 Regional study on and women involvement in pipeline stream	0	20,000	Year 1	
Area: Program Development and Implementation						
Sub-Area: Request for Proposals						
Review and revise Requests for Proposals to ensure that they are gender responsive including imagery, language, and accessibility.	All RFPS including gender sensitive language, images and are accessible to all social groups	100 % of RFPs	0			Project Manager, Social and Gender Inclusion Officer, National Focal Points and National Gender Agencies
Ensure that channels used to disseminate RFPs reach different genders and social groups including adapting language for specific groups and channels, use community events, women's business groups, women's arm of business chambers, private sector organizations etc.	RFPs are disseminated through diverse channels accessible to all social groups and gender	100% of dissemination channels are gender responsive	0			Idem
Establish partnership with technical faculties of universities (Anton de Kom, University of Guyana, University of Trinidad and Tobago, University of the	Universities and technical centres of learning involved in the dissemination of RFPs	2 University and technical centre per country	0			Project Manager, Social and Gender Inclusion Officer, National Focal Points and National Gender Agencies

Gender-related activity	Indicator	Target	Baseline	Budget (USD)	Timeline	Responsibility
West Indies) to assist in the dissemination of the RFPs						
Expression of Interests, Selection Criteria and Review Process - Expression of Interest (EOI) provides guidance and reference materials, in the proposal, Environmental and Social Management Framework, Environmental and Social Assessments and Environmental and Social Management Plans, Project Operational Manual will include a gender mainstreaming plans and templates, a declaration of commitment to gender mainstreaming and reference sources, for preparing gender mainstreaming plans.	All Expression of Interests include gender mainstreaming plans and templates for preparing same	100 % of EOIs have gender mainstreaming templates and declarations of commitments to same	0 (EOIs have not been developed)	0 (cost of Social and Inclusion and Gender Officer and Project Manager)	Year 1 of the project or prior to commencement of sub-projects implementation exercises whichever comes first	Idem
Area: Assessment of RFPs						
Criteria for evaluation of RFPs/ EOIs will reflect and be weighted, the requirement that organizations present evidence of experience or intent to, gender	Gender mainstreaming listed and weighted as a criterion for evaluations in EOIs	100 Percent of EOIs have gender mainstreaming as a weighted criterion	0 (EOIs have not been developed)	0 (cost of Social and Inclusion and Gender Officer and	Year 1 of the project or prior to commen	Project Manager, Social and Gender Inclusion Officer, National Focal Points and National Gender Agencies

Gender-related activity	Indicator	Target	Baseline	Budget (USD)	Timeline	Responsibility
mainstreaming or social inclusion issues, ideally in chemicals and waste management or business/management environment				Project Manager)	cement of sub-projects implementation exercises whichever comes first	
Evaluation committees for the EOIs. Applicants for training and technical assistance and full proposals will include social development expertise to assess gender integration and social inclusion strategies	Social Development and Gender Experts on all evaluation committees	100 Percent of EOIs evaluation committees include social development and gender experts	0 (EOIs have not been developed)	0 (cost of Social and Inclusion and Gender Officer and Project Manager)	Prior to evaluations	Idem
Establish a quota for grantees (affirmative action or positive discrimination) that are women led/owned businesses/enterprises /organizations/community groups/cooperatives for pipeline incubator facility	Gender quota applied in the assessment process of grantee applicants	A minimum of 33 percent of sub-projects grantees or recipient are women led/owned businesses/ enterprises /organizations/community groups	0 (grantees process not commenced)	0 (cost of Social and Inclusion and Gender Officer, Project Manager, National Focal Points	Year 1 of the project or prior to commencement of sub-projects implementation exercises	Idem

Gender-related activity	Indicator	Target	Baseline	Budget (USD)	Timeline	Responsibility
					whichever comes first	
Area: Technical Assistance and Capacity Building Pipeline						
Establish internships, mentorships opportunities program with existing ventures, universities, training centres etc to secure skilled women in pipeline streams	Internship programmes for women established in each project country	Minimum of 1 internship program per project country with a minimum of 5 participants	0	50,000		Project Manager, Social and Gender Inclusion Officer, National Focal Points and National Gender Agencies
Design and implement outreach activities to high schools, universities and career fairs including promotional campaigns to enhance the interest and awareness in STEAM subjects\ Chemicals and Waste sectors employment, and to inform about opportunities in the chemicals and waste management sectors	Outreach activities conducted in all project countries	A minimum of two outreach activity per year per country	0	75,000		
Training program for women in the skills of the streams						

Gender-related activity	Indicator	Target	Baseline	Budget (USD)	Timeline	Responsibility
identified for pipeline incubator						
Providing training to grantee enterprises and grantee organizations in the pipeline on applying a gender lens to their ventures		All sub-projects/partners grantees implement gender mainstreaming activities	0 (no grantees selected).	0 (cost of Social and Inclusion and Gender Officer)	Year 1 of the project or prior to commencement of sub-projects implementation exercises whichever comes first	Project Manager, Social Inclusion and Gender Officer, National Focal Points and National Gender Agencies
Develop Gender mainstreaming plans for each pipeline project that will specify gender related outcomes, outputs, indicators and targets that are relevant for their objectives and activities.	Gender mainstreaming plans for each sub-project developed targeting specific project considerations	1 Gender mainstreaming plan for each sub-project	0 (no sub-project gender mainstreaming plan developed)	0 (cost of Social and Inclusion and Gender Officer as advisor to grantees)	Year 1 of the project or prior to commencement of sub-projects implementation exercises	Project Manager, Social Inclusion and Gender Officer, National Focal Points and National Gender Agencies

Gender-related activity	Indicator	Target	Baseline	Budget (USD)	Timeline	Responsibility
					whichever comes first	
Ongoing provision of technical support, through its in-house gender expert, to grantees to strengthen gender integration activities in the project operations	Scheduled technical support in gender integration in project operations	Quarterly scheduled technical support per sub-project and grantees	0 (sub-projects have not commenced)	0 (cost of Social and Inclusion and Gender Officer and Project Manager)	During sub-project implementation	Social and Inclusion and Gender Officer and Project Manager
Development of leadership and awareness training for women and third sector groups on economic opportunities in stream identified	Women and third sector group empowered to apply for grants/loans under sub-project financial facilities	1 leadership and awareness training per sub-project country	0 (no leadership training commenced)	50,000 (10,000 per country)	Year 1 of the project or prior to commencement of sub-projects implementation exercises whichever comes first	Project Manager, Social Inclusion and Gender Officer, National Focal Points and National Gender Agencies
Training for pipeline operations and possible grantees in gender and ally	Increased level among 100 percent of understanding among	1 training workshop/session	0 (training worksho	2500 (500 per country for cost of meals,	Year 1 of the project	Project Manager, Social Inclusion and Gender Officer, National Focal

Gender-related activity	Indicator	Target	Baseline	Budget (USD)	Timeline	Responsibility
ship, Gender Based Violence (GBV) and bystander intervention	potential grantees of gender issues in the sector, the practice of ally ship and bystander intervention measured by post training evaluation methods	per country of sub-projects 75 percent increase in understanding of gender of training participants 100 percent of grantees develop gender mainstreaming strategy for their sub-projects	p not commenced)	Social and Inclusion and Gender Officer costs included)	or prior to commencement of sub-projects implementation exercises whichever comes first	Points and National Gender Agencies
Provide training on gender certification programmes and encourage grantees to apply for same	Sub-project grantees applied for gender certification seals	100 percent of sub-projects grantees apply for gender certification seals	0 (grantees not selected).	0 (cost of Social and Inclusion and Gender Officer,	Year 1 of the project or prior to commencement of sub-projects implementation exercises whichever comes first	Idem

Gender-related activity	Indicator	Target	Baseline	Budget (USD)	Timeline	Responsibility
Leverage existing voluntary socially responsible certification programs that promote gender equality and a safe, women-friendly workplace to increase women's participation and advancement in private sector companies.	33 percent (in 5 years) increase in women's participation and advancement in private sector companies	100 percent of private sector companies grantees commit to increasing women's participation and advancement by 33 percent in 5 years	TBD (when sub-projects commenced)	0 (cost of Social and Inclusion and Gender Officer)	Year 1 of the project or prior to commencement of sub-projects implementation exercises whichever comes first	Idem
Leverage other donor projects and credit facilities such as banks, credit unions, micro-finance agencies with women programs to increase women's access to credit	33 percent of potential or actual women grantees report increase accessibility to credit facilities	A minimum of 2 additional credit facilities available to women for supporting funds	TBD	0 (cost of Social and Inclusion and Gender Officer and Project Manager)	Year 1 of the project or prior to commencement of sub-projects implementation exercises whichev	Idem

Gender-related activity	Indicator	Target	Baseline	Budget (USD)	Timeline	Responsibility
					er comes first	
Knowledge Management and Knowledge Products						
Gender-related activity	**Indicator**	**Target**	**Baseline**	**Budget (USD)**	**Timeline**	**Responsibility**
Design and deliver gender sensitive training, knowledge sharing and dissemination activities, ensuring that there is equitable participation by both men and women.	Gender responsive knowledge Management system established Minimum of 33 percent women participants in all workshops of the project	Gender responsive knowledge management system established 100 percent of training sessions and workshops include a minimum of 33 percent women	0 (Knowledge Management system no established) 0 Trainings not commenced	20,000 (establishment of Knowledge system)	Year 2	Social and Inclusion and Gender Officer, Consultant, Communications Officer, and Project Manager
Attention will be paid to understanding existing gender relations and the obstacles to women's active participation in training and workshops.	All trainings and workshops exhibit the following: 1. Consultations with men and women to garner information on barriers to participation		0 (Country level gender analysis not commenced)	0 (included in the costs of Country level Gender Analysis Consultants and Social and Inclusion	Prior to the commencement of all training	Social and Inclusion and Gender Officer, Consultant, Communications Officer, and Project Manager

Gender-related activity	Indicator	Target	Baseline	Budget (USD)	Timeline	Responsibility
	2. Objectives and gaols of workshop that reflect men and women's needs 3. Provision of childcare if deemed necessary 4. Timed in consideration of men and women schedules 5. Use gender sensitive participatory training and methods including language and facilitator 6. Use gender sensitive language during training 7. Use examples of men and women experiences 8. Define gender sensitive outputs and indicators for training follow-up and monitoring and evaluation purposes 9. Disaggregation of workshop participants by sex			and Gender Officer)		
Men and Women's experiences promoted in media products including videos, photo essays, fact sheets, case studies, project	Men and Women's experiences systemized in media products including	100 percent of all products developed are gender sesnitive	Media products not produced	0 (included in costs of Communications consultant)	Years 1 to 4	Social and Inclusion and Gender Officer, Consultant, Communications

Gender-related activity	Indicator	Target	Baseline	Budget (USD)	Timeline	Responsibility
web platform, training tools, television spots, newsletters, exchange site visits by communities involved, also dissemination at regional, national regional (Caribbean and South America) and international events.	toolkit on gender mainstreaming in chemicals and waste ventures promotional videos on women led ventures Exchange visits and sharing sessions among women ventures Fact sheets on economic opportunities of the sector for women					Officer, and Project Manager
Integration of men and women's experiences into knowledge products that will incorporate institutional strengthening and capacity building initiatives, for continued institutional learning and activity implementation.	Knowledge products reflect men and women's portrayal and lessons learnt featuring men and women's experiences	100% of all knowledge products are gender responsive	No knowledge products developed	0 (included in costs of Communications consultant)	Years 1 to 4	Social and Inclusion and Gender Officer, Consultant, Communications Officer, and Project Manager
Monitoring and Evaluation						
Include in the detailed M&E system of the project the disaggregation of data by sex and gender analysis to ensure the full ownership of these	Disaggregation of M&E system data by gender	100% of data disaggregated by sex and gender	M&E system not established	0 (included in costs of Monitoring and Evaluation Expert)	Year 1	Social and Inclusion and Gender Officer, Consultant, Project Manager, Monitoring and Evaluation Expert

Gender-related activity	Indicator	Target	Baseline	Budget (USD)	Timeline	Responsibility
indicators in the priority areas.						
Ensure the adequate inclusion of practical gender-sensitive indicators in project results framework with qualitative and quantitative monitoring data disaggregated for men and women.	Gender-sensitive indicators included in project results framework	At a minimum 30[7]% of indicators are -gender sensitive	Results framework in development	0 (included in costs of PPG Gender Expert)	PPG/design Phase	Social and Inclusion and Gender Officer, Consultant, Project Manager Monitoring and Evaluation Expert
Ensure a proportionate number of men and women respondents are included in the project surveys and robust baseline data collected, where possible.	Gender equity in pre-M&E survey respondents	A minimum of 30% of respondents of M&E surveys are women	Surveys selection not commenced	0 (included in costs of Monitoring and Evaluation Expert)	Years 1 to 4	Social and Inclusion and Gender Officer, Consultant, Project Manager Monitoring and Evaluation Expert
Assess the impact of dissemination and/or training activities in groups of men and women through pre- and post-activity surveys (e.g., gender-specific focus groups)	Gender equity in M&E survey respondents	A minimum of 30% of respondents of pre- and post-activities are women	Surveys selection not commenced	0 (included in costs of Monitoring and Evaluation Expert)	Years 1 to 4	Social and Inclusion and Gender Officer, Consultant, Project Manager Monitoring and Evaluation Expert
Documenting, assessing, and sharing gender experiences with relevant bodies (e.g., Ministry of Social Protection	Gender assessments and experiences documented and shared with relevant bodies	A minimum of six documents produced and disseminated	Assessment not commenced	0 (included in costs of Communications and	Years 1 to 4	Social and Inclusion and Gender Officer, Consultant, Project

[7] Most CARICOM countries have committed to 33 percent women quota for various sectors and positions in the productive sector. In the case of Guyana, minimum 33 percent women quota is specified in the country's constitution. This is the rationale for this quota in the project activities.

Gender-related activity	Indicator	Target	Baseline	Budget (USD)	Timeline	Responsibility
Gender agencies), sharing experiences, and forging partnerships.		through the life cycle of the project		Monitoring and Evaluation Expert		Manager Monitoring and Evaluation Expert
Total				**247,000**[8]		

[8] Does not quantify the effort and cost of the Social Inclusion and Gender Officer and the cost for knowledge management etc. it is assumed these will be covered under those line items in the budget.

Appendix 5 – Gender Analysis

Gender Analysis of Chemicals and Waste Management

In the Caribbean Countries of Antigua and Barbuda, Barbados, Belize, Dominican Republic, Guyana, Saint. Kitts and Nevis, Saint Lucia, Suriname and Trinidad and Tobago

Prepared by Candice Ramessar

For the PPG Phase of the Project:
"Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS)"
May 2020

Table of Contents

List of Acronyms

BCRC	Basel Convention Regional Centre for Training and Technology Transfer
BOD	Biochemical Oxygen Demand
BSWaMA	Belize Solid Waste Management Authority
CARICOM	Caribbean Community
CDB	Caribbean Development Bank
CEDAW	Convention on the Elimination of all Forms of Discrimination Against Women
CPO	Chief Personnel Office
CRC	Convention on the Rights of the Child
DOGA	Directorate of Gender Affairs
EI	Education Index
EMA	Environmental Management Authority
EPA	Environmental Protection Agency
EPD	Environmental Protection Department
FAO	Food and Agricultural Organization
GDI	Gender Development Index
GEF	Global Environment Facility
GGMC	Guyana Geology and Mines Commission
GII	Gender Inequality Index
GNI	Gross National Income
GPI	Gender Parity Index
HDI	Human Development Index
HDR	Human Development Report
ICCPR	International Covenant on Civil and Political Rights
ICECSR	International Covenant on Economic Cultural and Social Rights
IDB	Inter-American Development Bank
ISLANDS	Implementing Sustainable Low and Non-Chemical Development in Small Island Developing State
MoC	Ministry of Communities
MSMEs	Micro, Small and Medium Enterprises
NDC	Neighbourhood Democratic Council
NDS	National Development Strategy
NGOs	Non-Governmental Organizations
NIMOS	National Institute for Environment and Development in Suriname
NSWMA	National Solid Waste Management Authority
PCB	Polychlorinated biphenyl or Pesticide Control Board
POPS	Persistent Organic Pollutants
ppm	Parts per million
PTCCB	Pesticide and Toxic Chemicals Control Board
PLANEG II	Second National Policy for Equality and Gender Equity (Dominican Republic)
RDC	Regional Democratic Council
SBR	Sequencing Batch Reactor
SBRC	Sustainable Barbados Recycling Centre

SDGs	Sustainable Development Goals
SEDU	Small Enterprise Development Unit (St. Lucia)
SAICM	Strategic Approach to International Chemicals Management
SIDS	Small Island Developing States
SLSWMA	Saint Lucia Solid Waste Management Authority
SSA	Sanitation Service Authority
STEM	Science, Technology, Engineering and Mathematics
SWMA	Solid Waste Management Authority
SWMC	Solid Waste Management Corporation
SWMCOL	Solid Waste Management Company Limited
SWPU	Solid Waste Project Unit
TEPA	Trade Export Promotion Agency (Saint Lucia)
THA	Tobago House of Assembly
TSS	Total Suspended Solids
UN	United Nations
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United National International Children's Emergency Fund
USAID	United States Agency for International Development
VOC	Volatile Organic Compounds

List of Figures

List of Tables

Executive Summary

Recognizing the need to further bolster the solid waste and chemicals management capabilities of the Caribbean countries and other Small Island Developing States (SIDS), the Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS) project was conceptualized. To this end, the Basel Convention Regional Centre for Training and Technology Transfer (BCRC) in the Caribbean has entered into a technical cooperation agreement to prepare the Caribbean Incubator Facility which with the help of the Inter-American Development Bank (IDB) will be developed under the GEF-Funded ISLANDS Program. Through this program, technical support for importation and the promotion of information exchange among governments and stakeholders will assist significantly in chemicals and waste management in the nine project countries - Antigua and Barbuda, Barbados, Belize, Dominican Republic, Guyana, Saint Kitts and Nevis, Saint Lucia, Suriname and Trinidad and Tobago.

This gender analysis provides an overview of the solid waste and chemicals management situation in the project countries with the aim of identifying pathways for the mainstreaming of gender considerations into the sector.

A review of the relevant literature confirms that Caribbean states are inherently masculinist and invariably patriarchal. While several of the countries instituted gender equality policies or action plans, others are currently in the process of developing such policies. Further, population and demographic statistics of the project countries reveal that (i) women have higher life expectancies than men (ii) all countries except Guyana fall within the high human development category based on their Human Development Index (HDI); (iii) men have a higher GNI per capita than women; (iv) only Guyana and the Dominican Republic have a quota system for women in their parliament.

A review of the sex disaggregated labour force statistics of the project countries reveal that (i) only Antigua and Barbuda and St Kitts and Nevis have a higher proportion of women in the labour force; (ii) women's labour force participation is lower than men in most countries, (iii) only Antigua and Barbuda and St. Kitts and Nevis have more employed women in the labour force than men; (iv) women occupy lower paying positions as compared to their male counterparts; (v) sectors related to chemicals and waste management have significantly more males overall and in managerial or supervisory positions than females resulting in both vertical and horizontal gender segmentation of the sectors (vi) In all the territories except St. Kitts and Nevis, the unemployment rate among women is higher than the unemployment rate of men.

As it relates to education, all the project countries, the expected years of schooling of females is higher than that of males. Further, the OECS posits that nearly 1 in every 4 young people in the Caribbean is unemployed with young women unemployment being more than 30% as compared to 20% for young men.

In the project countries, women are exposed in varying degrees to ownership of micro, small and medium enterprises (MSMEs) since they have limited access to the means of production either due to high interest rates, limited collateral to access loans, intimidating application processes, or poor production and market records. Moreover, there are several gender-based and other economic factors that hinder the success of mainly female-headed businesses chief among which is the historical culture of reinforcing women's domesticity which has impacted on the types of goods that women producers create and this limits their successful distribution of their produce in both the local and regional markets.

The project countries have ratified several international gender related agreements including the Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW) and several International Labour Organizations (ILO) conventions, as such, has demonstrated their political commitment to gender equality. As it relates to international chemical and waste management frameworks, all the project countries have ratified the Basel, Stockholm and Rotterdam Conventions and all except Barbados, Belize and Trinidad and Tobago have ratified the Minamata Convention. These conventions recognize gender equality as key to the success of the conventions and the differentiated impacts of hazardous wastes and chemicals on men and women.

A review of the national gender framework of the project countries reveal that, (i) the Constitution of these countries speak to varying degrees on gender equality and discrimination on the basis of sex. Only the Constitution of Guyana contains a specific article, clause or paragraph about gender equality; (ii) the development plan/strategy of all the project countries makes specific reference to and provisions for gender mainstreaming except St. Kitts and Nevis whose National Development Plan was not reviewed; (iii) Antigua and Barbuda has no National Gender Policy, while the other project countries either has an existing Gender Policy or it is its development stage; (iv) the project countries have multiple legislations that govern gender issues as well as chemicals and waste management within their territory (v) all the countries have a national gender agency that is mandated to mainstream gender and several agencies that coordinate the management of chemicals and solid waste within their territory. A review of the policies and legislations related to gender and the national development plan in the various countries shows there is low to medium or no gender consideration in the policies. The exception is the national development policy of Trinidad and Tobago.

The major stakeholders in the project countries include, (i) national governmental and regulatory agencies; (ii) national sanitation agencies and bodies; (iii) municipal and regional waste management agencies; (iv) waste workers and collectors; (v) private waste collectors; (vi) private enterprises involved in waste management; (vii) recycling actors; (viii) NGOs; (ix) informal waste workers and their associations and (x) population groups such as persons living close to landfills, indigenous women etc.

Antigua and Barbuda chemicals and waste management reveals that, (i) there is a lack of gender-responsive policy and legislative framework in the country; (ii) the agriculture/forestry/fishing, tourism and electricity/gas/water supply sectors are major utilizers and emitters of chemicals; (iii) all chemicals are imported, no manufacturing occurs in-country; (iv) of the sectors that use and release chemicals, the tourism sector has significantly more women employed than men. In the other sectors such as agriculture, more men are employed and are therefore more exposed to the chemicals. (v) disaggregation of work reduces women's exposure to chemicals; (vi) the National Solid Waste Management Authority manages sanitary landfill at Cooks Estate and Plantation on Barbuda; (vii) there is no sewerage system on the island; (viii) the waste pickers are predominantly females, while the labourers who are in charge of disposal activities are predominantly males; (ix) majority if not all of the businesses involved in waste management and recycling are owned by men; (x) women's involvement is usually at the administrative levels of the business activity.

Barbados chemicals and waste management reveals that, (i) the medical/health, electronic manufacturing, food manufacturing, oil producing, agrochemical and education sectors are key players in the use and release of chemicals in the country; (iii) Men in Barbados are more likely to

be exposed to and use chemicals in Barbados as indicated by their higher levels of participation in the main sectors of the economy associated with chemicals use and management; (iv) women and men participate in the technical fields associated with chemicals management almost equally; (v) the portfolio for waste management falls under the purview of the Environmental Protection Department (EPD), the Sanitation Service Authority (SSA) and the Solid Waste Project Unit (SWPU); (vi) There are four (4) government solid waste disposal sites on the island, that is, the Mangrove Pond Landfill; the Bagatelle Bulky Waste Disposal Site; the Rock Hall Asbestos and Fiberglass Disposal Site and the Lonesome Hill Blood and Grease Disposal Site; (vii) 70% of domestic waste is collected by the SSA while the remainder is collected through private entities contracted by the SSA; (viii) within the SSA, the gender disparity is the greatest for the agency at the technical level with 17 percent females and 83 percent males.

Belize chemicals and waste management reveals that, (i) the agriculture/forestry/fishing, mining and quarrying, electricity/gas steam/air conditioning supply and waste supply/sewerage/water treatment are the main sectors of chemicals use and release; (ii) Belize does not have any centralized or dedicated hazardous chemical and waste storage, treatment or disposal facilities hence, the country does not have the ability to dispose of its chemical wastes in an environmentally sound manner; (iii) solid waste is managed by the Belize Solid Waste Management Authority (BSWaMA) and respective village councils; (iv) The BSWaMA is not directly involved in waste collection. Waste collection is done through the Municipalities/ Village councils or private Contractors of the Municipalities who collect solid waters and hauls it to the Transfer stations; (v) Guyana chemicals and waste management reveals that, (i) the agriculture/forestry/fishing, mining and quarrying, electricity/gas steam/air conditioning supply and industrial manufacturing sectors are major sources of chemicals use and release; (ii) chemical production is limited to the production of paint, soaps, detergents, pharmaceutical liquids, and pharmaceutical ointments; (iii) Guyanese women have the lowest level of participation in the economic sector for the Latin America and Caribbean region; (iv) males dominate all of the major sectors of the Guyanese economy associated with chemicals; (v) the misuse of agricultural chemicals in suicides is a problem in Guyana associated with both males and females; (vi) mining is a large user of chemicals in Guyana especially mercury which is used in small and medium scale mining operations; (vii) bioaccumulation of mercury from mining activities, in wildlife exposes indigenous women and their families to this harmful chemical as these animals form part of their subsistence diet.

Saint Lucia chemicals and waste management reveals that, (i) agriculture/forestry/fishing and electricity/gas/water supply sectors are major users and emitters of chemicals; (ii) the country imports a high amount of pesticides, fertilizers, petroleum products, lubricating oils, greases and waxes and industrial chemicals; (iii) men in Saint Lucia are more likely to be exposed to and use chemicals as indicated by their higher levels of participation in the main sectors of the economy associated with chemicals use and management; (iv) the management of solid waste is vested in the country's Solid Waste Management Authority (SWMA) which has responsibility for, the collection of municipal solid waste generated from residential properties, public schools and institutions and government offices. The Authority operates and manages two (2) waste management facilities; (v) in Saint Lucia, 100 percent of the waste workers at the SWMA are males.

Saint Kitts and Nevis chemicals and waste management reveals that, (i) agriculture/forestry/fishing and electricity/gas/water supply sectors are major users and emitters of chemicals; (ii) all chemicals

used in-country are imported; (iii) women participation is much lower than men in the agricultural and electricity sectors of Saint Kitts and Nevis; (iii) women participation is higher than men in manufacturing and in the public sector (almost doubling men's); (iv) responsibility for solid waste management on Saint Kitts is vested in the Solid Waste Management Corporation (SWMC) which manages the only sanitary landfill on the island at Conaree in the east; (v)Suriname chemicals and waste management reveals that, (i) agriculture/forestry/fishing, mining and quarrying and electricity/gas/water supply sectors are major users and emitters of chemicals; (ii) the chemicals imported into Suriname are mainly pesticides, fertilizers, petroleum products, industrial and consumer chemicals.

Trinidad and Tobago chemicals and waste management reveals that, (i) agriculture/forestry/fishing, mining and quarrying, manufacturing, electricity/gas/water supply and waste supply/sewerage/water treatment sectors are major users and emitters of chemicals; (ii) men dominate the work force of all chemicals related sector in the country; (iii) in Trinidad and Tobago, the Environmental Management Authority (EMA), the Solid Waste Management Company Limited (SWMCOL), the Municipal Corporations of the Ministry of Rural Development and Local Government and the Tobago House of Assembly (THA) are the main public agencies involved in solid waste management; (iv) men and women in Trinidad and Tobago participate in waste management in a very segregated sections of the value chain; (v) the waste workers level of the SWMCOL, men dominate with 86 percent compared to a mere 14 percent of women.

Stemming from the overview of the solid waste and chemicals management situation and the level of gender mainstreaming that exists within the project countries, it is evident that gender mainstreaming in the chemicals and waste management sectors of these countries must become a priority. The entry point for gender mainstreaming in the project must be the creation of awareness for the need to develop gender-responsiveness in the sectors and increase the visibility of gender roles especially women's contributions and roles.

In the development of mandates for gender mainstreaming in the sector, implementation must be a primary consideration. Towards successful implementation of gendered programmes formalized frameworks must be developed with the national gender agencies and include women's NGOs and other social groups such as youth and indigenous people's representative organizations.
Furthermore, collection of gender and sex-disaggregated data should commence in all countries. Collection mechanisms can be built into already existing mechanisms in the environmental management agencies (some countries have Environmental Information Management Systems) and other agencies such as agriculture and energy have their own databases.

Also, efforts must be directed at increasing the number of women in the technical roles in the sector. For the enterprise segment of the sector it is further recommended that; (i) the chemicals and waste management sector should be demystified and destigmatized through business awareness and entrepreneurial training; (ii) leadership and business training should be conducted with women to increase their participation in the lucrative sections of the waste value chain; (iii) funding and credit facilities specifically targeting women should be established to increase their access to credit and equipment; (iv) social programs should be leveraged to assist women waste pickers in the various countries; (v) Gender awareness and equal employment opportunity training for business owners and

the development of national gender seals is required; (vi) businesses should be assisted in adapting their work environments to better accommodate women and others.

1 Introduction

1.1 Project Background

As Caribbean countries and other Small Island Developing States (SIDS) progress import-dependent development pathways, the quantity and diversity of imported products and their associated resulting waste, would invariably increase. Constrained by their small size and narrow resources, the capacity of SIDS to effectively manage the large quantity and types of hazardous and toxic wastes, must be strengthened.

In an attempt to improve access to finance for public and private sector actors that are interested in sustainable management of chemicals and waste in the Caribbean, the Basel Convention Regional Centre for Training and Technology Transfer (BCRC) in the Caribbean has entered into a technical cooperation agreement to prepare the Project Preparation Grant (PPG) for the development of the Caribbean Incubator Facility. With assistance from the Inter-American Development Bank (IDB), the incubator facility will be developed under the Global Environment Facility (GEF) funded programme, Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS).

The aim of this ISLANDS programme is to support SIDS in entering into a safe chemical development pathway, thereby strengthening countries' abilities to control the flow of chemicals, products and materials into their territories. The IDB project will provide technical support for importation, promote the exchange of information and engage in outreach to relevant stakeholders to help Governments and stakeholders make significant progress in chemicals and waste management. The ISLANDS programme consists of the following five (5) components:

Component 1: Preventing the Future Build-Up of Chemicals Entering SIDS

- SIDS have in place effective mechanisms to control the import of chemicals, and products that lead to the generation of hazardous waste

Component 2: Safe Management and Disposal of Existing Chemicals, Products and Materials

- Harmful chemicals and materials present and/or generated in SIDS are being disposed of in an environmentally sound manner

Component 3: Safe Management of Products entering SIDs/Closing Material and Product loops

- Build-up of harmful materials and chemicals is prevented through establishment of effective circular and life-cycle management systems in partnership with the private sector

Component 4: Knowledge Management and Communication

- Knowledge generated by the programme is disseminated to, and applied by, SIDS in all regions

Component 5: Monitoring and Evaluation

In keeping with the first component of the IDB project, this consultancy aims to design a gender-responsive plan to be applied, whenever possible, to each of the sub-projects financed by the Incubator Facility and that will also support the Gender actions under the GEF ISLANDS global platform for the Caribbean countries, Antigua and Barbuda, Barbados, Belize, Dominican Republic, Guyana, Saint Kitts and Nevis, Saint Lucia, Suriname and Trinidad and Tobago. The plan will incorporate, if applicable, access to the available gender tools at the Inter-American Development Bank.

1.2 Methodology for Gender Analysis

Gender mainstreaming is also a critical component for Caribbean countries to achieve gender equality; that is, a society where "the interests, needs and priorities of both women and men are taken into consideration" and where "the diversity of different groups of women and men" is recognized. Gender equality is listed as goal 5 of the United Nations Sustainable Development Goals. It is increasingly being recognised that gender and chemicals affect women and men differently. This recognition is occurring simultaneously as the need for sound management of chemicals and waste among policy makers. Sound management of chemicals and waste can only occur if the gender linkages are established and taken into consideration in programs and projects. Women and men are exposed differently to chemicals and waste in their daily lives. Their reproductive and productive roles determine frequency and levels of exposures. Biologically children and women are more susceptible to exposure to chemicals especially heavy metals. There is also a link between poverty and chemical and waste exposure and the ability to deal with the effects. Poor persons tend to be more exposed to pollution and less likely to be able to seek health redress. Women in most of the project countries especially single-women tend to be in the lowest income group. It is therefore imperative that gender is mainstreamed in the sectors contributing to gender equality and the sound management of chemicals and waste.

The gender analysis is used to identify, understand, and describe gender differences and the impact of gender inequalities in a sector or program at the country level. Gender analysis is a required element of strategic planning and is the foundation on which gender integration is built. Gender analysis examines the different but interdependent roles of men and women and the relations between the sexes. It also involves an examination of the rights and opportunities of men and women, power relations, and access to and control over resources. Gender analysis identifies disparities, investigates why such disparities exist, determines whether they are detrimental, and if so, looks at how they can be remedied.

Consistent with the GEF Policy on gender mainstreaming and the GEF-7 approach on gender mainstreaming, GEF projects funded under this strategy will not only acknowledge gender differences within their design but determine what actions are required to promote both women's and men's roles in chemical management, disproportionate chemical exposure and vulnerability, as well as sustainable alternatives.

More specifically, the objective of this gender analysis is to look at the local situation, issues and opportunities for the mainstreaming of gender into the chemicals and waste management sectors of the project countries. It identifies gaps in the strategies, plans, policies, planning frameworks, institutional arrangements and opportunities and capacities for gender mainstreaming in the sectors

and in the project activities. The analysis concludes with a consideration of enabling factors and opportunities for addressing the gaps in the gender action plan.
The gender analysis employed a three-pronged methodological approach. The first consisted of a literature review of all national and local documents including national development plans, national development strategies, waste and chemicals plans, waste and chemical strategies, local and national legislations pertaining to gender, waste management chemicals management. A review of national statistical databases, national budgets, donor programmes and projects and work programmes and annual work plans of gender, chemicals and waste management agencies. Gender responsiveness of the documents were assessed and the gaps for the mainstreaming of gender in the sectors were identified. A stakeholder analysis of the sector of each country was done and the stakeholders identified were ranked for inclusion in the second tier of the analysis.

The second tier consisted of primary data collection from the main stakeholders of the sectors towards addressing some of the gaps identified in the documents review. The major stakeholders targeted for data collection included: a) national governmental agencies; b) regional and municipal government agencies; c) national gender agencies; d) private waste agencies and enterprises; d) NGOs and f) direct stakeholders such as informal waste workers, female waste business owners and their associations. Data was collected through simple questionnaires targeted at the governmental agencies and private sector enterprises of the chemicals and waste management sector. The questionnaires (Appendix 1-4) sought to assess the participation of women in the agency or enterprise, present gender mainstreaming strategies, women's roles in the sector and perceptions on gender mainstreaming. Interviews were conducted with representatives of NGOs (Antigua and Barbuda, Guyana), informal waste workers association (Guyana), informal waste workers (Guyana) and a female business owner (Barbados)[1].

The information obtained from the document review and data collection was analysed using the UNDP and IDB gender analysis focal areas of: Access, Time, Decision Making, Control and Culture. The information from each country was analysed by sectors and participation in the sectors that intersects with chemicals and waste management. Decision Making was an area of emphasis for both the governmental agencies and the private sector.

The gaps that were identified in the analysis of the sectors and the associated issues and considerations that constrained both men and women equal participation in the sector formed the basis for the recommendations, opportunities and entry point for the development of the gender action plan for the project.

[1] These countries responded to the interview requests.

2 Development and Gender in the Project Countries

2.1 Gender Equality in the Project Countries

Caribbean states are inherently masculinist and invariably patriarchal[2]. Of the countries understudied, Belize, the Dominican Republic, Guyana, Suriname and Trinidad and Tobago all have existing gender equality policies or related action plans. Barbados, Saint Lucia and Saint Kitts and Nevis are currently in the process of developing a gender equality policy. The Governments of Antigua and Barbuda, Guyana, Saint Lucia and Trinidad and Tobago have instituted employment legislation that ensures equal pay for equal work regardless of gender. Belize has proposed an equal opportunity draft bill and consultations are ongoing. In the project countries, men have been and continue to be considered heads of home premised on the conservative interpretation of religious texts common in Christian Societies such as the ones under the scope of this analysis[3].

Women participate in jobs, occupations or professions that are considered "female", with a lesser social and monetary valuation attached to them than "male" ones[4]. Their participation in public spheres is affected by their role in their private sphere as unpaid caregivers and domestic workers.

In Suriname, much like many of the other countries, gender disparities disfavouring women are also prevalent, particularly in the remote interior with less than half of young women in the poorest districts being literate[5].

2.2 Selected Demographic and Gender Statistics of the Project Countries

The data in **Table 1** presents the following country statistics, gender disaggregated where possible:

Indicator	Definition
Population	All nationals present in, or temporarily absent from a country, and includes aliens permanently settled in a country.
Working age population	This reflects the number of persons aged 15 – 64 living within the country.
Life expectancy	The average number of years that a new-born could expect to live if he or she were to pass through life subject to the age-specific mortality rates of a given period.
Total Fertility Rate	The average number of live births a woman would have by age 50 if she were subject, throughout her life, to the age-specific fertility rates observed in a given year assuming that there are no mortalities.
Human Development Index (HDI)	A summary measure for assessing long-term progress in three basic dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living.
Inequality Adjusted HDI	A combination of a country's average achievement in health, education and income, distributed among the country's population and discounted for according to its level of inequality.

[2] Lewis (2003) and (Mohammed 2010) as cited in McFee (2014)
[3] Huggins (2014) Antigua and Barbuda Country Gender Assessment
[4] ECLAC (2017) *Gender equality plans in Latin America and the Caribbean: road maps for development,* pg. 15.
[5] IBRD, IFC and MIA (2015) *Country Partnership Strategy for Suriname 2015-2019,* pg. 7.

Indicator	Definition
Gender Development Index (GDI)	A measure of the gender gaps by accounting for disparities between women and men in their achievement in health, education and income. It is a ratio of the HDIs calculated separately for males and females using the same methodology as the HDI.
Gender Inequality Index (GII)	A measure of the gender inequalities in the human development aspects of reproductive health, empowerment and economic status. The higher the GII the more disparities between females and males and the more loss to human development.
Multidimensional Poverty Index	Identifies deprivations at the household and individual level in health, education and standard of living.
Gross National Income (GNI) per capita	the sum of value added by resident producers plus any product taxes plus net receipts of primary income from abroad divided by the mid-year population of a country.
Female seats in parliament	The number of seats held by women members of the country's national parliament expressed as a percentage of all occupied seats.

The data in **Table 1** reveals that the project countries, Antigua and Barbuda, Barbados, Belize, the Dominican Republic, Saint Lucia and Trinidad and Tobago's working age population consists of more women than men, with Antigua and Barbuda's population having approximately 4.6% more working-age women than men. In Guyana and Suriname, there are more working-age men than women.

Women in all the project countries have higher life expectancies than that of men. This is partly due to an inherent biological advantage for females as well as behavioural differences between men and women[6]. Notably, the gap between male and female life expectancy is greatest in Trinidad with women expected to live 7 years longer than men. Furthermore, total fertility is lowest in Belize and highest in Guyana when compared to other project countries.

In relation to human development, Guyana is the only country that falls within the medium human development category based on its 2018 HDI of 0.670, which is above the average of countries in the same category. All the other countries fall within the high human development category based on their HDI except Barbados which falls within the very high human development category. Additionally, Antigua and Barbuda, Barbados, Saint Kitts and Nevis and Trinidad and Tobago have a HDI (2018) that is higher than the Latin America and the Caribbean average while Belize, the Dominican Republic, Guyana, Saint Lucia and Suriname have a HDI (2018) value that is below the average for countries in Latin America and the Caribbean.

[6] WHO (2020) "Female life expectancy"? Available at: https://www.who.int/gho/women_and_health/mortality/situation_trends_life_expectancy/en/

Table 1: Selected Demographic and Gender Information

Demographic and Gender Indicators	Antigua and Barbuda	Barbados	Belize	Dominican Republic	Guyana	Saint Kitts and Nevis	Saint Lucia	Suriname	Trinidad and Tobago
Population	**96,286 (2018[7])**	286,641 (2018)	408,487 (2019)	10,627,170 (2018)	779,004 (2018)	52,441 (2018)	170,503 (2019)[8]	590,100 (2018)[9]	1,389,860 (2018)
Male Working-age Population[10] (2018)	31,746	93,276	122,661	3,443,501	255,910	-	63,893	191,770	475,915
Female Working-age Population[11] (2018)	34,803	98,359	126,275	3,457,784	253,052	-	66,450	187,943	480,942
Life Expectancy (Male)	75.7	77.7	71.6	70.8	66.8	-	74.7	68.4	67.4
Life Expectancy (Female)	78.0	80.4	77.7	77.2	73.0	-	77.4	74.9	74.4
Total Fertility Rate[12] (2017)	2.0	1.6	2.3	2.4	2.5	-	1.4	2.4	1.7
HDI (2018)	0.776	0.813	0.720	0.745	0.670	0.777	0.745	0.724	0.799
HDI (Male)	x	0.808	0.714	0.742	0.674	x	0.753	0.731	0.784
HDI (Female)	x	0.816	0.699	0.744	0.656	x	0.734	0.710	0.794
Inequality adjusted HDI (IHDI) (2018)	x	0.675	0.558	0.584	0.546	x	0.617	0.557	x
Gender Development Index (GDI) (2018)	x	1.01	0.983	1.003	0.973	x	0.975	0.972	1.013
Gender Inequality Index (2018)	x	0.256	0.391	0.453	0.492	x	0.333	0.465	0.324
Multidimensional Poverty Index	x	0.009 (2012)	0.017 (2016)	0.015 (2014)	0.014 (2014)	x	0.007 (2012)	0.041 (2010)	x
GNI per capita (Male) (2018)	x	18,292	8,619	18,974	10,533	x	14,046	15,868	35,435
GNI per capita (Female) (2018)	x	13,686	5,665	11,176	4,676	x	9,085	7,953	22,008
Female seats in parliament[13] (%)	11.11	20	9.38	27.89	31.9	20	16.67	31.37	30.95

NB: *Data retrieved from the UNDP's Human Development Reports (HDR) 2019 for the individual countries, unless stated otherwise. The 2019 HDRs reflects 2018 data for the given countries. The data for Trinidad and Tobago was retrieved from the country's 2018 HDR.*
x Not reported in the country's HDR due to lack of relevant data

[7] 2018 Represents the dataset year.
[8] As stated in Saint Lucia's 2019 Labour Force Survey: See: https://stats.gov.lc/wp-content/uploads/2020/03/Labour_Force_Survey_Dissemination_Quarter_4_2019.pdf
[9] Suriname, General Bureau of Statistics (2019) *Demographic Data 2015-2018.* Available at: https://statistics-suriname.org/wp-content/uploads/2020/02/Demografische-Statistieken-2015-2018.pdf
[10] World Bank (2019). See: https://data.worldbank.org/indicator/SP.POP.1564.FE.IN?locations=ZJ
[11] Work Bank (2019). See: https://data.worldbank.org/indicator/SP.POP.1564.FE.IN?locations=ZJ
[12] World Bank (2017). See: https://wdi.worldbank.org/table/2.14
[13] Data retrieved from the Inter-Parliamentary Union database. See: https://www.ipu.org/national-parliaments

The long and healthy life dimension of a country's HDI is measured by life expectancy. The access to knowledge dimension of a country's HDI is measured by mean years of education among the adult population and children of school-entry age, whereas the decent standard of living dimension of a country's HDI is measured by GNI per capita. Based on the reported HDI figures, in the project countries Barbados, Dominican Republic and Trinidad and Tobago, women have a higher HDI (2018) than men. In these countries the gap in HDI between men and women falls less than 1.3%. In Belize, Guyana, Saint Lucia and Suriname men have a higher HDI than women but the gap in HDI between men and women in these countries are all more than 2%, with men in Suriname having an HDI that is higher than the women by 3%.

Inequality adjusted HDI combines a country's average achievements in the dimensions of health, education and income, with their distribution among the country's population and then discounting each dimension's average according to its level of inequality (UNDP, 2020). Of the project countries, Barbados, Belize, Dominican Republic, Guyana, Saint Kitts and Suriname inequality resulted in a loss in human development of more that 17 percent. In Suriname's case it recorded a loss of human development of 23.1 %, the highest loss among project countries. Moreover, as it relates to gender inequalities in achieving human development, Suriname was noted as having the lowest GDI and Trinidad and Tobago as having the highest (based on its 2017 GDI).

GNI per capita is an indicator of the average income the country's citizens. Generally, in the project countries, men have higher GNI per capita values than women. Guyana has the highest disparity in GNI per capita with men having a GNI per capita that is 125% greater than the female GNI per capita. Antigua and Barbuda were found to have the lowest gap in GNI per capita between the genders. Dominican Republic, Guyana, Suriname and Trinidad and Tobago all exceed the global average of 24.5% female seats in Parliament, with Guyana's parliament having the highest percentage (incl %) female seats compared to the other project countries. This low proportion of women in the Parliament of several project countries may reflect the fact that, there are no quotas specifying the percentage of women in Parliament or women on candidate lists for Parliament. Among the project countries, only Guyana and the Dominican Republic have reserved 21 and 40 seats respectively for women in their Parliament. In Dominican Republic, 25% of the Parliamentary seats are reserved for women to be nominated. In 2000 Guyana enacted the Elections Laws which resulted in the adoption of a candidate quota system to ensure a minimum of one-third female candidates included on each electoral list. There is no adoption of the quota system in relation to the representation of women in the Parliament of the other project countries[14]. Antigua and Barbuda first female Governor-General was elected in 2007. Barbados elected its first woman Prime Minister in 2018 and in 2017, the second woman Governor General was sworn in. In Belize the first and only woman to serve as the Governor General was elected in 1981 and served until 1993. Guyana elected its first female President in 1997. In Saint Lucia, the first and only female Governor-General served from 1997-2017. In Saint Kitts and Nevis, the first female speaker of the National Assembly was elected in 2004. Trinidad and Tobago in 2010 elected its first female Prime Minister and in 2018 the country elected its first female President. It should be noted that this indicator alone does not necessarily give a full picture of women's political empowerment since women's parliamentary presence does not always translate into an accurate measure of women's political empowerment, especially in countries where parliament plays a circumscribed role[15].

[14] Based on data from the Inter-Parliamentary Union database.
[15] IMF (2016) *Trends in Gender Equality and Women's Advancement,* pg. 10. Available at: https://www.imf.org/external/pubs/ft/wp/2016/wp1621.pdf

2.3 Labour Force Statistics

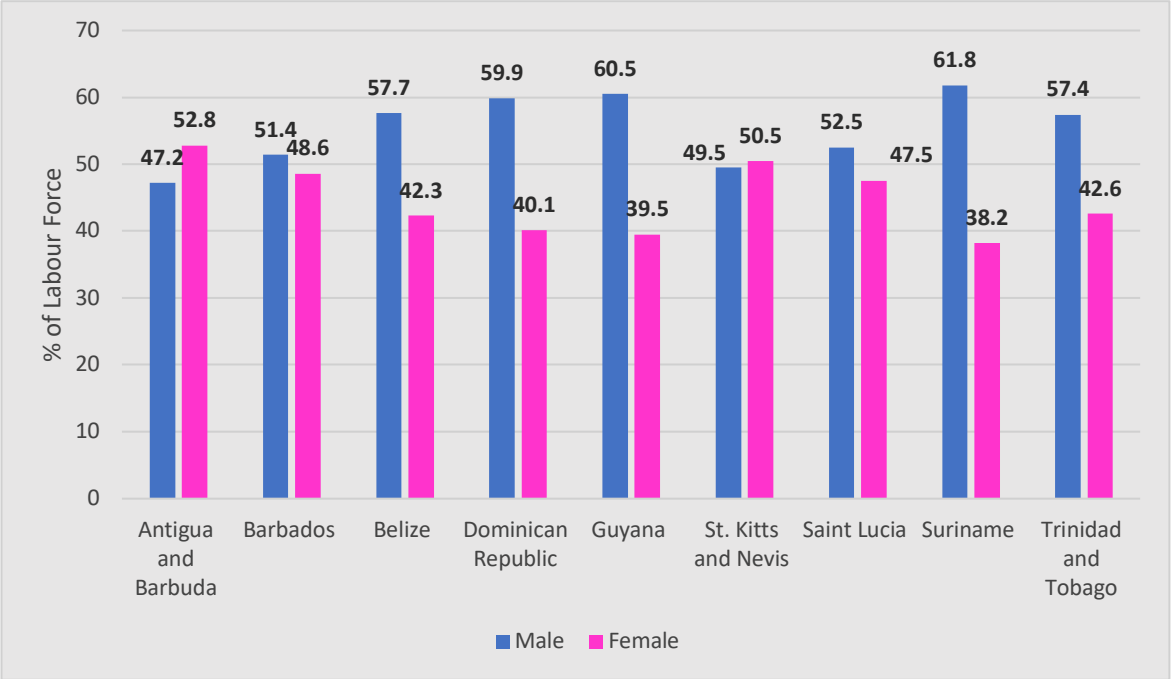


Figure 1: Project countries labour force disaggregated by sex.

Figure 1 shows the country's labour force disaggregated by sex. In Barbados, Belize, Dominican Republic, Guyana and Saint Lucia, Suriname and Trinidad and Tobago the proportion of men in the labour force is greater than that of women. Only Antigua and Barbuda and Saint Kitts and Nevis have a higher proportion of women in the labour force. Greater inequality exists in Belize and Guyana, Dominican Republic and Suriname as a large gap exists in the amount of men compared to women in the labour force. Saint Kitts and Nevis is noted as having almost as many women in the labour force as men.

Figure 2 below shows the labour force participation rate in the project countries, disaggregated by sex. Women's labour force participation rate is lower than men's in most countries[16]. In all of the countries, the participation rate of men in the labour force is higher than that of women. In Belize, the Dominican Republic, Guyana, Suriname and Trinidad and Tobago the participation of men in the labour force is considerably higher than that of women. Antigua and Barbuda's 2018 Labour Force Survey revealed that labour force participants accounted for 72.1% of the working age population with an employment-to-population[17] ratio of 65.9%. Like many other Caribbean countries, youth (15 to 24 years) and persons above 59 years of age are less likely to participate in the labour force and those persons who do not participate in the labour force are either studying, have family reasons or have attained retirement[18].

[16] IMF (2016) *Trends in Gender Equality and Women's Advancement,* pg. 6.
[17] The number of persons who are employed during the given reference period as a percent of the total working age population in the same reference period.
[18] As reflected in the 2018 Labour Force Survey.

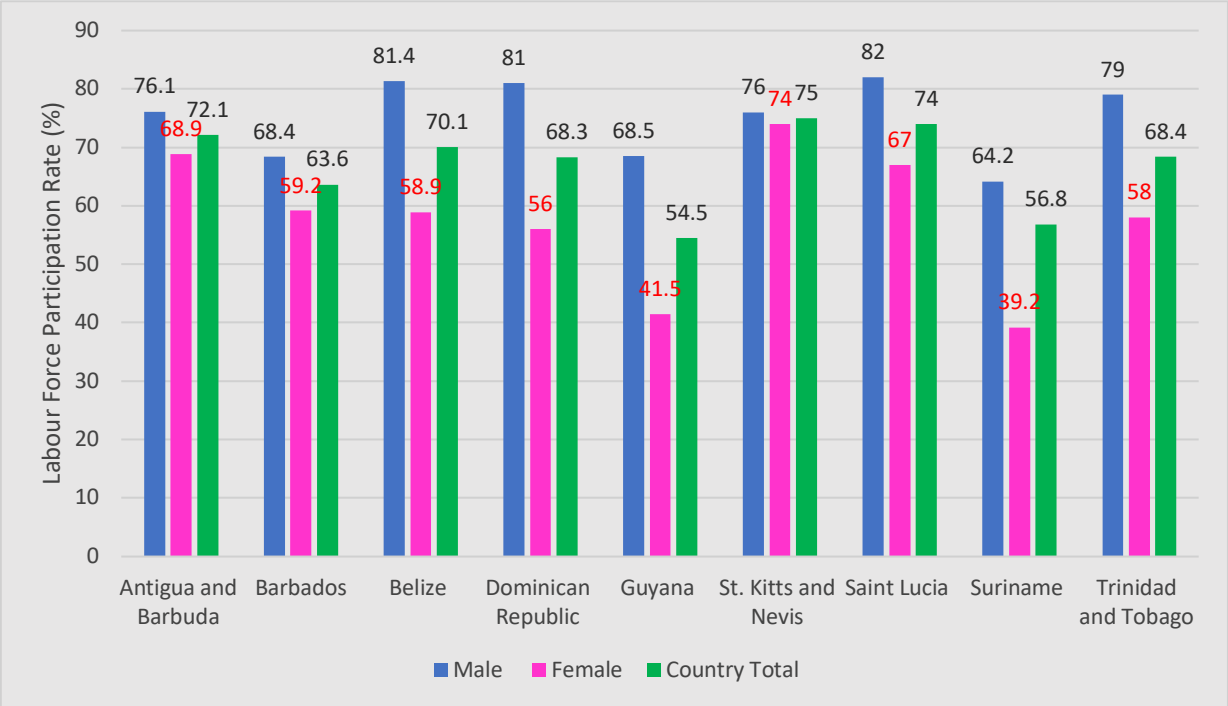


Figure 2: Labour force participation rate disaggregated by sex.

Figure 3 shows the percentage of each country's labour force that is employed, disaggregated by sex. In Barbados, Belize, Guyana, Saint Lucia and Trinidad and Tobago the proportion of men in the labour force is greater and likewise these countries have more employed men in the labour force than women. Antigua and Barbuda and Saint Kitts and Nevis have more employed women in the labour force than men. In Belize, Guyana and Trinidad and Tobago, considerably more men are employed in the labour force than women. Throughout the most productive economic sectors, women are predominantly in positions that are precarious, lower paying and/or less secure, and largely reinforce stereotypical gender roles of domesticity and provision of care. Women are more likely than men to work for the public sector[19].

[19] Huggins (2014) *Country Gender Assessment Antigua and Barbuda.* Caribbean Development Bank. Available at: https://www.caribank.org/sites/default/files/publication-resources/Country%20Gender%20Assessment_Antigua%20and%20Barbuda_Volumes%201%20and%202_June%202014.pdf

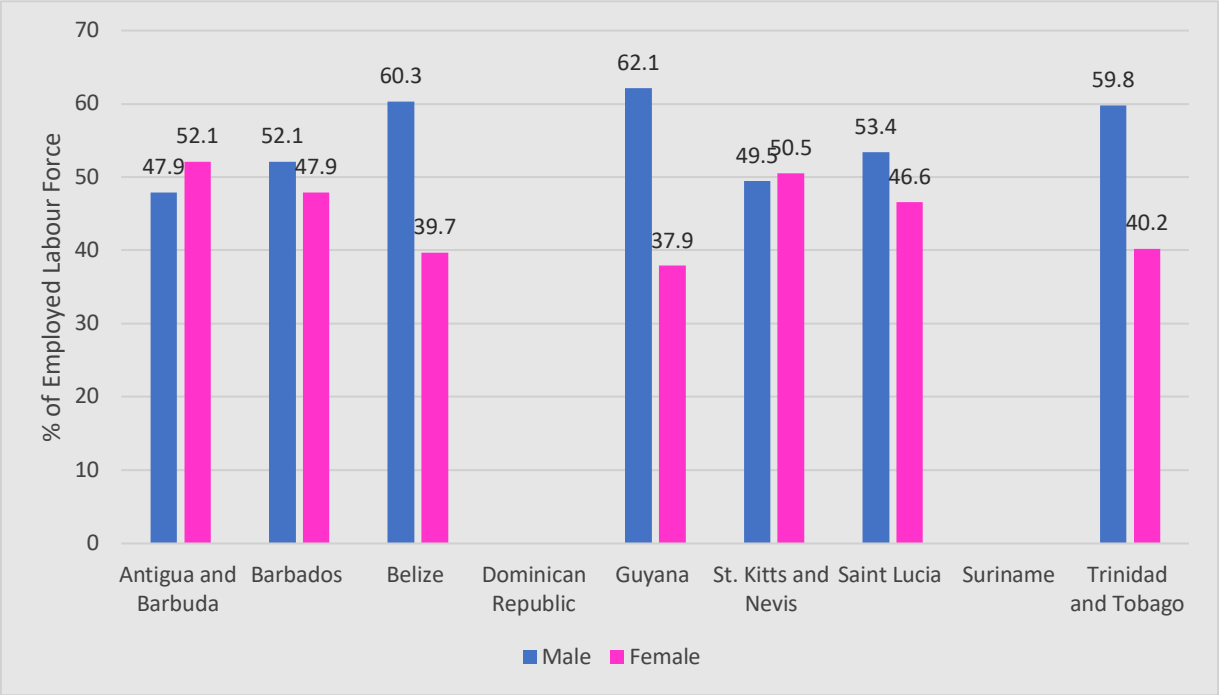


Figure 3: % of Country's Employed Labour Force disaggregated by sex[20].

Data from these countries reveal that women are mostly involved in the wholesale and retail trade, hotels and restaurants, financial and business services, government services, education and health and social work sectors of the country's economy. Men on the other hand are mostly employed in the agriculture, construction, mining and quarrying, transportation and storage and defense sectors. Huggins (2014) posit that while women comprise the majority of workers in the hotel and restaurant and services sectors of tourism, their main occupancy is in the lower echelons of employment. The vulnerability of these sectors to external market shocks has challenged economic opportunities, leaving women vulnerable to exploitation. Furthermore, tourism sector workers are further affected by the minimal absorption potential of their labour to other sectors and challenged by gender-based vulnerabilities such as sexual harassment, inflexible working hours, and unfair dismissal.

Figure 4 shows the employment to population ratio of the countries, disaggregated by sex. The employment to population ratio among men is highest in Belize while among women it is highest in Saint. Kitts and Nevis. Greater disparity exists between the male and female employment-to-population ratio in Belize, the Dominican Republic, Guyana and Suriname, than the other countries, with the highest disparity noted in Guyana. In Saint Kitts and Nevis, the employment-to-population ratio of men and women is almost equal. Additionally, in Antigua and Barbuda the data shows that men had a higher employment-to-population ratio than women although more women are in the labour force and are employed than men.

[20] At the time of writing report, no data on labour force participation in the Dominican Republic

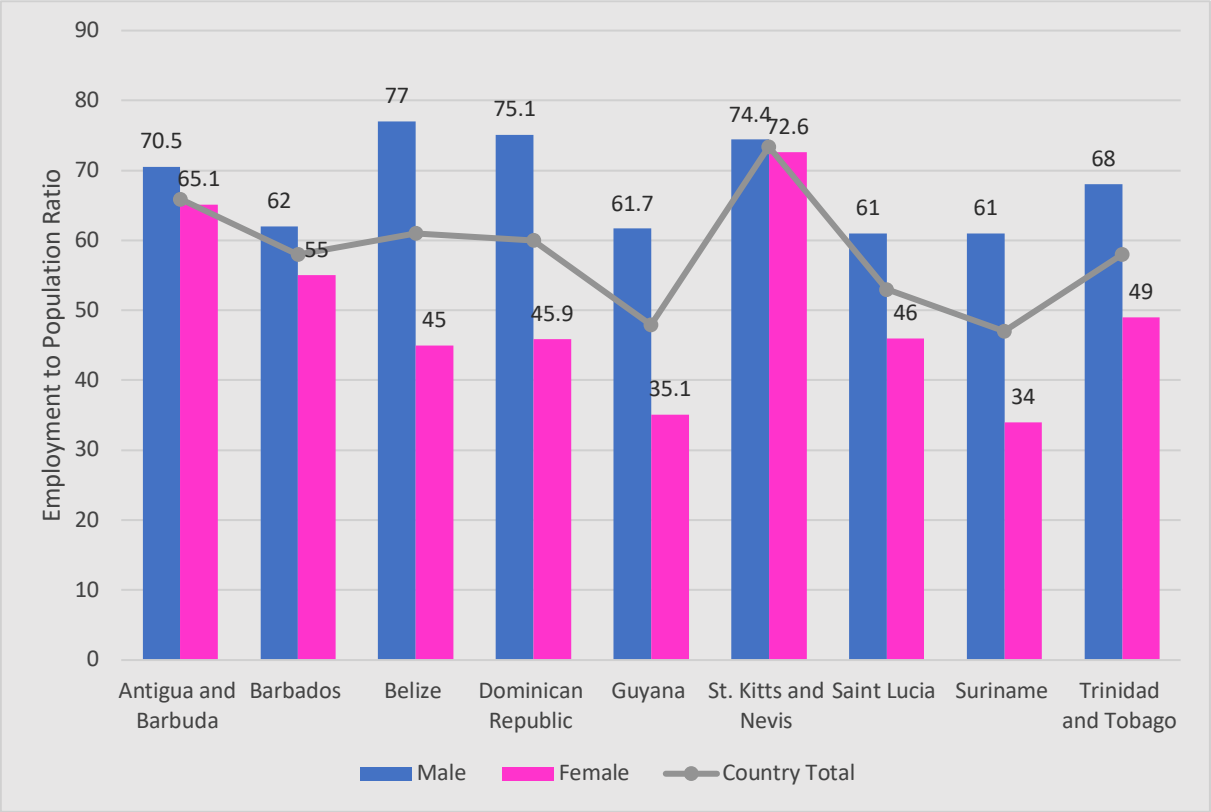


Figure 4: Employment to population ratio disaggregated by sex.

Figure 5 shows the unemployment rate within the countries, disaggregated by sex. In all the territories except Saint Kitts and Nevis, the unemployment rate among women is higher than the unemployment rate of men. Belize and Suriname shows major disparity in the unemployment rate of women and men. Notably, the unemployment rate in Saint Kitts and Nevis and Trinidad and Tobago is the lowest of the project countries and reflects the lowest disparity among men and women. In Antigua and Barbuda, more women are likely to be unemployed than men across all age groups expect for seniors and the population within the 35-44 age group according to the country's 2018 Labour Force Survey.

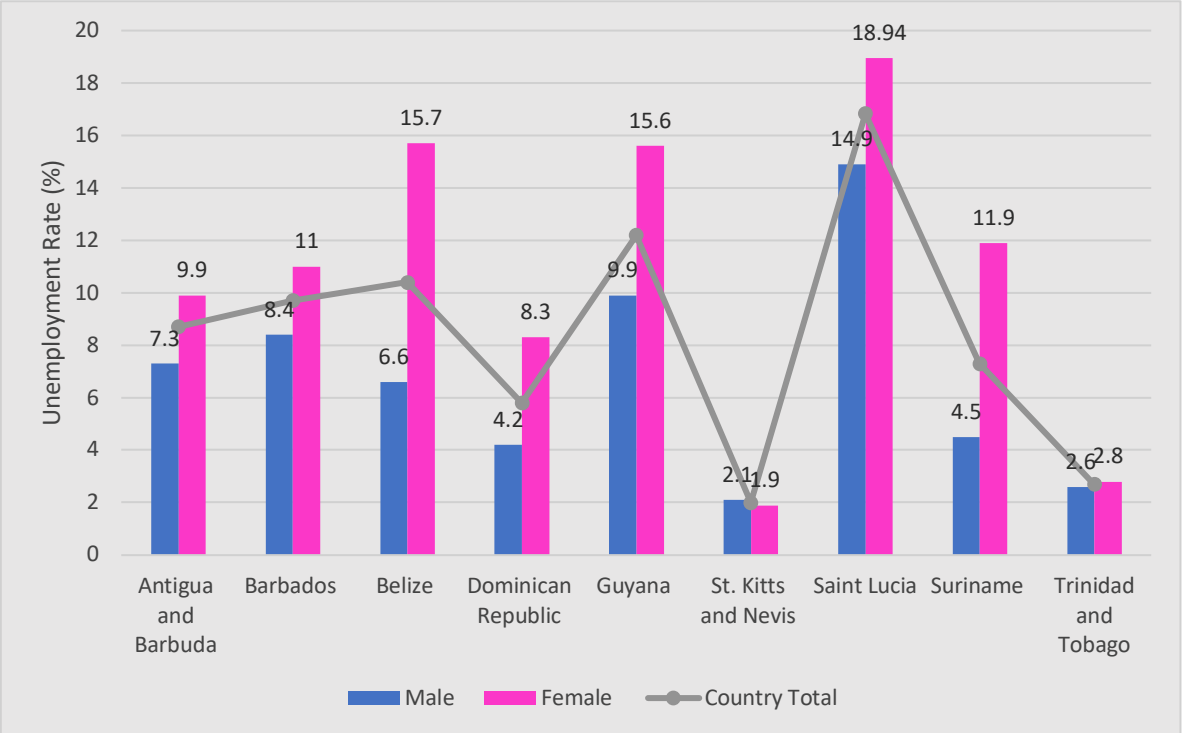


Figure 5: Sex disaggregated Unemployment rate of the countries.

The overall labour force statistics and the labour participation statistics based on the data shows higher gender gap among the larger countries (Guyana, Suriname and Trinidad and Tobago) and lower gender gaps in the smaller countries (Antigua and Barbuda, Barbados, St. Kitts and Nevis and Saint Lucia). The lower gender gap corresponds with countries where the services sector is the largest economic sector. This is an early indication of higher participation of men in the sectors associated with chemicals and waste. This segmentation of labour of the population has implications for the chemicals and waste sector as women and men are exposed to the effects of chemicals in both their productive and reproductive roles. The ability to be able to access the opportunities or participate in the enterprise segments of the chemicals and waste value chains is also affected by labour force participation. In Chapter Four the vertical and horizontal gender segmentation of the sectors associated with chemicals and waste and labour force participation will be further discussed.

2.4 Education and Literacy

The number of years spent in school is a common measure of a population's level of education. In all of the project countries, the expected years of schooling (combined primary and secondary) of females is higher than that of males as seen in **Table 2** below. Among the project countries, Barbados has the highest average expected years of schooling while Guyana has the lowest. Furthermore, the largest difference between the expected years of schooling of males and females was seen in Barbados where women are expected to be in school approximately 3 years more than men. The gender gap in relation to expected years of schooling is the lowest in Saint Kitts and Nevis.

Table 2: Sex disaggregated expected years of schooling in the project countries.

Country	Expected Years of Schooling		
	Male	Female	Average
Antigua and Barbuda	11.8	13.1	12.5
Barbados	13.8	16.6	15.2
Belize	12.9	13.4	13.1
Dominican Republic	13.5	14.8	14.1
Guyana	11.7	12.5	11.5
Saint Kitts and Nevis	13.5	13.8	13.6
Saint Lucia	13.6	14.2	13.9
Suriname	12.4	13.4	12.9
Trinidad and Tobago	12	13.8	13.0

Source: UNDP's HDR Country Profiles

School enrolment at the primary and secondary level is another indicator in educational attainment. The Gender Parity Index (GPI) for school enrolment at these levels in Antigua and Barbuda, Barbados, Belize, Dominican Republic, Guyana, Saint Kitts and Nevis and Saint Lucia is indicating that there is no disparity between male and female enrolment at these levels. Suriname is noted as having the highest GPI in primary and secondary enrolment in the world, with significantly more boys being enrolled at these levels than girls. Trinidad and Tobago also have a GPI greater than 1 as shown in **Table 3** below.

Table 3: Selected educational indicators for the project countries

Country	School enrolment in Primary and Secondary Gender Parity Index	Education index	Literacy Rate (% ages 15 and older)	% STEM Graduates		Youth Unemployment (%)
				Male	Female	
Antigua and Barbuda	1	0.655	99 (2015)	66.7	33.3	-
Barbados	1	0.773	96.6 (2014)	-	-	28
Belize	1	0.691	70.3 (2017)	58.2	41.8 (2015)	19.8
Dominican Republic	1	0.657	93.8 (2016)	60	40 (2017)	13.4
Guyana	1	0.601	85 (2014)	-	-	22.9
Saint Kitts and Nevis	1 (2016)	0.661	-	-	-	-
Saint Lucia	1	0.668	-	-	-	45.2
Suriname	1.13 (2015)	0.661	92.7 (2018)	-	-	15.9
Trinidad and Tobago	1.01	0.728	98.7	-	-	6.6

Source: World Bank EdStats Database and UNDP's HDR Country Profiles

The Education Index (EI) measures the project country's educational attainment by taking into consideration the average of the mean years of schooling of adults and the expected years of schooling of children. Barbados has the highest EI among the project countries while Guyana has the lowest. This corresponds to Barbados and Guyana having the highest and lowest average expected years of schooling respectively, among the project countries.

Antigua and Barbuda has the highest rate of literacy among persons ages 15 and older while Guyana has the lowest literacy rate among persons within the same age grouping.

Data in **Table 3** above shows that in Antigua and Barbuda, Belize and the Dominican Republic, significantly more men graduate from Science, Technology, Engineering and Mathematics (STEM) related programmes than women. As such, sectors related to chemicals and waste management are expected to have significantly more males in managerial or supervisory positions than females. However, Evans, Akmal and Jakiela (2020) in assessing gender gaps in education noted that education is not a silver bullet leading to women's empowerment and gender equality: education is an end in itself, but there is little evidence that achieving gender equality in education will lead to gender equality in other domains.

As it relates to youth unemployment, nearly 1 in every 4 young people in the Caribbean is unemployed with young women unemployment being more than 30 % compared with 20% for young men in the Caribbean (OECS, 2016). Saint Lucia is noted as having the highest unemployment rate among the project countries based on the reported statistics. Trinidad and Tobago on the other hand, recorded a 6.6% youth unemployment rate, the lowest among the project countries.

2.5 The Business Environment

It is increasingly being recognized that waste is also a resource. For SIDS waste, which is an issue for environmental management, can be a resource used to create livelihoods for the population. Achieving waste management targets can create jobs in the region for women and young people, groups in the unemployed categories of the country. Economic opportunities in the sector ranges from opportunities for individuals to medium and large-scale companies. The project focuses on small and medium enterprises (MSMEs).

Micro, small and medium enterprises (MSMEs) are noted as critical to the generation of economic activity and long-term stability, particularly within the tourism sector[21]. In Antigua and Barbuda, women are known to dominate the MSMEs, particularly within the tourism sector. Women have limited access to and control over the means of production in Antigua and Barbuda, in particular, land and credit. These hurdles make them and their families more vulnerable to poverty.

In Barbados, female MSMEs are often in areas based on food preparation, marketing of produce from farming and fishing and processing of raw foodstuff. The CBD's 2016 Gender Assessment of

[21] Huggins (2014) *Country Gender Assessment Antigua and Barbuda.* Caribbean Development Bank. Available at: https://www.caribank.org/sites/default/files/publication-resources/Country%20Gender%20Assessment_Antigua%20and%20Barbuda_Volumes%201%20and%202_June%202014.pdf

the country noted that men substantially outnumber women with respect to ownership and/or management of established businesses.

In Belize, Pebbles (2011) in Huggins (2016) noted that there are significantly more men involved in business and male businesses tend to be larger and better capitalized than the businesses of women. Female-led MSME's in this country are more centered around production or service areas. Also, the products from these businesses are most often based on the owner's areas of interest or knowledge rather than to meet local, regional or international demand. While the Development Finance Corporation of Belize issued more micro-loans to women in 2009-2011, accounting for 52.5% of all micro-loans, it is critical to note that the loans issued to women were in areas of production with significantly lower returns and were also issued for smaller monetary amounts.

In Guyana there has been a steady increase in the number of MSME's registered with the Small Business Bureau with more women than men receiving grants by the Bureau[22]. Initiatives such as the Women of Worth Microfinance Programme, the Venture Out Programme and the Rural Women's Network all help to increase women's access to economic opportunities and assists single female parents in establishing and expanding micro and small businesses[23].

In Saint Lucia MSMEs accounted for an estimated 85% of businesses in 2016[24]. Additionally, data from the Saint Lucian Trade Export Promotion Agency (TEPA) suggests that women dominate in their ownership and management of businesses especially in the MSMEs sector. In addition to TEPA, the Small Enterprise Development Unit (SEDU), the Bank of Saint Lucia, the Saint Lucia Development Bank among other institutions provide funding and assistance for persons interested in establishing MSMEs in the country.

In most of the project countries, challenges persist in accessing credit and loans to develop MSMEs, primarily due to high interest rates, limited collateral to access loans, intimidating application processes, and poor production and market records.

The success of these chiefly female-headed businesses is hindered by a number of gender-based and economic factors:

i. A historical culture of reinforcing women's domesticity has impacted on the types of goods that women producers create, limiting their successful distribution in both the local and regional markets.
ii. The public transportation service is limited, passing along central main roads to the city, and maintaining limited baggage capacity, affecting accessibility to potential customers and traders, and highlighting safety concerns for women travelling alone or at night.

---

[22] SBB (2016) *Annual Report 2016.* Small Business Bureau, Guyana. Available at: https://parliament.gov.gy/documents/documents-laid/13432-annual_report_of_the_small_business_bureau_for_the_year_2016.pdf

[23] ILO (2018) *Gender at Work in the Caribbean: Guyana Country Report.* International Labour Organization. Available at: https://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/---sro-port_of_spain/documents/publication/wcms_651947.pdf

[24] Ranjitsingh (2016) *Country Gender Assessment Saint Lucia.* Caribbean Development Bank. Available at: https://www.caribank.org/publications-and-resources/resource-library/gender-assessments/country-gender-assessment-saint-lucia-2016

iii. The demand-driven nature of a market-liberalized, neoliberal economy means that despite strong entrepreneurial spirit, female SMEs may falter in the face of an open market-based environment that does not include a supportive economic framework.

3 Institutional and Policy Framework

3.1 Relevant International Gender Frameworks and Country Ratification

The project countries recognize gender equality as an essential element of economic and social development of the country. As signatory countries to several international conventions related to gender, the countries have demonstrated their political commitment to gender equality. All of the countries fully acknowledge the United Nations Sustainable Development Goals (SDGs). Goal 5 of the SDGs focuses on gender equality and empowerment. Gender equality is cross-cutting however, and it is generally recognized that the full achievement of the other goals is dependent on the fulfilment of Goal 5. The countries are utilizing the SDGs as their principal framework for development, and the SDGs are fully embedded and aligned in their national development plans and strategies. **Table 4** identifies the International and Multilateral Gender Frameworks which the project countries have ratified.

3.2 Relevant International Chemicals and Waste Management Frameworks with Gender Imperatives

Gender is an imperative for both the IDB and the GEF, project donors. For the IDB gender is reflected in its Operational Policy on Gender Equality in Development[25]. The policy applies to the IDB and Multilateral Investment Fund projects and interventions in the public and private spheres. The policy's objective is the strengthening of bank's response to member countries gender commitments (including international agreements) and goals of gender equality. The actions of the policy are to further enhance the institutional priorities of accelerated economic and social development in member countries recognising that gender equality is an important element of that process. The policy's approach is two prong 1) the active promotion of gender equality and empowerment of women in banks actions and interventions, 2) the safeguarding of women from the adverse effects of banks interventions.

The GEF, Policy on Gender Equality, was adopted in 2017. The policy seeks to build on its predecessor policy (Policy on Gender Mainstreaming 2011) and indicates an increase commitment to gender by the global body in its programs and projects. The approach of the policy is one of emphasizing gender equality and women's empowerment. The policy also requires "robust bust standards in the design, implementation and evaluation of GEF activities, and introducing measures that will allow GEF, over time, to better leverage strategic opportunities to address gender gaps critical to the achievement of global environmental benefits".[26]

[25] Operational Policy on Gender Equality (2010) See: http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=35428399
[26] Global Environmental Facility (2020) See: https://www.thegef.org/news/new-policy-gender-equality-gef

Table 4: Gender Frameworks/Agreements ratified by the project countries

International Agreement	Antigua and Barbuda	Barbados	Belize	Dominican Republic	Guyana	Saint Kitts and Nevis	Saint Lucia	Suriname	Trinidad and Tobago
Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW) 1979	✓	✓	✓	✓	✓	✓	✓	✓	✓
Beijing Declaration on and Platform for Action 1995	✓								
Inter American Convention on the Prevention, Punishment, and Eradication of Violence (Belem do Para) 1994	✓	✓	✓	✓	✓	✓	✓	✓	✓
Convention on the Political Rights of Women	✓	✓		✓					✓
UN Declaration on the Elimination of Violence Against Women 1993	✓	✓	✓	✓	✓	✓	✓	✓	✓
The Universal Declaration on Human Rights	✓	✓	✓	✓	✓	✓	✓	✓	✓
International Covenant on Civil and Political Rights (ICCPR)	✓	✓	✓	✓	✓		✓	✓	✓
International Covenant on Economic Cultural and Social Rights (ICECSR)	✓	✓	✓	✓	✓			✓	✓
International Convention on the Protection of the Rights of All Migrant Workers and Members of their Families (2003)			✓		✓				
Brasilia Consensus (2010)	✓								
Convention on the Rights of the Child (CRC) (1989)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Equal Renumeration Convention 1951 (No. 100)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Discrimination (Employment and Occupation) Convention 1958 (No. 111)	✓	✓	✓	✓	✓	✓	✓	✓	✓
CARICOM Charter of Civil Society	✓	✓	✓		✓	✓	✓	✓	✓
Workers with Family Responsibilities Convention 1981 (No. 156)			✓						
Maternity Protection Convention 2000 (No. 183)			✓	✓					
Domestic Workers Convention 2011 (No. 189)				✓	✓				
SDG 5: Achieve gender equality and empower all women and girls	✓	✓	✓	✓	✓	✓	✓	✓	✓

Gender issues are an integral component of the implementation of the Basel Convention on the Control of Transboundary Movements of hazardous Wastes and Their Disposal; the Stockholm Convention on Persistent Organic Pollutants; the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and the Minamata Convention on Mercury. A BRS-Gender Action Plan[27] was developed in 2013, with updates in 2016 and 2019. The plan highlights the need to develop a baseline on gender-related issues and measuring the progress in achieving the objectives of the plan; the implementation of programmes and projects from a gender equality perspective; promotion of the consideration of gender issues in hazardous chemicals and waste management at the national and regional levels and supporting its staff in achieving a sustainable work-life balance. The conventions recognize gender equality as key to the success of the conventions and the differentiated impacts of hazardous wastes and chemicals on men and women. **Table 5** below highlights the conventions relating to the management of chemicals which the respective project countries have ratified.

Table 5: International Chemicals Conventions ratified by the project countries

Countries	Conventions on Chemicals and Waste Management			
	Basel Convention[28]	Stockholm Convention[29]	Rotterdam Convention[30]	Minamata Convention[31]
Antigua and Barbuda	✓	✓	✓	✓
Barbados	✓	✓	✓*	
Belize	✓	✓	✓	
Dominican Republic	✓	✓	✓	✓
Guyana	✓	✓	✓	✓
Saint Kitts and Nevis	✓	✓	✓	✓
Saint Lucia	✓	✓	✓*	✓
Suriname	✓	✓	✓	✓
Trinidad and Tobago	✓	✓	✓	

✓ Agreement Ratified by the country.
✓* Signature only. No entry into force

[27] See: http://www.brsmeas.org/Gender/BRSGenderActionPlan/Overview/tabid/7998/language/en-US/Default.aspx
[28] See: http://www.basel.int/?tabid=4499
[29] See: http://chm.pops.int/Countries/StatusofRatifications/PartiesandSignatoires/tabid/4500/Default.aspx
[30] See: http://www.pic.int/Countries/Statusofratifications/tabid/1072/language/en-US/Default.aspx
[31] See: http://www.mercuryconvention.org/Countries/Parties/tabid/3428/language/en-US/Default.aspx

3.3 National Gender Framework

3.3.1 Constitutions

The constitution of a country is the overarching legislative basis for gender equality and human rights in all of the project countries. Constitutional provisions for gender equality are illustrated in **Table 6**.

Table 6: A comparison of Constitutions and their response to gender equality.

Thematic Areas	Antigua and Barbuda	Barbados	Belize	Dominican Republic	Guyana	Saint Kitts and Nevis	Saint Lucia	Suriname	Trinidad and Tobago
1. Enacting laws that are discriminatory in nature prohibited	✓	✓		✓	✓	✓	✓		✓
2. Allows persons fundamental rights irrespective of sex	✓	✓	✓	✓	✓	✓	✓	✓	✓
3. Makes specific reference to gender equality			✓		✓				
4. States that men and women are equal before the law	✓*			✓	✓			✓	✓
5. Promotes the eradication of inequality and gender discrimination				✓					
6. Contains a specific article, clause, or paragraph about gender equality					✓				
7. Makes illegal all forms of discrimination of women on the basis of sex and gender	✓				✓			✓	
8. Entitles women equal access with men to academic, vocational and professional training, equal opportunities in employment, renumeration and promotion.					✓			✓	

* With respect to marriage.

3.3.2 Gender in National Development Plans and Strategies

Through national development plans and strategies countries outline their approaches. The attainment of sustainable development requires gender mainstreaming in all policies and sectors of the country. **Table 7** below presents the gender considerations of the national development plans of the project countries.

Table 7: National Development Plans and Strategies of the project countries

Country	National Development Plan
Antigua and Barbuda	**Medium Term Development Strategy (2016-2020)**[32] To achieve social cohesion, this strategy recognises that the nation must cater to the well-being of all and providing equal treatment irrespective of gender, religion, age, social and economic status, race, abilities and health. In order to achieve this, the strategy outlines the following actions: Action 1: Sensitize senior public sector officials about the impact of gender discrimination on national development. Action 2: Develop a gender strategic plan which will reflect, among other areas, approaches for: reducing negative gender attitudes that fuel discrimination and violence against women; reversing adverse trends regarding the achievement of males academically and in the workplace; and encouraging greater participation of women in politics.
Barbados	**National Strategic Plan of Barbados (2005-2025)**[33] This is Barbados blueprint for realising the Country's vision of becoming a fully developed society that is prosperous, socially just and globally competitive. Sectoral Objective 1.4 of the Social Sector in Barbados is to achieve gender equity and equality recognizing that the participation of women as equal partners with men in all aspects of human life and development and the achievement of a just and equitable society. **Medium-Term Growth and Development Strategy (2013-2020)**[34] Chapter 6.1.4 identifies the development of a gender policy integral in achieving human and social development. As such the following strategies are outlined in this regard: 1. Creation of gender policies on crime and violence and domestic violence. 2. Reduction in the sexual division of labour allowing for equal participation of both male and female in all forms of employment and guarantee equal pay for equal work. 3. Advocating for the disaggregation by sex of statistical data to facilitate comprehensive analysis of information. 4. Establishment of a fund to assist female victims of domestic violence.
Belize	**National Development Framework for Belize (2010-2030)**[35] This framework envisages that by the year 2030, Belize would be a "country of peace and tranquility, where citizens live in harmony with the natural environment and enjoy a high quality of life". Gender equity and non-discrimination in access to opportunities is one of the ten (10) core values/guiding principles of the framework. Gender analysis is included in a number of areas.

[32] See: https://www.oneplanetnetwork.org/sites/default/files/antigua_barbuda_medium_term_development_strategy.pdf
[33] See: www.sice.oas.org/ctyindex/brb/plan2005-2025.pdf
[34] Barbados, Ministry of Finance and Economic Affairs (2013) *Barbados Growth and Development Strategy 2013-2020.*
[35] Belize, Ministry of Economic Development (2010) *Horizon 2030, National Development Framework for Belize 2010-2030.*

Country	National Development Plan
	For example, Belize's vision for 2030 includes a vibrant democracy with "women performing at the highest levels of political leadership". The Framework under Pillar 1 entitled 'Democratic governance for effective public administration and sustainable development', includes the introduction of "special temporary measures to increase the number of women, political parties include in their slate of candidates for national elections"[36]
Dominican Republic	**National Development Strategy (2010-2030)** One of the objectives of this strategy is "to build a culture of equality and equity between men and women". Included in the plan are also measures designed to strengthen women's autonomy[37]. One of the cross-cutting policies proposed by the Strategy includes the Gender Approach which allows for the identification of situations of discrimination between men and women and adopt actions that contribute to gender equality[38]. In keeping with this approach, the Strategy states that, "all plans, programs, projects and public policies must incorporate the gender approach in their respective spheres of action, in order to identify situations of discrimination between men and women and adopt actions to guarantee gender equality and equity".
Guyana	**Green State Development Strategy Vision 2040 (2019-2040)** The first of six (6) principles of the Strategy is social cohesion and inclusion which takes into consideration, human rights, multi-ethnicity and gender equality, non-discrimination and protection of vulnerable and marginalized population groups. Specifically, as it relates to gender equality the Strategy discourages discrimination based on gender when accessing credit and seeks to reduce health inequalities for disadvantaged groups including women[39]. **2017-2021 Draft Strategic Plan for Social Cohesion** One of the objectives that underpin this Plan, is the promotion of inclusive growth and reduction of socio-economic inequalities in terms of income, ethnicity, social class or group, gender, geography and demography[40]. Objective 3.1 of the Plan supports the development of a gender policy based on the principles of inclusion, voluntary participation, joint ownership and benefits for all, that lead to enhanced social cohesion based on shared and equitable benefits for all.
Saint Kitts and Nevis	Medium-Term Debt Management Strategy 2013-2015 This strategy seeks to address the national debt management of the country 2013-2015. The strategy does not address gender or gender related issues.

[36] As cited in ECLAC (2020) *Gender mainstreaming in national sustainable development planning in the Caribbean,* pg. 31.
[37] As cited in ECLAC (2020) *Gender mainstreaming in national sustainable development planning in the Caribbean,* pg. 32.
[38] Dominican Republic, Ministry of Planning and Development (2012) *National Development Strategy Law 2030,* pg. 13.
[39] Guyana, Ministry of the Presidency (2018) Green State Development Strategy Vision 2040. Volume 1, pg. 82.
[40] Guyana, Ministry of Social Cohesion (2017) Draft Strategic Plan for Promoting and Enhancing Social Cohesion in Guyana (2017-2021), pg. 28.

Country	National Development Plan
	The country presently lacks national development plans or strategies except for country strategy of donor agencies such as the Caribbean Development Bank and the European Union.
Saint Lucia	**Medium-Term Development Strategy (2019-2022)**[41] Through this Strategy, the country hopes to achieve accelerated, resilient, inclusive, sustainable and equitable shared economic growth. The Strategy recognizes that gender mainstreaming will enhance the capacity of the Government to systematically address gender equality priorities. Saint Lucia is currently undertaking a gender mainstreaming project. Over the medium term, the Government intends to develop gender-responsive policies and strategies such as mainstreaming gender-sensitive budgeting that contributes to an equitable labour market, reduced unemployment, safer communities and an overall improved socio-economic dynamic in the country.
Suriname	**Policy Development Plan (2017-2021)** The overarching aim of this plan is to jointly build a "diversified Surinamese economy, which is competitive in the competitive global market, has significantly more sustainable development, generates employment and equality and keeps the environment livable". One of the developmental goals of this plan is the creation of a gender policy with a strategic goal that, "guarantees the right to personal safety and freedom of men and women and that the opportunities to realize their ideals and talents are not negatively affected by gender stereotypes"[42].
Trinidad and Tobago	**National Development Strategy of Trinidad and Tobago: Vision 2030** The aim of this Strategy is to address the country's development issues and establish the foundation required for catapulting the country onto a path of sustained economic and social progress to the year 2030[43]. Gender is mainstreamed through the policy cycle framework in the five development themes: Putting People First- Nurturing our Greatest Asset; Delivering Good Governance and Service Excellence; Improving Productivity through Quality Infrastructure and Transportation; Building Globally Competitive Businesses; and Placing the Environment at the Centre of Social and Economic Development[44].

3.3.3 National Gender Policies and Plans

All the countries except Antigua and Barbuda, Barbados and Saint Kitts and Nevis (a recently developed policy is not publicly disclosed as yet) and Saint Lucia have active gender policies. These polices are largely propelled mechanisms geared at the advancement of women and serve to direct the action of the State to jointly work with different stakeholders to effectively mainstream gender[45]. **Table 8** highlights the pillars, themes, priority areas or aims of the Gender Polices or Plans instituted by countries in their attempt to mainstream gender.

[41] Saint Lucia Department of Economic Development (2020) *Medium Term Development Strategy 2020-2023.*
[42] Suriname, Planning Bureau Foundation (2017) *Policy Development Plan 2017-2021,* pg. 148-149.
[43] Government of the Republic of Trinidad and Tobago (2016) *Vision 2030 National Development Strategy 2016-2030.*
[44] ECLAC (2020) *Gender mainstreaming in national sustainable development planning in the Caribbean.* 87, pg. 34.
[45] ECLAC (2017) *Gender equality plans in Latin America and the Caribbean: road maps for development,* pg. 13.

Table 8: National Gender Policies and Plans

Country	National Policies and Plans
Antigua and Barbuda*	No National Gender Policy. However, the Directorate of Gender Affairs continue to work on the issue of gender. In its development of policy consideration is given to the role of NGOs and the private sector in increasing women's access, the rights of domestic workers; and gender, social protection, and the economy[46].
Barbados	No National Gender Policy (A gender policy is in the process of being developed)[47]
Belize*	**National Gender Policy (Revised 2013)** The overarching goal of this policy is, "to advance the achievement of de jure and de facto gender equality and equity in Belize". To achieve this, five (5) policy priorities forms the strategic focus of the policy as follows: 1. Health 2. Education and Skills Training 3. Wealth and Employment Generation 4. Violence Producing Conditions 5. Power and Decision-Making
Dominican Republic	**Second National Policy for Equality and Gender Equity for Women (PLANEG II) (2007-2017)**[48]. The following are national themes around with the Policy is based: 1. Promotion of a culture of gender equality and equity. 2. Guaranteeing all the rights of women and the full exercise of their citizenship. 3. Strengthening economic empowerment and promoting the overcoming of women's poverty. 4. The promotion of leadership, participation and political and social representation of women in favour of gender equality. 5. Favouring women's access and control to quality goods and services. 6. Eradication of the forms of violence against women throughout their life cycle. 7. Promotion of full participation of women in the information and knowledge society. **National Plan for Gender Equality and Equity 2020-2030 (PLANEG III)**[49] The National Plan for Gender Equality and Equity III (2020-2030), has been prepared in alignment with the international legal framework on gender equality and equity with which the Dominican State has signed commitments, and with the normative legal framework and National priorities for gender equality and equity through their development strategies and plans. Furthermore, these commitments have been contrasted with the priority needs identified during the

[46] https://www.genderaffairs.gov.ag/
[47] https://caribbean.unwomen.org/en/caribbean-gender-portal/barbados
[48] Dominican Republic, Ministry of Women (2006) *Second National Policy for Equality and Gender Equity for Women 2007-2017,* pg. 33-34.
[49] See: https://oig.cepal.org/sites/default/files/2019_planeg_iii_dom.pdf

Country	National Policies and Plans
	process of preparing PLANEG III through multiple sectoral consultations, and with social and women's organizations.
Guyana*	**National Policy on Women 2006**[50] The Policy aims to achieve among others, the following goals through the development of appropriate policies and programmes: 1. Equality of women in law. 2. Transformation of negative cultural attitudes, customs and practices that discriminate against women. 3. Elimination of all forms of violence against women. 4. Broad societal acceptance of child rearing and parenting 5. Equitable access by women to productive resources and economic opportunities, and equal pay for work of equal value. 6. Poverty alleviation 7. Access to quality educational opportunity across gender etc. 8. Equitable participation by women in the structure of decision-making in all spheres at both the local and national levels. **National Gender Equality and Social Inclusion Policy (2018-2023)** This policy aims to[51]: 1. Fight all types of discrimination against women and girls 2. work to eliminate all forms of violence 3. promote economic development and inclusion 4. promote health, wellness and healthcare 5. support education training and skills development. Gender issues will also be mainstreamed into all sectors, thereby eliminating all negative economic, social and cultural practices that impede equality and equity. It also facilitates the development, maintenance and provision of gender-sensitive information and disaggregated data for use in planning and project implementation at all levels across all sectors[52].
St. Kitts and Nevis*	**A new national gender policy was developed but is not available for public disclosure.** **National Plan on Gender and Development (1996-2000)** The overarching aim of this plan is to ensure the equitable participation of women in national development[53]. This plan highlighted the following critical issues in keeping with the Beijing Platform for Action: 1. Violence against women and children 2. Poverty 3. Institutional mechanisms 4. Health 5. Leadership

[50] Guyana, Women's Affairs Bureau (2006) *Revised National Policy on Women in Guyana,* pg. 13-15.
[51] Guyana, Department of Public Information (2018) "Social Inclusion Policy to tackle gender inequality". Available at: https://dpi.gov.gy/social-inclusion-policy-to-tackle-gender-inequality/
[52] Guyana, Department of Public Information (2018) "National Gender and Social Inclusion Policy to be implemented this year- Minister Ally". Available at: https://dpi.gov.gy/national-gender-and-social-inclusion-policy-to-be-implemented-this-year-minister-ally/
[53] UNDP (nd.) *From commitment to action: Saint Kitts and*

Country	National Policies and Plans
	The National Gender Equality Policy and Action Plan is currently being developed.
Saint Lucia	No National Gender Equality Policy. ECLAC is currently providing technical assistance to support the development of a national gender policy statement and strategy and to conduct an assessment of the production and management of gender data in the country.
Suriname	**Gender Vision Policy Document (2021-2035)**[54] This policy document paves the way for Suriname to achieve gender quality and equity in the following priority areas: 1. Labour, income and poverty reduction 2. Education 3. Health 4. Power and decision-making 5. Gender-based violence 6. Legal and regulatory framework 7. Environment and climate change **Gender Plan of Action (2019-2020)**[55] This action plan identifies concrete activities and actions that forms a bridge to a longer-term gender vision policy document, formulated for the period 2021 – 2035. The seven priority areas in this Gender Plan of Action 2019 – 2020 are the same as those chosen for the long-term Gender Vision Policy Document 2021 – 2035.
Trinidad and Tobago	**National Policy on Gender and Development Green Paper** This policy provides a framework for including gender perspectives in all activities of government and civil society, thereby promoting the full and equal participation of men and women in the development process. It aims to[56]: 1. To improve the quality of life of women and men and girls and boys at all levels of society, through the promotion of gender equality and equity. 2. To reinforce the inextricable links between gender equality and sustainable development goals in national development. 3. To promote gender mainstreaming in all Government sectors and within civil society, to ensure the achievement of gender equality and gender equity in all spheres of national life.

*has a National Gender Based Violence Plan

3.3.4 Gender-Related Legislations

The national gender policies of the countries are enshrined in the following gender related legislations.

[54] Suriname, Ministry of Home Affairs (2019) *Gender Vision Policy Document 2021-2035,* pg. 5.
[55] Suriname, Ministry of Home Affairs (2019) *Gender Plan of Action 2019-2020,* pg. 4.
[56] Trinidad and Tobago, Office of the Prime Minister (2018) *National Policy on Gender and Development: A Green Paper,* pg. 32.

Table 9: Gender Related National Policies and Legislations

Country	Related Gender National Polices and Legislations
Antigua and Barbuda	1. Labour Code (1975) 2. Domestic Violence Act (1999) 3. Sexual Offences Act (1995) 4. The Social Security Act 5. The Offences Against the Persons Act; The Infant Life (Preservation) Act 6. The Trafficking in Persons (Prevention) Act (2010) 7. Maintenance and Access to Children Act (2008)
Barbados	1. The Sexual Offences Act (1993) 2. Domestic Violence (Protection Orders) Act (1992) amended (2016) 3. Offences against the Person Act Cap 141. 4. Employment Sexual Harassment (Prevention) Act (2017) 5. Employment Rights Act (2012) 6. National Employment Policy
Belize	1. Sexual Offences Act (1991) and reforms (2000, 2007) 2. The Domestic Violence Law (Domestic Violence Act) (1992, 2000, 2007) 3. Protection Against Sexual Harassment Act (1996)
Dominican Republic	1. Article 100 of the Penal Code 2014 (Law 550/14) 2. Dominican Labour Code 3. Law 24-97 on Violence against women and Domestic Violence 4. Law 88-03 Shelter Law 5. Law 137-03 on Illicit Trafficking of Migrants and Trafficking in Persons
Guyana	1. Equal Rights Act (1980) 2. Prevention of Discrimination Act (1997) 3. Domestic Violence Act (1996) 4. Sexual Offences Act (2010) amended (2013) 5. Criminal Offences Act Cap 8.01 6. Combating Trafficking in Persons Act (2005)
Saint Kitts and Nevis	1. The Domestic Violence Act (2000) amended (2005) 2. The Offences Against the Persons Act (2002) 3. Employment of Women, Young Persons and Children Act (1938)
Saint Lucia	1. Domestic Violence (Summary Proceedings) Act (1995) revised (2005) 2. Equality of Opportunity and Treatment in Employment and Occupation Act (2000) 3. Labour Act (2006)
Suriname	1. Law on Combatting Domestic Violence (2009)
Trinidad and Tobago	1. Domestic Violence Act (1999) amended (2006) 2. Sexual Offences Act (1986) amended (2006) 3. Offences Against the Persons Act (2005) 4. Summary Offences Act Cap. 11.02 revised (2006)

3.3.5 National Gender Agencies

The national overarching responsibility for mainstreaming gender in the countries lie in the national gender agencies. The agencies are described in **Table 10** below:

Table 10: National Gender Agencies

Country	Institutions
Antigua and Barbuda	Directorate of Gender Affairs (DOGA) within the Ministry of Social Transformation and Human Resource Development, Department of Labour within the Ministry of Justice and Legal Affairs, Public Safety and Labour
Barbados	Bureau of Gender Affairs within the Ministry of People Empowerment and Elder Affairs
Belize	Women's Department within the Ministry of Human Development, Social Transformation and Poverty Alleviation
Dominican Republic	Ministry of Women
Guyana	Gender Affairs Bureau within the Ministry of Social Protection
Saint Kitts and Nevis	Department of Gender Affairs within the Ministry of Community Development, Gender Affairs and Social Services
Saint Lucia	Division of Gender Relations within the Ministry of Education, Innovation, Gender Relations and Sustainable Development
Suriname	Bureau of Gender Affairs within the Ministry of Home Affairs
Trinidad and Tobago	Gender Affairs Division in the Office of the Prime Minister

3.3.6 National Chemicals and Waste Management Policies

All of the project countries have several national chemicals and waste legislations for the effective management of chemicals and waste. These are listed by country in **Table 11** below.

Table 11: National Chemicals and Waste Legislative Framework

Country	Legislations
Antigua and Barbuda	1. The Pesticides and Toxic Chemicals Act, 2008. 2. The Pesticides and Toxic Chemicals (Registration, Licensing and Permit Regulations, 2013) 3. Environmental Protection and Management Act (2015) 4. National Solid Waste Management Act (1995) 5. The Environmental Levy Act (2002) 6. Customs (Control and Management) Act (2013) 7. External Trade (Import Prohibition) Order (2001) 8. Litter Control and Prevention Act (2019) 9. The Standards Act (2017)

Country	Legislations
	10. National Implementation Plan
Barbados	1. Pesticides Control Act 1973 Pesticides Control Regulations, 1974, Pesticides Control (Labelling of Pesticides) Regulations, 1976 2. The Disposal of Offensive Matter Regulations 1969 3. The Marine Pollution Control Act 4. 2009 National Profile of Chemicals Management 5. The Customs Act 6. The Health Services Act, 1969 The Health Services (Offensive Trades) Regulations 1969 Health Services (Nuisances) Regulations, 1969 7. National Implementation Plan (Under the Stockholm Convention) 8. The Draft Environmental Management Act 2013 9. Returnable Containers Act 1986 10. Barbados Control of Standards Act 2006 11. Sanitation Service Authority Act 12. Underground Water Control Act 1951 13. Barbados Growth and Development Strategy 2013-2020
Belize	1. The Environmental Protection Act 1992 2. The Pesticides Control Act 1988 3. The Dangerous Goods Act 1964 4. The Solid Waste Management Authority Act 1991 5. Hazardous Waste Regulations (2009) 6. The Customs and Excise Duties Act (2000) 7. The Customs Regulations (Prohibited and Restricted Goods) 8. Belize Agricultural Health Authority Act (1991) 9. The Returnable Containers Act No. 12 of 2009 10. Food and Drugs Act 1953 (and its regulations) 11. The Standards Act of 1992
Dominican Republic	1. Management of Hazardous Substances and Chemicals Regulations 2009 2. National Development Strategy 2012 3. General Law on Environmental and Natural Resources No. 64-00 of 2000 4. Law No. 218 prohibiting the entry of human or animal excrement, household or municipal waste and its derivatives, sewage sludge as well as toxic waste from industrial processes 1984 5. General health Law No. 42-01, 2001 6. Law No. 176-07 of the National District and the Municipalities, 2007 7. Standard for Environmental Management of Non-Hazardous Solid Waste, 2003 8. Labelling and Information on Risk and Safety of Hazardous Materials Regulations 2009 9. Transport of Hazardous Substances and Materials Regulations 2009 10. Standard for the Environmental Management of Radioactive Waste 2003 11. Integrated Management of Infectious Waste Standard 12. Management of Used Oils Regulation 13. Environmental Technical Regulation for the Management of End-of-Life Tires 2015 14. Law No. 57-07 on Incentives for the Development of Renewable Energy Sources and their Special Regimes Regulation 2007

Country	Legislations
Guyana	1. The Pesticide and Toxic Chemicals Act 2. The Environmental Protection Act 1996. 3. The EPA Hazardous waste regulations 4. The EPA water quality regulations 5. The Mining Act 1989 and Regulations 6. Customs and Trade Act and its amendments 7. The Old Metal Dealers Act and Old Metal Dealers (Amendment) Act 2006 8. The Food and Drugs Act 1971 9. The Bureau of Standards Act 10. The Occupational Safety and Health Act (1997) 11. EPA Air Quality Regulations 2000 12. Guyana Geology and Mines Commission Act 1989 13. Amerindian Act 2006 14. Draft Solid Waste Management Bill 2014 15. Green State Development Strategy 2020
Saint Kitts and Nevis	1. National Conservation and Environment Protection Act No. 5 of 1987 2. Solid waste management Act 2009 3. Biosafety Act of 2012 4. The Shipping Act of 2002 5. The Pesticides and Toxic Chemicals Control Act of 2009 The Pesticides (Storage and Labelling of Containers) Regulations 6. The Customs (Control and Management) Act 1992 7. Trade (Bottle and Can Deposit Levy) Act No. 1 of 2002 8. The St Kitts and Nevis Bureau of Standards Act 2015 9. The Public Health Act
Saint Lucia	1. The pesticide and toxic chemicals control Act 2001 2. The Water and sewerage Act 3. The Sewage and Disposal of Sewage and Liquid Industrial Waste Work Regulations Regulation 4. Waste Management Act (1996) and Regulations 5. The External Trade Act 2011 6. The Customs (Control Management) Act 1990 7. Pesticides Control (Labelling of Pesticides) Regulations 8. Standards Act 1990 9. Montreal Protocol Act 10 of 2011 10. Draft Environmental Management Act (EMA) 2018 11. Draft Waste Management (Biomedical Waste Transport, Treatment and Disposal) Act 12. Draft Solid Waste Strategy (2017)
Suriname	1. Pesticides Act 2005, Pesticides State Orders of 2005 and 2011 and the Ministerial Order Labelling Pesticides 2. Act on the Movement of Goods S.B 2003 no 58 3. State Order Negative List S.B. 2003 no 74/S.B. 2006 no 100 4. Hindrance Act G.B. 1930 no 64/ S.B. 2001 no 63 5. Business and Professions Act 2017 6. Acts on Standards (S.B. 2004 no 121) 7. Industrial Accident Act 1947 8. Safety Act 1947 9. Draft Environmental Framework Act

Country	Legislations
Trinidad and Tobago	1. Pesticides and Toxic Chemicals Act (1979) Toxic Chemicals Regulations (LN 161/2007) Pesticides (Registration and Import Licensing) Regulations (LN225/1987) Pesticides (Importation) Regulations (LN226/1987 Pesticides (Licensing of Premises) Regulations (LN227/1987) 2. Environmental Management Act (2000) - Draft Waste Management (Registration and Permitting) Rules 2018 - Certificate of Environmental Clearance Rules - Certificate of Environmental Clearance (Designated Activities) Order 3. Litter Act No 27 of 1973 4. Petroleum Act No 46 of 1969 5. Fertilizers and Feeding Stuffs Act 1909 6. The Food and Drugs Act (1960) 7. Customs Act Customs (Amendment) Act, No. 6 of 2013 8. Trinidad and Tobago Standards Act Chap 82:03 The Standards Regulations (LN 234/2004) 9. The Old Metal and Marine Stores Act (1904) 10. Municipal Corporations Act 11. Occupational Health and Safety Act 12. Green Government Policy (2011) 13. Integrated Solid Waste Resource Management Policy (2013)

3.3.7 National Chemicals and Waste Institutional Framework

The following national agencies have oversight for waste and chemical management in the project countries:

Table 12: Chemicals and Waste Management Institutional Framework of the project countries

Country	Institutional Framework for Chemicals and Waste Management
Antigua and Barbuda	1. Department of Environment 2. Department of Analytical Services 3. National Solid Waste Management Authority (NSWMA) 4. Ministry of Agriculture, Fisheries and Barbuda Affairs 5. The Pesticide and Toxic Chemicals Control Board 6. Customs Department 7. Ministry of Health – Central Board of Health 8. The Bureau of Standards 9. Barbuda Council
Barbados	1. The Environmental Protection Department 2. The Project Management Co-ordination Unit, Ministry of Environment and National Beautification 3. The Pesticides Control Board 4. Government Analytical Services Laboratory 5. Barbados National Standards Institute 6. Sanitation Service Authority 7. Customs and Excise Department

Country	Institutional Framework for Chemicals and Waste Management
	8. Energy Division
Belize	1. The Department of Environment 2. Belize Solid Waste Management Authority 3. Ministry of Natural Resources and Agriculture, The Belize Agricultural Health Authority 4. Customs and Excise Department 5. Belize Bureau of Standards, Ministry of Health
Dominican Republic	1. Ministry of Environment and Natural Resources[57]
Guyana	1. The Ministry of Communities 2. Regional and neighbourhood Democratic Councils 3. Environmental Protection Agency (EPA) 4. Ministry of Public Health 5. Pesticides and Toxic Chemicals Control Board (PTCCB) 6. Ministry of Agriculture 7. The Ministry of Natural Resources 8. Guyana Geology and Mines Commission (GGMC) 9. Ministry of Labour 10. The Guyana Revenue Authority
Saint Kitts and Nevis	1. Department of Environment 2. The Pesticide and toxic chemical board 3. The Bureau of Standards 4. The Biosafety Board 5. Ministry of Health 6. Customs and Excise Division 7. The Saint Kitts Solid Waste Management Authority 8. The Solid Waste Management Authority – Nevis
Saint Lucia	1. Saint Lucia Solid Waste Management Authority 2. The Pesticide and Solid Waste Management Board 3. Department of Sustainable Development 4. The Ministry of Agriculture 5. The Bureau of Standards 6. The Customs and Excise Department 7. Public Health Board Authority 8. Occupational Health and Safety Department
Suriname	1. Co-ordination Environment 2. National Institute for Environment and Development (NIMOS) 3. Animal Husbandry and Fisheries Department of the Ministry of Agriculture 4. The Ministry of Public Works 5. The National Council for the Environment 6. National Institute for Environment and Development 7. Customs Division 8. Suriname Bureau of Standards
Trinidad and Tobago	1. Trinidad and Tobago Solid Waste Management Company Limited 2. Ministry of Public Utilities

[57] A through mapping of the related institutions was limited by time for undertaking assignment, availability of national stakeholders and the translation issues.

Country	Institutional Framework for Chemicals and Waste Management
	3. Municipal Corporations 4. Tobago House of Assembly 5. Regional Health Authorities 6. Ministry of Planning and Development 7. Ministry of Health 8. Environmental Management Authority 9. Institute of Marine Affairs 10. Ministry of Trade and Industry 11. The Pesticide and Toxic Chemicals Control Board of the Ministry of Health 12. Ministry of Energy and Energy Industries 13. Trinidad and Tobago Bureau of Standards 14. Customs and Excise Division 15. Chemistry Food and Drug Division of the Ministry of Health

4 Gender Analysis of Chemicals and Waste Management in Project Countries

4.1 Introduction to the Chemicals and Waste Stakeholders

The major stakeholders in the project countries are as follows:

1. National Governmental and Regulatory Agencies
2. National Sanitation Agencies and Bodies
3. Municipal and Regional Waste Management Agencies
4. Waste Workers and Collectors
5. Private Waste Collectors
6. Private Enterprises involved in waste management
7. Recycling Actors
8. Non-Governmental Organizations (mainly advocates for better waste management)
9. Informal Waste Workers (Pickers) and their organizations
10. Population groups such as persons living close to landfills, women, indigenous and maroon women

These stakeholders intersect to form the landscape of chemicals and waste management in the countries. The entry point for the gender analysis is the concerns and influence of the various stakeholders in the waste cycle and the movement towards sustainable societies with effective gender sensitive chemicals and waste management.

4.2 Review of Chemicals and Waste Management Policies in Project Countries

A review of the policies and legislations in the various countries shows there is low or no gender consideration in the chemicals and waste management policies. Consideration for gender in the national development plans and strategies can be ranked as low to medium (Table 8). Gender is generally addressed in the national gender policies. Gender and differences and equality between men and women is expressed in all of the national development plans. However, beyond the commitment to gender mainstreaming the documents generally lack specific on how this can be achieved. For the chemicals and waste policies specifically, across all of the countries gender sensitivity is low or non-existent. The lack of gender considerations affects the visibility of the roles of men and women, especially women in chemical management in the country. It also fails to take into consideration the differentiated impacts of chemicals on women and men which will affect the crafting of effective and gender responsive solutions/mechanisms.

4.3 Overview and Gender Analysis of Chemicals Management in the Project Countries

This section of the report begins with an overview of the main sectors associated with chemicals uses, sources and management in each project county and is followed by the analysis of the gender participation (by gender roles and labour participation) in the chemicals release sectors and its implications in each project country.[58]

[58] Details on the Dominica Republic are not provided in this section of the report due to the unavailability of the national stakeholders and the inability to translate documents mostly in Spanish.

4.3.1 Antigua and Barbuda

In Antigua and Barbuda there is no manufacture of toxic chemicals hence all chemicals used are imported. A profile of the chemical situation in Antigua and Barbuda identifies the following sectors associated with the use and release of chemicals such as persistent organic pollutants (POPs) and mercury.

Table 13: Sectors of chemical use and release in Antigua and Barbados

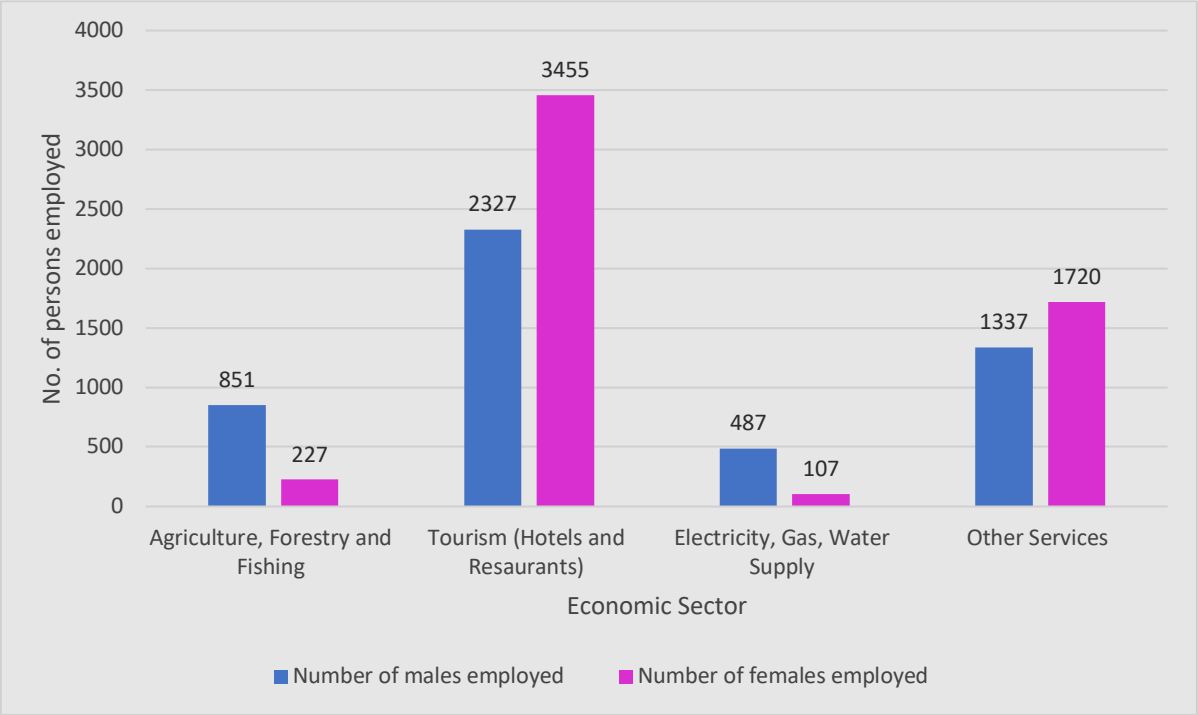
Economic Sector and Related Activities	Relevance	Gender Roles, Participation and Benefits[59]
Agriculture, Forestry and Fishing		
Crop and Animal Production	A range of insecticides, fungicides and herbicides are utilized and mostly stored at the farmers home except for large-scale farmers that have agrochemical storage areas. The Ministry of Agriculture through their propagations stations also utilize pesticides. These can lead to air, soil, water releases and contamination.	Men handle and apply chemicals to crop and livestock. Women are exposed through storage at home and washing of men clothing.
Ornamentals (Nurseries)	Increase demand for potted trees, shrubs and ornamental plants have resulted in the growth of nurseries offering this service. These nurseries utilize chemicals to protect their plants. These can lead to air, soil, water releases and contamination.	Men and women work in nurseries. Women may slightly outnumber men.
Tourism		
Hotel Grounds and Golf Courses	Hotels utilize pesticides to manage pests that attack ornamental plants and shrubs on their premises. Golf courses use pesticides to keep the turf and fairways green. Detergents are used heavily in housekeeping cleaning and sanitization. These can lead to soil and water contamination.	Men mainly work on golf courses and grounds. Women exposed to chemicals through use of detergents and cleaners
Yachting Service	Use of chemicals in fuel, other operational processes and cleaning. Waste is produced through the burning of fuel and domestic waste.	Men dominate in this sector and have a higher risk for chemicals exposure.
Electricity, Gas, Water Supply		
Power generation and distribution agencies	This sector produces a significant quantity of used cooling oils (e.g. PCBs) removed from transformers no longer in use.	Men dominate in this sector and have higher risk for exposure.
Other		
Pest Control Companies	Several pest control companies operate on the islands and provide pest management services to domestic, commercial, and industrial premises. These can lead to air, soil, water releases and contamination.	Men are predominantly involved in pest management. Women are exposed through washing of men clothing.

[59] Information on gender roles, participation and benefits were garnered from literature review and anecdotal information.

Economic Sector and Related Activities	Relevance	Gender Roles, Participation and Benefits[59]
Household and Commercial establishments (e.g. Dry cleaning)	Householders use a considerable amount of insecticides and rodenticides which are predominantly of low toxicity to humans. Dry cleaning establishments use VOCs such as perchloroethylene in their operation. These can lead to air, soil, water releases and contamination.	Women are at a higher risk of exposure at home. Women and men, with more women work in dry cleaning establishments.
Various Sectors	Mercury containing products throughout the project countries are primarily dental amalgam fillings, laboratory and chemical equipment, batteries, thermometers, electrical switches, and relays as well as electrical switches for gears. These can lead to air, soil, water releases and contamination.	Men are exposed in their productive roles in various jobs in the electrical and energy sector. Women are exposed in the medical related roles and in the homes.

Source: Antigua and Barbuda's National Inventory Report for POPs Pesticides 2017

The participation of gender in the sectors associated with releases and the management of chemicals for Antigua and Barbuda is illustrated in **Figure 6**. Men and women are involved in the sectors associated with chemicals use and emissions. However, since women's labour participation is lower than men in the economy overall, their participation is lower in most sectors. In the agriculture, mining, manufacturing, electricity and gas sectors men dominate these sectors and are therefore more involved in the handling of chemicals and exposed to chemicals. Women's role in the sectors through further disaggregation does not necessarily put them at further risk in the sector. For example, whilst there are women farmers and women who participate in various agricultural value chains, their roles are as agro-processors, marketers of agricultural products and tending to nurseries though. Women's exposure to chemicals in the other sectors mimic the segregation of the agriculture sector, for example in fishing, women are mainly the marketers of fish. Women's handling and exposure to chemicals mainly occur in the domestic sphere and in the hotel and tourism sector where their participation outnumbers men. However, because of their biological and reproductive make-up women are disproportionately affected by the release an emission of chemicals in the environment, a fact recognized by the national authorities (Ramessar 2020).



Source: ILO 2018 Gender and Work Antigua and Barbuda Country Profile

Figure 6: Gender participation of chemical release sectors in Antigua and Barbuda.

4.3.2 Barbados

A profile of the chemical situation in Barbados identifies the sectors listed in **Table 14** as associated with the use and release of chemicals. Of these sectors, the significant sectors include the Medical/Health sector; Electronic manufacturers; Food manufacturers; Oil producers; Agrochemical sector and Education (laboratories).

Table 14: Sectors of chemicals use and release in Barbados

Economic Sector and Related Activities	Relevance	Gender Participation, Roles and Benefits
Sugar manufacturing	Pesticides and fertilizers are used. This can lead to the emission and release to the air, soil, and water.	Men dominate participation. Women and men benefit.
Non-Sugar Agriculture	Pesticides and fertilizers are used. This can lead to the emission and release to the air, soil, and water.	Men dominate in the sector (high exposure), Women exposure through men, handling of clothing. Women and men benefit.
Mining & Quarrying	Used oil and particulates are used. This can lead to the emission and release to the air, soil, and water.	Men dominate in the sector (high exposure), Women exposure through men, handling of clothing. Women and men benefit.
Manufacturing	Used oil, VOCs and contaminated particulates are emitted and release to the air, soil, and water.	Women majority in sector

Economic Sector and Related Activities	Relevance	Gender Participation, Roles and Benefits
Electricity, Gas & Water	Used oil, Carbon Dioxide and particulates are emitted and release to the air, soil, and water. This sector produces a significant quantity of used cooling oils (e.g. PCBs) removed from transformers no longer in use.	Men dominate sector, women exposure through domestic chores
Construction	Used oil and contaminated particulates are emitted and release to the air, soil, and water.	Men dominate in the sector(high exposure), Women exposure through men, handling of clothing, women and men benefit
Tourism	Detergents/Pesticides release to the air, soil, and water from ground maintenance and housekeeping activities.	Men and women, majority women, men through outdoors activities, women housekeeping, laundry etc.
Transport, Storage & Communication	Used oil, VOCs and contaminated particulates are emitted and release to the air, soil, and water.	Men dominate this sector
Various Sectors	Mercury containing are primarily dental amalgam fillings, laboratory and chemical equipment, batteries, thermometers, electrical switches, and relays as well as electrical switches for gears. These can lead to air, soil, water releases and contamination.	Men in electricity and mining, women in health-related professions

Source: National Implementation Plan for the Stockholm Convention on POPs for Barbados 2019

Figure 7: Gender participation in the chemical release sectors in Barbados

Men in Barbados are more likely to be exposed to and use chemicals in Barbados as indicated by their higher levels of participation in the main sectors of the economy associated with chemicals use and management. Labour participation for women in Barbados ranks the highest for the CARICOM region and is higher than men (**Figure 7**) However, women's participation in the economic sectors associated with chemicals use and management is similar to the other countries with much lower participation except for the hotel and tourism and retail and wholesale sectors and personal services where women participation is higher. Women are also exposed to chemicals at a higher level in the domestic spheres. Men's livelihood activities are heavily dependent on the major associated chemicals sectors of the economy. Women and men participate in the technical fields associated with chemicals management almost equally (see analysis of public agency responsible for waste management in Barbados in section 4.4.2.1).

4.3.3 Belize

A profile of the chemical situation in Belize identifies the following (**Table 15**) sectors associated with the use and release of chemicals such as persistent organic pollutants (POPs) and mercury. In Belize, the importation of chemicals is primarily linked to the agriculture sector such as the agro-chemicals (pesticides and fertilizers) and other chemicals required by its supporting food processing industry. Limited amounts of chemicals are also imported for use in the timber industry mainly as wood preservatives. Beside these, relatively small amounts of other chemicals which are used in the domestic market for control of domestic pests and as cleansing/sanitation products are also imported. The mining industry of Belize is essentially limited to the extraction of sand and gravel with small amount of dolomite being mined for export. Gold and other precious and semi-precious minerals are just in their exploration phase and this sector is not permitted to carry out mining activities with the use of chemicals. **Table 15** shows the different categories of chemicals and the amount used per year in Belize.

Table 15: Sectors of chemical use and release in Belize

Economic Sector and Related Activities	Relevance	Gender Participation, Roles and Benefits
Crop and animal production	Pesticides and fertilizers are applied to large and medium scale crop production leading to the emissions and release to the air, soil, and water.	Men dominate participation. Women and men benefit.
Crude oil, natural gas, metals, minerals	Exploration and other related processes in release Volatile organic compounds (VOCs), greenhouse gases, nitrogen oxides, sulphur oxides, particulates in the air and water	Men dominate in the sector (high exposure), Women exposure through men, handling of clothing. Women and men benefit.
Heat and power generation	Three sources of release are a) Fossil fuel power plant, b) Biomass power plants, c) Household heating and cooking –Biomass and d) Domestic heating-Fossil fuel. These sources release several compounds to the air including greenhouses gasses and sulphur compounds.	Men dominate in the productive sectors (high exposure), Women exposure through domestic use of fuel. Women and men benefit and are affected.
Water collection, treatment, sewerage, waste collection, treatment and disposal, treatment and disposal of hazardous waste, remediation	Organic materials and heavy metals dissolved in water from the treatment of sewerage and waste water treatment.	Men majority in this sector.
Mercury	Hazardous waste from the health sector, electrical and power sectors, dental amalgams, mining and other related activities lead to contamination of soil and water	Men are exposed through their work primarily in mining. Women Are exposed through their handling of clothing, electrical bulbs at home. Women are also majority workers in the health sector.

Source: National Implementation Plan Update for the Stockholm Convention on POPs for Belize 2019

In Belize, the importation of chemicals is primarily linked to the agriculture sector such as the agro-chemicals (pesticides and fertilizers) and other chemicals required by its supporting food processing industry. Limited amounts of chemicals are also imported for use in the timber industry mainly as wood preservatives. Beside these, relatively small amounts of other chemicals which are used in the domestic market for control of domestic pests and as cleansing/sanitation products are also imported. The mining industry of Belize is essentially limited to the extraction of sand and gravel with small amount of dolomite being mined for export. Gold and other precious and semi-precious minerals are just in their exploration phase and this sector is not permitted to carry out mining activities with the use of chemicals.

Gender analysis of the sector was not completed due to the lack of the necessary online data and the unavailability of national governmental and private sector stakeholders for interviews and other data collection.

4.3.4 Guyana

In Guyana chemical production is limited to the production of paint, soaps, detergents, pharmaceutical liquids, and pharmaceutical ointments. Most of the country's chemical needs being met through importation[60]. More recently, there has been an increase importation of chemicals used in the developing oil industry. Chemical importation is managed by the Pesticide and Toxic Chemicals Control Board (PTCCB). These imports are mainly used in mining, paint manufacturing, agriculture sub-sectors, and for the manufacture of industrial and domestic cleaning compounds. As such these sectors/activities (
Table *16*) contribute to the release of chemicals such as POPs.

Table 16: Sectors of chemical use and release in Guyana

Economic Sector and Related Activities	Relevance	Gender Participation, Roles and Benefits
Crop and animal production	Pesticides and fertilizers are applied to large and medium scale crop production leading to the emissions and release to the air, soil, and water.	Men through crop applications, some women are involved in crop applications, women in the handling of clothing. Men dominate participation. Women and men benefit.
Gold mining and mineral production	Use of mercury in gold mining leads to discharge into the air, soil and water	Mainly men involved in small and medium scale mining. Indigenous and other women through pollution of waterways.
Electric power generation	Emissions from fossil fuel powered plants, biomass powered plants, household cooking with biogas and biogas combustion lead to the emission of Sulphur dioxide, nitrous oxides, methane and carbon dioxide and release to the air. Wood and agricultural residues from energy generation at sugar factories and used oil from oil transformers (containing PCBs) also results in releases.	Men through exposure at work Women in the homes and domestic sphere.
Manufacturing	Emissions from paint manufacturing, pulp and paper production, ferrous and non-ferrous metal production and the manufacture of domestic cleaning products lead to releases to the air, and soul.	Men and Women exposure equally through work activities. Women exposure in the homes

[60] PCTTB (2010) *National Chemical Profile of Guyana.* Available at: https://www.ptccb.org.gy/documents/National%20Chemical%20Profile%20of%20Guyana%202010%20(Final).pdf

Economic Sector and Related Activities	Relevance	Gender Participation, Roles and Benefits
Transport	Used oil, VOCs and contaminated particulates are emitted and release to the air, soil, and water from transportation activities in. the country especially the boat industry, a major form of transportation in the country's interior.	Men dominate this sector.

Source: *National Implementation Plan for Guyana under the Stockholm Convention on POPs 2013*

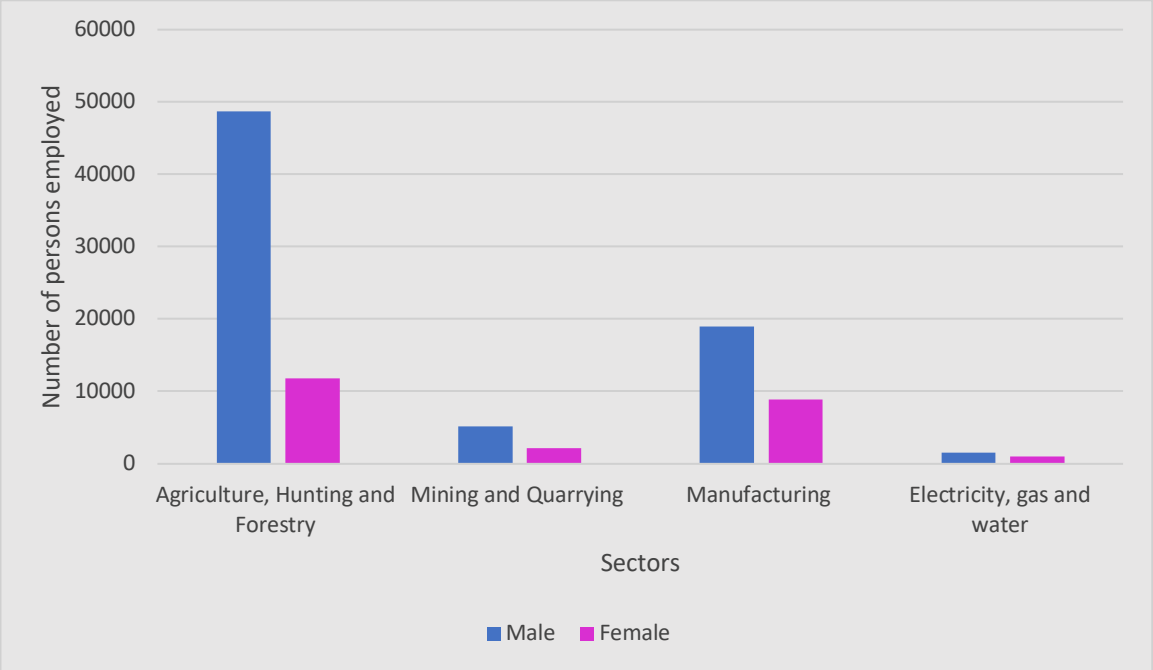


Figure 8: Gender participation in the sectors of chemical use and release in Guyana

Inequality in gender labour participation is stark (**Figure 8**). Guyanese women have one of the lowest levels of participation in the economic sector for the Latin America and Caribbean region (CDB 2019). Males therefore dominate all of the major sectors of the Guyanese economy including the sectors associated with chemicals use namely agriculture, mining, manufacturing and construction. The largest sector in Guyana by employment is the agricultural sector which also has heavy use of chemicals. Males occupy 80 percent of the agricultural sector and agriculture value chain including fishery. Women's involvement in agriculture is mainly in the reaping and marketing segments therefore their exposure to chemicals in the agriculture sector is low. However, the misuse of agricultural chemicals in suicides is a problem in Guyana associated with both males and females.

Mining is a large user of chemicals in Guyana especially mercury which is used in small and medium scale mining operations. Mining operations both small and medium and large-scale mining largely employs men. Women involvement in mining does not generally involve the handling and use of chemicals. However, despite the lower numbers of women in mining, mining is a threat to

both indigenous peoples, women and other hinterland populations in Guyana. Hinterland and indigenous populations have diets that are greatly reliant on wildlife population and fish which are also contaminated by mercury pollution from mainly mining activities. Indigenous women are particularly susceptible to the effects of mercury and other heavy metal pollutions. Health care facilities in indigenous and hinterland communities are often of low quality or completely absent (UNICEF 2017) making the populations even more vulnerable to mercury pollution.

4.3.4.1 National Chemical Agency - Pesticides and Toxic Board of Control

The PTCB is a statutory organization under the administrative structure of the Ministry of Agriculture. The agency has a total of 26 employees. There are 2 managerial level staff of which 1 is male and 1 female. The executive director of the agency is a female. The technical staff of the agency numbers 20 with 13 or 65 percent being females and 35 percent or 7 employees being male. Non-technical staff number 4 divided equally between males and females.

Whilst the agency itself does not have a gender mainstreaming policy or strategy; it submits to the gender mainstreaming policy of the Ministry of Agriculture. Gender mainstreaming in the Ministry of Agriculture is driven by the safeguards policy of the international development organizations funded projects being implemented by the agency, namely the United Nations Food and Agriculture Organization (FAO).

There is no formal gender data or sex disaggregated data being collected at this present time by the agency. The agency in its training and capacity building activities target both men and women. The involvement of women in the sector is less than men however the agency does not think they are specific or legal barriers that restricts female participation. One action of the agency that is gender-responsive is women are discouraged to occupy certain roles that requires exposure to chemical because of the susceptibility of link between chemicals and endocrine disruptions. The agency notes that through its observations that women are more inclined towards innovation in the sector and "quickly adapts to new and emerging mechanisms and techniques that limit the impact of chemicals on human health and environment when compared to men."

4.3.5 Saint Lucia

In Saint Lucia, chemicals are being imported and used primarily in the manufacturing and agricultural sectors and for industrial purposes. The country imports a high amount of pesticides, fertilizers, petroleum products, lubricating oils, greases and waxes and industrial chemicals. Additionally, waste organic solvents, waste inorganic solutions containing heavy metals and mixed expired chemicals are still existing in some secondary and tertiary educational institutions and testing laboratories. A profile of the chemical situation in Saint Lucia identifies the following (

Table 17) sectors associated with the use and release of chemicals such as POPs.

Table 17: Sectors of chemical use and release in Saint Lucia

Economic Sector and Related Activities	Relevance	Gender Participation, Roles and Benefits
Crop and animal production	A range of insecticides, fungicides and herbicides are utilized and mostly stored at the farmers home with the exception of large-scale farmers that have agrochemical storage areas. The Ministry of Agriculture through their propagations stations also utilize pesticides. Pesticides and fertilizers are applied to large and medium scale crop production leading to the emissions and release to the air, soil, and water.	Men through crop applications, some women are involved in crop applications, women in the handling of clothing. Men dominate participation. Women and men benefit.
Electricity, Gas and Water Supply	This sector produces a significant quantity of used cooling oils (containing PCBs) removed from transformers no longer in use that can be released into the soil or water.	Men through exposure at work Women in the homes and domestic sphere
Pest Control Companies	Several pest control companies operate on the islands and provide pest management services to domestic, commercial and industrial premises. The use of pesticides in their operations result in releases to the air, soil and water.	Men exposed through work environments and tasks. Women through handling of clothing etc.
Household and Commercial establishments	Householders use a considerable amount of insecticides and rodenticides which are predominantly of low toxicity to humans. Dry cleaning establishments use VOCs such as perchloroethylene in their operation which can be released to the air.	Men and women through exposure at work Women in the homes and domestic sphere.
Transportation	Used oil, VOCs and contaminated particulates are emitted and release to the air, soil, and water.	Men dominate this sector
Ferrous and non-ferrous metal production	Used oil, PCDD and contaminated particulates are emitted and release to the air, soil, and water during metal production.	Men majority in sector

Source: National Inventory Report for POP Pesticides in Saint Lucia 2016

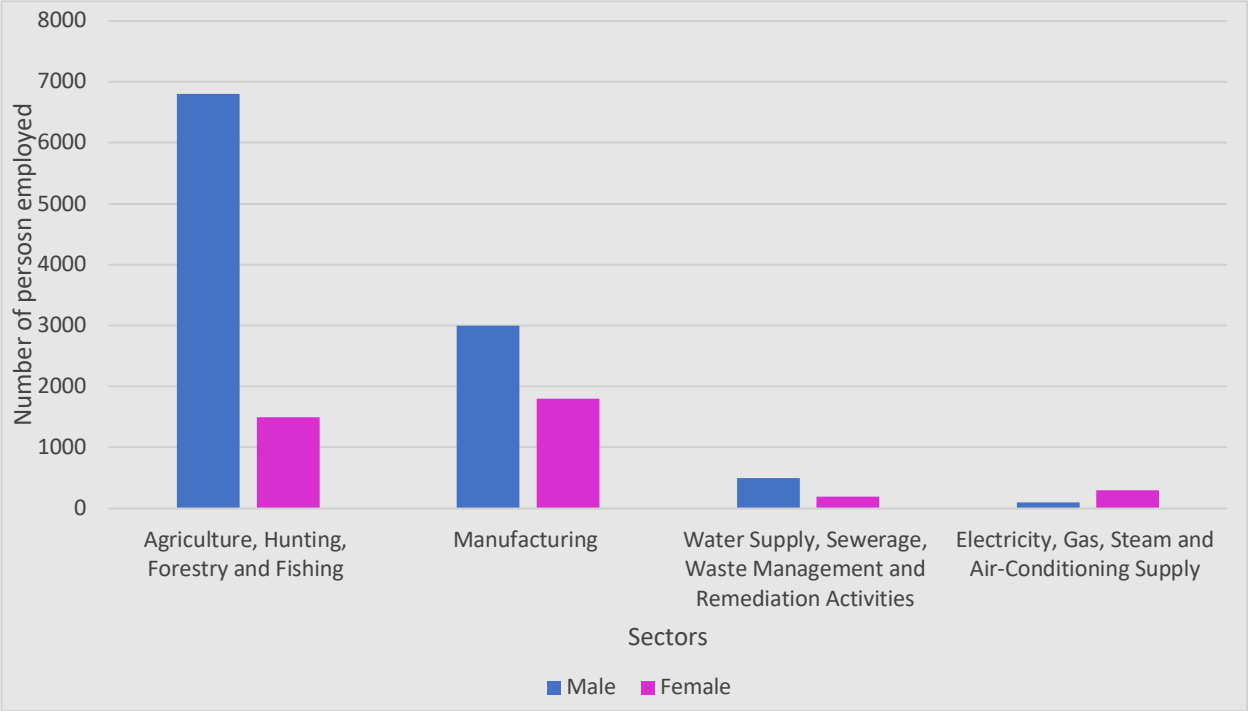


Figure 9: Gender participation in the sectors of chemical use and release in Saint Lucia

Gender analysis of the sector was not completed due to the lack of the necessary online data and the unavailability of national governmental and private sector stakeholders for interviews and other data collection.

4.3.6 Saint Kitts and Nevis

Currently there is no in-country manufacture of toxic chemicals in Saint Kitts and Nevis and therefore all chemicals used are imported. The insecticides currently in use in agriculture or for domestic and commercial pest control are mostly confined to chemicals belonging to the following chemical groups: synthetic pyrethroids, organo-phosphates, carbamates and other chemicals such as insect growth regulators, botanicals, and other biopesticides.

Heavy metals such as lead and mercury (found in batteries and other electrical equipment) as well as heavy metal containing products (such as paints used for antifouling protection on yachts and ships and some wood preservatives), other organic compounds (such as solvents used in dry cleaning), drugs and toxins used in medicine, including strychnine, are other toxic chemicals that are currently in use in-country. A profile of the chemical situation in Saint Kitts and Nevis identifies the following sectors associated with the use and release of chemicals such as POPs.

Table 18: Sector of chemicals use and release in Saint Kitts and Nevis

Economic Sector and Related Activities	Relevance	Gender Participation, Roles and Benefits
Crop and animal production	A range of insecticides, fungicides and herbicides are utilized and mostly stored at the farmers home with the exception of large-scale farmers that have agrochemical storage areas. The Ministry of Agriculture through their propagations stations also utilize pesticides. Pesticides and fertilizers are applied to large and medium scale crop production leading to the emissions and release to the air, soil, and water.	Men through crop applications, some women are involved in crop applications, women in the handling of clothing. Men dominate participation. Women and men benefit.
Electricity, Gas and Water Supply	This sector produces a significant quantity of used cooling oils (containing PCBs) removed from transformers no longer in use that can be released into the soil or water.	Men through exposure at work Women in the homes and domestic sphere
Pest Control Companies	Several pest control companies operate on the islands and provide pest management services to domestic, commercial and industrial premises. The use of pesticides in their operations result in releases to the air, soil and water.	Men are exposed through handling of chemicals. Women through handling of men clothing.
Household and Commercial establishments	Householders use a considerable amount of insecticides and rodenticides which are predominantly of low toxicity to humans. Dry cleaning establishments use VOCs such as perchloroethylene in their operation which can be released to the air.	Men and women through exposure at work in dry cleaning facilities. Women are exposed in the homes and domestic sphere
Mercury	Hazardous waste from the health sector, electrical and power sectors, dental amalgams, mining and other related activities lead to contamination of soil and water	Men in sectors of power generation and electricity, women in the domestic sphere and in the health sector

Source: National Inventory Report for Pesticides in Saint Kitts and Nevis 2016

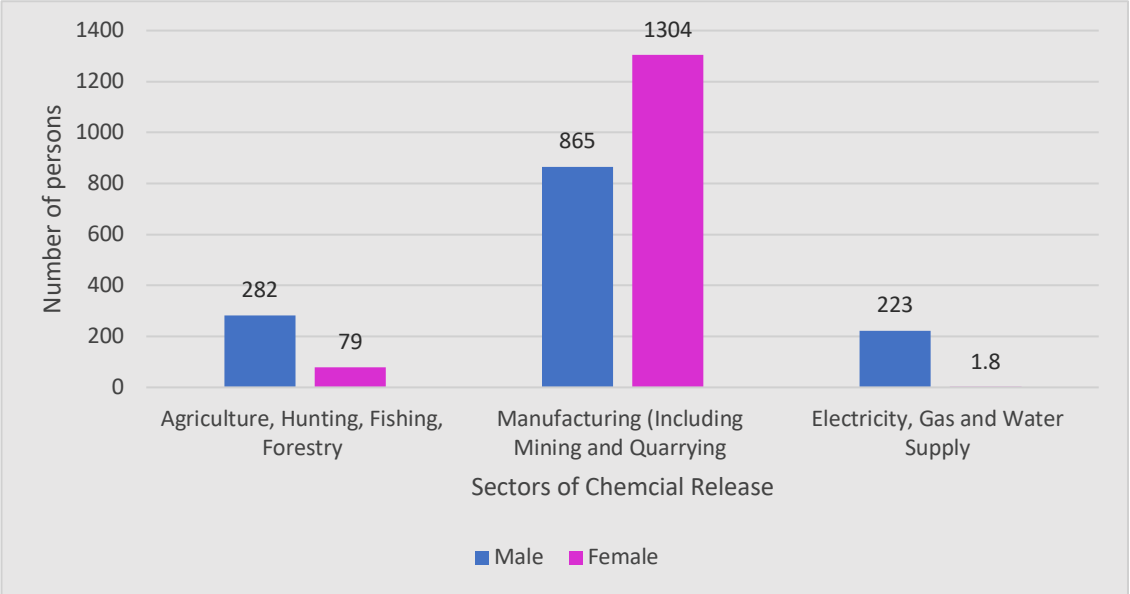


Figure 10: Gender participation in the chemical release sectors in Saint Kitts and Nevis

Men and women participate in the chemicals related sectors (**Figure 10**). However, women participation is much lower than men in the agricultural and electricity sectors. Women participation is higher than men in manufacturing and in the public sector (almost doubling men's).
Review of the chemical related policies and development plans indicate a low or non-reference to gender in the national policies. However, Saint Kitts and the Nevis are in the process of developing a national gender policy which will be high in gender considerations. References and considerations to environmental management, chemicals and waste management is unknown.

Men in Saint Lucia are more likely to be exposed to and use chemicals as indicated by their higher levels of participation in the main sectors of the economy associated with chemicals use and management. However, women's participation in the economic sectors associated with chemicals use and management is similar to the other countries with much lower participation except for the manufacturing sector where they rank relatively high. Women are also exposed to chemicals at a higher level in the domestic spheres. Men's livelihood activities are heavily dependent on the major associated chemicals sectors of the economy. Women participation in the management at the public service level is relatively high.

Gender analysis of the public and private sector was not completed due to the lack of the necessary online data and the unavailability of national governmental and private sector stakeholders for interviews and other data collection.

4.3.7 Suriname

The chemicals imported into Suriname are mainly pesticides, fertilizers, petroleum products, industrial and consumer chemicals. A profile of the chemical situation in Suriname identifies the following (**Table 19**) sectors associated with the use and release of chemicals such as persistent organic pollutants (POPs).

Table 19: Sectors of Chemicals use and release in Suriname

Economic Sector and Related Activities	Relevance	Gender Participation, Roles and Benefits
Crop and animal production	Pesticides and fertilizers are applied to large and medium scale crop production leading to the emissions and release to the air, soil, and water.	Men dominate participation. Women and men benefit.
Mining and Quarrying	Use of mercury in gold mining leads to discharge into the air, soil and water	Men are exposed through handling of mercury in gold mining. Women through pollution of waterways. Indigenous and Maroon women particularly vulnerable.
Electricity, Gas Steam and Air Conditioning Supply	This sector produces a significant quantity of used cooling oils (containing PCBs) removed from transformers no longer in use that can be released into the soil or water.	Men through exposure at work Women in the homes and domestic sphere
Transportation	Used oil, VOCs and contaminated particulates are emitted and release to the air, soil, and water.	Men dominate this sector
Chemicals and Consumer goods and Ferrous and Non-Ferrous Metal Production	Used oil, PCDD and contaminated particulates are emitted and release to the air, soil, and water.	Men majority in sector

Source: National Implementation Plan Update for the Stockholm Convention on POPs for Suriname 2019.

The unavailability of online secondary data on chemical management in Suriname hindered a gender analysis of the sector of the country. Primary data collection was also affected by the non-response of national governmental and private sector stakeholders to the consultancy survey.

4.3.8 Trinidad and Tobago

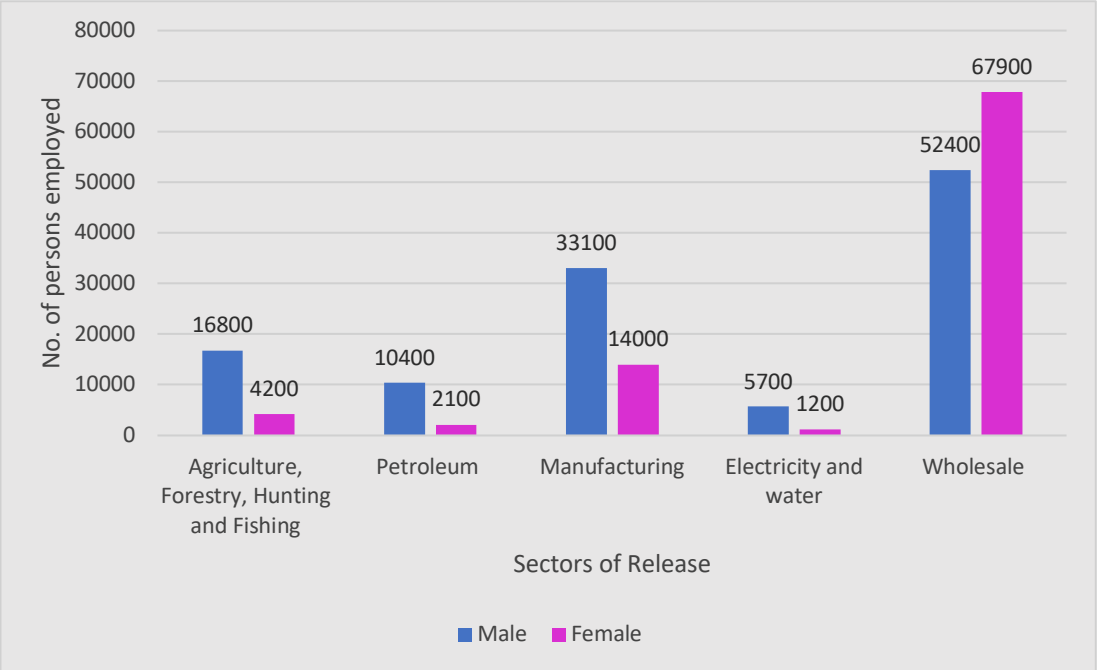
Trinidad and Tobago are a major player in the global chemicals market. A profile of the chemical situation in Trinidad and Tobago identifies the following (**Table 20**) sectors associated with the use and release of chemicals:

Table 20: Sectors of chemical use and release in Trinidad and Tobago

Economic Sector and Related Activities	Relevance	Gender Participation, Roles and Benefits
Crop and animal production	Pesticides and fertilizers are applied to large and medium scale crop production leading to the emissions and release to the air, soil, and water.	Mainly men exposed through work environment. Men dominate participation. Women and men benefit.
Crude oil, natural gas, metals, minerals	Exploration and other related processes in release Volatile Organic Compounds (VOCs), greenhouse gases, nitrogen oxides, sulphur	Men dominate in the sector (high exposure), Women exposure through men, handling of clothing. Women and men benefit.

Economic Sector and Related Activities	Relevance	Gender Participation, Roles and Benefits
	oxides, particulates in the air and water	
Manufacturing	Emissions from paint, chemicals, agrochemical, nitrogen compounds, plastics, cement, ferrous and non-ferrous metal production and the manufacture of domestic cleaning products lead to releases of dioxins, furans, metal oxides and salts to the air, and soul.	Men and Women exposure equally through work activities. Women exposure in the homes
Electricity, Gas Steam and Air Conditioning Supply	Three sources of release are a) Fossil fuel power plant, b) Biomass power plants, c) Household heating and cooking –Biomass and d) Domestic heating-Fossil fuel. These sources release several compounds to the air including greenhouses gasses and sulphur compounds.	Men dominate in the productive sectors (high exposure), Women exposure through domestic use of fuel. Women and men benefit and are affected.
Water collection, treatment, sewerage, waste collection, treatment and disposal, treatment and disposal of hazardous waste, remediation	Organic materials and heavy metals dissolved in water	Men majority in this sector.
Mercury	Hazardous waste from the health sector, electrical and power sectors, dental amalgams, mining and other related activities lead to contamination of soil and water	Men are exposed through their work primarily in mining. Women Are exposed through their handling of clothing, electrical bulbs at home. Women are also majority workers in the health sector.

Source: Trinidad and Tobago Updated National Implementation Plan 2018 for the Stockholm Convention on POPs. Interviews with Stakeholders



Source: Trinidad and Tobago Labour Force 2nd Quarter 2018 Bulletin

Figure 11 Gender participation in the sectors of chemicals use and release in Trinidad and

A review of the labour participation of the sectors associated with chemicals use and management in Trinidad and Tobago (**Figure 11**) illustrate male dominance in all of the sectors except for wholesale and retail. The trends align with the other project countries and shows that chemicals management and chemical use related sectors fits the pattern of it being traditionally male. Women do participate in all of the sectors, but the lack of data and information prevents an analysis of their roles in the sectors and the sections or segments of their participation. Data available from the public sector indicates that women participation in public management is high and as a result they have significant roles in regulatory functions.

4.4 Overview and Gender Analysis of Waste Management in the Project Countries

4.4.1 Antigua and Barbuda

Antigua and Barbuda Waste Value Chain consists of public waste agencies and regulatory bodies, private enterprises involved in recycling and waste disposal, women and men involved in the private sector, informal sectors as waste pickers and gender NGOs and other NGOs as advocates. Authority for solid waste management in Antigua and Barbuda is vested in the country's National Solid Waste Management Authority (NSWMA) established within the Ministry of Health by an act of parliament in 1995. In Antigua there is a sanitary landfill at Cooks Estate and on Barbuda there is a sanitary landfill located at Plantation. Barbuda's facilities and equipment include the sanitary cell and leachate treatment lagoon, equipment storage shed and office, two compactor trucks, and one side loader[61].

[61] Antigua and Barbuda, Office of the Director of Audit (2013)

However, the environment continues to be degraded by the improper disposal of wastes, particularly liquid waste as there is no central sewer system. Sewage collected is disposed of via land pits that are later buried. These pits are located near a wetland preceding Hanson's Bay. Industrial wastewater, edible oils, fats and petroleum-based oils and lubricant are managed through a network of private stakeholders. Wastewater generated on the island is predominantly disposed either to on-site sub-surface disposal systems (soak-aways and drain fields) and/or to roadside gutters, culverts and watercourses as there is no central sewage collection and transfer treatment system in place. As a result, almost 75% of the hotels in the north-west tourism zone and 48% of the larger commercial buildings in St. John's, the capital, have wastewater treatment plants. These plants are typically extended aeration, activated sludge treatment plants, operating as continuous or sequencing batch reactor (SBR) plants. They are designed to treat to secondary level effluent standards (i.e. <30 ppm BOD, < 30 ppm TSS) and often have no provisions for nutrient removal[62].The Antigua and Barbuda Waste Recycling Corporation manages a recycling facility in the Powell's area that sorts, bails and exports plastic, metal and paper packaging materials.

Men and women participate in the waste value chain in Antigua and Barbuda. Men are the majority owners of businesses in waste disposal and management and also in the regulatory public service agencies. Specifically related to workers of the waste sector, anecdotal information from national stakeholders[63] indicated that the pickers are predominantly females, while the labourers who are in charge of disposal activities are predominantly males. The female pickers are more likely to be exposed to chemicals and other hazards during their activity. They are also less likely to be able to afford private health care to address health issues that may arise.

Men and women not involved in waste disposal services or waste picking are equally likely to be exposed to pollution from the dumpsite since the population distribution of the Parish and City is almost the same. However, women are less likely because of their vulnerable status to be able to access health care as a result of the health impacts of pollution. Though there are state sponsored and subsidy health care facilities, increasing health costs are borne by citizens at private facilities (IDB, 2017). Ability to pay to access health services is, therefore, an issue for vulnerable populations.

Anecdotal information from the national stakeholders indicate that the majority if not all of the businesses involved in waste management and recycling are owned by men. The majority of the workers especially workers involved directly in the sorting and disposal of waste are also men. Women's involvement is usually at the administrative levels of the business activity. As stated above the majority of informal waste workers are women.

4.4.1.1 Gender Analysis of Waste Management in Antigua and Barbuda

The unavailability of online secondary data on waste management in Antigua and Barbuda hindered a gender analysis of the sector of the country. Primary data collection was also affected

[62] Antigua and Barbuda, SIDS 2014 Preparatory Progress Report (2013). Available at: https://sustainabledevelopment.un.org/content/documents/1049240Antigua%20and%20Barbuda%20final.pdf
[63] Interview with national stakeholders conducted by the consultant in 2019.

by the non-response of national governmental and private sector stakeholders to the consultancy survey.

4.4.2 Barbados

Barbados' Waste Value Chain consists of the following stakeholders including private enterprises involved in recycling and waste disposal. Women and men involved in the informal sectors as waste pickers. Women and other NGOs as advocates. In Barbados, the portfolio for waste management falls under the purview of the Environmental Protection Department (EPD), the Sanitation Service Authority (SSA) and the Project Management Coordination Unit. The EPD through its Solid Waste and Hazardous Substances Section functions in a policy making position and is mandated to regulate and monitor solid waste disposal facilities in the country and develop policies for the regulation of solid waste management. The SWPU is responsible for implementing the country's Integrated Solid Waste Management Programme.

There are four (4) government solid waste disposal sites on the island. That is the (i) Mangrove Pond Landfill; (ii) the Bagatelle Bulky Waste Disposal Site; the Rock Hall Asbestos and Fiberglass Disposal Site and the (iv) Lonesome Hill Blood and Grease Disposal Site. There is also a waste management facility located at Vaucluse, St. Thomas which contains a transfer station with materials recovery, composting, and chemical waste storage capability. There are also two satellite quarries that receive construction and demolition waste. This relives the amount of waste reaching the landfill sites.

70% of domestic waste is collected by the SSA while the remainder is collected through private entities contracted by the SSA. Household waste collection is done free of charge by the SSA, but the generators of bulky construction and other waste can arrange for its removal at a cost[64].
A number of privately-owned recovery/recycling facilities exist in Barbados, which collect and transport solid inert recyclable products such as plastic, glass, metal and paper and some chemical waste to be recycled or disposed in an environmentally friendly manner. Chief among these is the Sustainable Barbados Recycling Centre (SBRC).

4.4.2.1 Public Sector Waste Management Agency in Barbados (Sanitation Service Authority)

The Sanitation Service Authority employs 836 persons. The gender composition of the agency is follows:

[64] Government of Barbados (2009) *National Report to the United Nations Commission for Sustainable Development. Available at:* https://sustainabledevelopment.un.org/content/documents/dsd/dsd_aofw_ni/ni_pdfs/NationalReports/barbados/Full_text.pdf

Title/ Category	Female	Male	Total
Managerial	22	24	46
Technical	8	48	56
Non-Technical Staff	136	173	309
Waste Workers	80	345	425
Total	**246**	**590**	**836**

Table 21: Gender composition of the Barbados SSA

At the managerial level there is almost gender equity with 48 percent females and 52 percent males. At the technical level the disparity is the greatest for the agency with 17 percent females and 83 percent males. Men (56 percent) outnumber women (44 percent) in the non-technical staff component which also includes administrative staff. In the category of waste workers, whilst men (81 percent) outnumber women (19 percent), the percent is the highest for all the project countries for formalized waste workers in the public sector.

Whilst the agency does not have a formalized gender mainstreaming strategy, it does apply the equal employment opportunity policy of the public service of the country. This policy along with the high number of women in Barbados public service ensured the participation of women in all levels of the authority including: Managerial and Supervisory staff, Accounting staff, Secretarial and Clerical staff, Public bath and Conveniences Caretakers, General labourers - can be assigned to cleaning of streets. Major positions in the Authority presently held by women include Manager, Financial Controller, Assistant Manager Engineering. Pay disparity for men and women is not an issue as salary scales for public service workers are determined by the public sector scales and are gender neutral.

Departments within the organization where females are assigned include Administration, Accounting, Cemetery, Collections, Engineering, Personnel, Security and Stores. However, the agency does note that in order to attract more women to the technical and business segment of waste would require a redefinition of the sector as it presently is unattractive to persons even those entering the public service.

4.4.2.2 Private Sector Waste Management Enterprises in Barbados

A number of privately-owned recovery/recycling facilities exist in Barbados, which collect and transport solid inert recyclable products such as plastic, glass, metal and paper and some chemical waste to be recycled or disposed in an environmentally friendly manner.

Two private sector organizations in Barbados were surveyed. The analysis revealed that one of the business was male owned and the other female owned. In the male owned enterprise, the gender composition of the board was 67 percent female and 23 percent male. The composition of the overall staff was 80 percent male and 20 percent females. The female member of staff was primarily in the administrative section of the business. The company does not have a strategy to attract female members to the staff. However, in order to make the facilities more gender sensitive it did implement gender specific washrooms. The company does not consider it necessary to recruit women to the company since “the work is physically intensive; the four women work in the office”.

The female owned electronic waste company (the first and only female waste management company in Barbados) has a board that is 50 percent male and 50 percent female. The company also has female workers throughout the structure of the organization including in technical area and reclamation work. The overall gender composition of the agency is also 50 percent male and 50 percent female. The balance gender composition is the fruits of a strategy for gender mainstreaming in the business. This is done in two-pronged approach of creating awareness of the opportunities in the sector in general and the recycling business section of the value chain. The second approach is an active knowledge transfer component that includes the mentoring and active recruitment of female workers. Other elements of making the business gender positive is the provision of gender bathrooms, changing rooms and making the environment comfortable for female members of staff. The company also values the innovation and creativity that female workers bring to the industry and business and understand that gender balance is important. However, despite the strong efforts at creating gender balance, the company admits that it does have problems retaining female workers at the traditional male dominated departments. The inability to retain female staff in the traditionally male dominated sections is attributed to social and cultural values of the business of waste is a "man's business and a dirty business".

Box1: Barriers Women face in the participation in Chemicals and Waste Management Sector in Barbados

1. Cultural and Social values on traditional roles of men and women. Women are considered caretakers and dress nicely to go to work. They do not participate in dirty work such as those involving waste.
2. Difficulty accessing financing and credit for business and entrepreneurial activity in general and in male dominate sector such as waste management.
3. High levels of sexual harassment and sexual abuse in all segments of the value chain
4. Gender Violence in the informal sector of the value chain.

4.4.3 Belize

Belize waste management landscape consists of public agencies, private entities engaging in waste disposal and recycling and environmental and other NGOs. Solid waste is managed by the BSWaMA and respective village councils. While the BSWaMA has overall responsibility of the management of solid waste in Belize, it only manages the 370 acres Regional Sanitary Landfill located on Mile 24, George Prince Highway which receives waste from San Pedro, Caye Caulker and Belmopan. The Authority also manages the Belize City Transfer Station located on Mile 3, George Prince Highway and the San Ignaacio/Santa Elena Transfer Station located on Mile 70, George Price Highway.

There are four (4) other transfer stations located in the country, these are, (i) the Corozal Transfer Station located in Corozal in the northern district; (ii) the Burrell Boom Transfer Station located on Boom Hattieville Road; (iii) the San Pedro Ambergris Caye Transfer Station and the (iv) Placencia Transfer Station located in Placencia Village in the Stann Creek District. At these transfer stations, waste reaching the station are dumped onto the tipping floor and recyclable materials are sorted out manually and removed from the facility. The residual waste is then loaded and hauled to the regional sanitary landfill.

The BSWaMA is not directly involved in waste collection. Waste collection is done through the Municipalities/ Village councils or private Contractors of the Municipalities who collect solid

waters and hauls it to the Transfer stations. There are uncontrolled dumpsites located in San Juan and Red Bank. There are also dumpsites in Hopkins, a 35-acre lot in Independence, the Dandriga dumpsite and the San Roman Dumpsite and dumpsites located in several other villages which have been designated by the Government[65].Open dumping and burning of waste has been the standard approach to solid waste disposal throughout the country. The burning of waste is typically done in open low temperature fires thereby polluting ground water, soil and air, and is also sometimes responsible for uncontrolled fires.

4.4.3.1 Gender Analysis of Waste Management in Belize

A gender analysis of waste management in Belize was hindered by a lack of primary and secondary data. Secondary data was not available online and national and private sector stakeholders were unavailable for interviews during the data collection period of the assignment.

4.4.4 Dominican Republic

There are no sanitary landfills engineered with methane, leachate, and vector controls. At La Duquesa, the largest landfill in the country, informal waste pickers (known as buzos) search dumped waste for recyclable materials. Methane gas is released into the atmosphere, and contaminated leachate enters water systems. Improvised dump sites and dumping into creeks and rivers are common across the country. Waste accumulates in the streets, empty lots, and bodies of water, which creates environmental and public health risks such as solid waste pollution and bacterial incubation.

Outside of the capital, is estimated that there are some 365 known landfills and an unknown number of spontaneous landfills. The situation is even more complex in light of the fact that the landfills can receive all types of waste-hazardous and non-hazardous- that is deposited in the open and, most of the time, is burned.

4.4.4.1 Gender Analysis of Waste Management in the Dominican Republic

A rapid gender analysis of the sector in the Dominican Republic was limited by a lack of secondary data online and the inability to translate documents from Spanish to English in the time allocated for the completion of the assignment. An assessment of the sector by USAID(2019) indicated a paucity of gender data in the sector. However, USAID (2019) stated that there are approximately 10,000 informal waste workers in the country. Women and men are involved in “waste picking”. There is no sex disaggregated data on the composition of the pickers.

4.4.5 Guyana

Guyana’s waste value chain consists of a number of stakeholders including governmental management institutions at the national, regional and local levels, private businesses and informal sector. Men and women participate at all levels. Anecdotal information suggests that men dominate the sector as is the case in the other project countries. However, women participate in all segments of the value chain with higher participation in the administrative sections where they dominate.

[65] BSWaMA (2016) Consultancy to conduct a Waste Generation and Composition Study and a Feasibility Study for Solid Waste Management Facilities (Drop Off Centre) in the Stann Creek and Northern Toledo Districts, Belize. Available at: www.https://belizeswama.com/european-union-waste-study-final-2018/

Women are virtually absent from the waste collectors and workers sections of the formal sector. In the informal sector women make up approximately 20 percent of the waste pickers associated with the main landfill site Hags Bosch (Ramessar 3 2020)

In Guyana, the Ministry of Communities (MoC) is responsible for formulating national waste management policies and providing waste management oversight to RDCs, NDCs, and city councils. The Environmental Protection Agency – Guyana (EPA) prescribes standards for waste management facilities and issues permits for certain solid waste management activities.

Waste collection is done by private companies contracted by households. Households that do not utilize this service, resort to open burning, open dumping and controlled dumping which are the main methods of waste disposal in Guyana. The Haags Bosch Sanitary Landfill is the largest disposal site in the country, covering an area of 50 hectares (123 acres) and waste fill area of 26 hectares (64 acres). It has an expected lifetime of 25 years and receives approximately 110,000 tonnes of waste annually. The facility is located in Eccles, Region 4 and was opened in 2011. Initially the Haags Bosch was designed as a sanitary landfill, however due to the non-functionality of the leachate trap etc. it is considered a controlled dumping area. In other regions there are established sites designated by the NDC, RDC and EPA for the disposal of waste. Regions, 7 and 10 only have open dump sites whereas region 8 has no dumpsite.

The burning of waste in rural and some urban areas and toxic fumes from dumpsites adds to the process of air pollution and pose a health risk to citizens. Only official dumpsites are identified for waste disposal, the employment of contractors has increased the number of trucks for waste disposal in communities thereby decreasing the burning of waste.

4.4.5.1 Private Sector Waste Management Enterprises in Guyana

There are several medium private waste management entities in the country. They work mainly in the areas of scrap metal, recycling, and waste transportation and disposal. A survey of one of the private waste entities revealed the following:

- The company is a medium sized joint venture ship company owned by two brothers.
- It has a board of directors comprising one female and five males.

Table 22: Gender composition of a private waste management entity in Guyana

Position/Title	Female	Male	Total
Managing Director	1	1	2
Company Secretary	1	1	2
Managers	2	8	10
Waste Collectors	0	120	120
Administrative	30	10	40
Human Resource Manager	1	0	1
Quality Service Manager	1	0	1
Security	5	35	40
Supervisors	5	12	17
Total	**46**	**187**	**233**

Source: Interview with company representatives

The company has a total of 233 employees with 80 percent males and twenty percent females. Female roles in the operations are mainly outside of being waste collectors and direct waste workers including Company Secretary, Managers, Human Resource Manager, Quality and Standards Officer, Administrative staff, Security and Supervisors. The largest percentage of female workers is in the administrative section of the company.

The company does not have a strategy to attract female members though it would like to have female waste workers. Attempts to hire female waste workers were not successful since the women employed claimed "the work was too strenuous for them". The company will make provisions for the recruitment of women by having females' washrooms and changing stations in the facilities for waste workers.

4.4.6 Saint Lucia

Saint Lucia's Waste Value Chain consists of a number of stakeholders including private enterprises involved in recycling and waste disposal. Men are the majority in the enterprise segment of the value chain. Both men and women involved in the informal sectors as informal waste workers. Women also participate through NGOs as advocates for sustainable waste management.

In Saint Lucia, solid management of solid waste is vested in the country's Solid Waste Management Authority (SLSWMA) which has responsibility for, the collection of municipal solid waste generated from residential properties, public schools and institutions and government offices. The Authority operates and manages two (2) waste management facilities, that is, the 9-hectare Deglos Sanitary Landfill in the northern part of the island that is clay-lined and has piping and two (2) leachate ponds to prevent contamination of ground water. Present at the facility is also a weigh bridge, autoclave and shredder. The authority also manages the 7.4-hectare Vieux Fort waste management facility in the south of the island. Both of these facilities accept residential and institutional waste, commercial waste, industrial waste, construction and demolition waste, certain hazardous waste, scrap metal/derelict vehicles and quarantine waste. The island has been subdivided into 11 collection zones each serviced by a private waste collection contractor. In 2015 there were 65 waste haulers operating on the island.

The Authority went into an arrangement with a local recycler to recover scrap metal from a stockpile at the Vieux Fort Solid Waste Management Facility. The Authority also has arrangements with waste pickers at the Vieux Fort Solid Waste Management Facility to recover material such as ferrous metal, scrap wire, and wood. These waste pickers are regularly monitored and are required to operate in accordance with guidelines issued by the Authority.

4.4.6.1 Governmental Waste Management Institutions in Saint Lucia

The Solid Waste Management Authority (SLSWMA) of St Lucia has a total of 37 employees. The composition of the agency is as follows:

Table 23: Composition of the Saint Lucia SWMA

Title/ Category	Gender			Total
	Female	Male	Non-Binary	
Managerial	2	3	-	5
Technical	1	3	-	4
Non-Technical Staff	10	3	-	13
Waste Workers	0	15	-	15
Total	13	24	-	37

At the managerial level the female to male ratio is 40/60. At the technical level the ratio declines to 25 percent females and 75 percent males. The reverse situation obtains at the non-technical staff with 77 percent females and 23 percent males. 100 percent of the waste workers are males.

At the Municipal levels both men and women participate in waste management in various positions. The Operations and landfill manager for example is female. However, women participation is concentrated in the administrative sections of the agency. Similarly, to the national agency, women are involved in the administrative sections (see Table 24 below)

Table 24: Gender composition of the waste management agency in Saint Lucia

Title	Gender			Total
	Female	Male	Non-Binary[66]	
General Manager		□		1
Deputy General Manager		□		1
Operations & Landfill Manager	□			1
Information & Communication Manager	□			1
Accountant		□		1
Administrative Assistant	□			1
Accountant Assistant	□			1
Zonal Supervisors	□	□		4
Information Officers	□	□		3
Weighbridge Attendants	□	□		4
Office Assistant/Clerk	□			1
Heavy Equipment Operators		□		3
Tire Shredder Operators		□		7
Spotters		□		5
Janitors	□			3
Total	-	-	-	36

[66] Non-Binary means neither exclusively male or female or is in between or beyond both genders.

The agency does not have a gender mainstreaming strategy or policy. The agency also does not collect any gender data except for sex-disaggregated data of its workers.

4.4.6.2 Private Sector Waste Management Agencies in Saint Lucia

Data obtained from a small private waste and recycling company in St. Lucia confirmed a similar trend in the waste sector of male dominance and control. The company's board with a composition of six members has one female board member. The composition of the general staff also has one female who is a bookkeeper.

The company does not have a policy or strategy for attracting women to its staff but recognises that as a social enterprise it must increase its involvement of women. Its gender mainstreaming strategy for the future is based on the targeted recruitment of female team members with the establishment of distinct e-waste disassembly workstations. E-waste disassembly is the projected growth area for the recycling services unit of the company. Whilst not encountering any difficulties in hiring women, its hiring of women is presently impinged on the slow growth rate of the business.

The company has a unisex bathroom and washroom. A changing area is planned that would accommodate male and female team members.

4.4.7 Saint Kitts and Nevis

Responsibility for solid waste management on Saint Kitts is vested in the Solid Waste Management Corporation (SWMC) which manages the only sanitary landfill on the island at Conaree in the east. The island is divided into 27 collection zones and waste collection from 26 of these zones is done by private entities contracted by the SWMC.

On Nevis the Solid Waste Management Authority oversees waste management. There is a Low Ground Sanitary Landfill at Long Point in Nevis. The Authority is responsible for household waste collection as well as appliance and bulky items collection. Private waste haulers have to be licensed to operate on both islands and provide services to industrial, commercial and institutional waste producers who are responsible for arranging their own waste management.

4.4.7.1 Gender Analysis of Waste Management in Saint Kitts and Nevis

The consultant was unable to locate secondary information on gender and waste management in Saint Kitts and Nevis. In addition, the governmental agency, private sector entities or non-governmental organization were non-responsive to the questionnaire sent. These constraints prevented even a rapid analysis of the sector.

4.4.8 Suriname

Waste disposal in Suriname is not monitored or coordinated by one supreme body. In districts Paramaribo, Commewijne and Wanica waste management is coordinated by the Ministry of Public Works. The Ministry of Regional Development through the district commissioner manages waste disposal in Para and Saramacca. The Ornamibo landfill is an open dumpsite of approximately 4 hectares, the main dumpsite in the great Paramaribo area. The landfill was opened in 1999 as a temporary site for waste disposal but has since become a permanent site. The mass urbanization has

led to many houses being erected around the Paramaribo landfill area. Residents complain of the smell and generally air and water pollution. A system of micro routing is still being developed; however, Paramaribo is divided into three waste collection zones and 74 residential waste collection areas. Waste disposal is outsourced to private contractors. There are approximately 28 contractors in the Paramaribo area. Private companies source their own contractors or pay a small fee to the Ministry of Public Works to dispose of waste. Other landfill areas assigned by the District Commissioners is open dumpsites.

Also, the country has completed and updated a National Chemical profile and a NIP in 2019, under the Stockholm Convention. There are several companies involved in recycling of plastics and scrap metal.

4.4.8.1 Gender Analysis of Waste Management in Suriname

The gender analysis in Suriname was hindered by the lack of both secondary and primary data. Suriname has very limited and dated data for labour participation and the information is not disaggregated by sex. Primary data collection was affected by the period for data collection (during the early stages of the COVID 19 pandemic in the region) and the unavailability of both public and private officials for interview.

4.4.9 Trinidad and Tobago

The waste value chain in Trinidad and Tobago consists of a number of stakeholders comprised of men and women. These include private businesses, regulatory bodies, municipal level authorities, and informal waste collectors and pickers.

In Trinidad and Tobago, the Environmental Management Authority (EMA), the Solid Waste Management Company Limited (SWMCOL), the Municipal Corporations of the Ministry of Rural Development and Local Government and the Tobago House of Assembly (THA) are the main public agencies involved in solid waste management. The EMA is responsible for the development and implementation of legislation for the management of wastes in keeping with the Act. The Municipal Corporation has responsibility for curb-side collection and transport of household waste. It also manages public disposal sites in Guapo, San Fernando and other locations. The SWMCOL manages the 61-hectare Beetham landfill located in north-west Trinidad, the 8-hectare Guanapo Landfill located in north-east Trinidad and the 7-hectare Forres Park landfill located in central Trinidad. The THA is responsible for curb side collection and transport of household wastes to the 6.25-hectare Studley Park integrated waste facility on the eastern-central coast of the island[67].

4.4.9.1 Gender and Waste Management in Trinidad and Tobago

The national policies of Trinidad and Tobago directly related to chemicals and waste management is low in gender considerations except for its National Environment Policy (2018) which can be considered medium. However, its national development policies rank high (The National Development Strategy (NDS) 2016-2030 (Vision 2030) and Draft National Policy on Gender and Development (Green Paper).

[67] Phillips and Throne (n.d) *Municipal Solid Waste Management in the Caribbean.*

Men and women in Trinidad and Tobago participate in waste management in a very segregated sections of the value chain. Similar to the other islands, according to anecdotal information[68], men are the majority owners of the more lucrative ends of the value chain, private enterprises and businesses that benefit from waste disposal and management. There are also female owners of waste disposal and recycling enterprise.

Women in Trinidad also participate in the chemicals and waste management sectors in many ways. Among their various roles are as managers and technical officers in policies formulation, research, legislation, metrology, educational roles and as advocates for waste management. Data on the percentage of women in the sector overall and in the particular segment of the value chain is lacking.

Box 2: Barriers to women participation in the sector includes:

- Stereotypical reasons associated with the nature of the job Fear of violence
- Physical limitations / Health risks associated with the conditions of Work
- Women being homemakers are restricted by caring for their family
- Access to financing given the inherent challenges faced by women.
- Employment opportunities: e.g. perceived gender-based disparities in some roles
- Access to education/information

Source: National Stakeholders

[68] Interview with waste expert and waste business owners

Box 3: Suggestions to improve the participation of women in the sector especially the ownership of businesses are as follows:

Provide Social Support Services such as childcare / meals; this will allow women, particularly single women to work, explore, study and develop their dreams while their children are cared for / meals are provided. Flexible Working hours to allow for childcare. Establishment of supportive infrastructure given that in many societies, females remain the key nurturer of the family. Acknowledgement of this norm will involve the installation of the requisite infrastructure to support women and to give them opportunities, while society gets used to the idea of gender equity and the contribution of the female neurons. Remove the taboo associated with working in the waste sector and the association of these specific jobs as only for males. Improved public education in both schools and communities that encourage and provide information about working in the waste sector. To consider gender equity in the mainstream entrepreneurial opportunities within the waste sector inclusive of fenceline community benefits. Increase access to finances, particularly small business/entrepreneurship facilities, soft loans and innovative financing mechanisms suitable to the local context.

Source: National Stakeholders

4.4.9.2 Governmental Waste Management Institutions in Trinidad and Tobago (Trinidad and Tobago Solid Waste Management Company Limited)

Trinidad and Tobago Solid Waste Management Company Limited (SWMCOL) has a workforce of 218 persons consisting of males and females. At the managerial level, the percentage of males to females is 60 to 40 percent. At the technical levels the male to female ratio is 70 to 30 percent. The administrative and non-technical levels females are higher with a 72 to 28 ratio. At the waste workers level men again dominate with 86 percent compared to a mere 14 percent of women.

The control by men of the major positions in the agency is in keeping with that of the rest of the project countries. Trinidad and Tobago rank more favourably in the participation of women in the technical and managerial level which is consistent with the high participation of women in the governmental labour force in Trinidad. Among managerial and official positions held by women in the governmental agencies responsible for waste management are:

Former Minister of Planning and Development (2015-2019) , Minister in the Ministry of Planning and Development ,The Permanent Secretary of Ministry of Rural Development and Local Government, The Permanent Secretary of the Ministry of Planning and Development, The Permanent Secretary in the Ministry of Public Utilities ,Deputy Environmental Manager, General Manager Operations – SWMCOL General Manager Projects/Ag – SWMCOL, General Manager QHSE/Property Maintenance - SWMCOL Recycling Manager – SWMCOL and Projects Manager/Ag – SWMCOL.

The SWMCOL lacks a gender mainstreaming policy. However, it does have an equal employment opportunity policy in keeping with the public and governmental service policies. The agency at this point in time does not collate gender data or sex disaggregated data. However anecdotal information on waste workers confirms a firm male dominance in that section of the waste value chain. The agency recognizes that there is a need for the collection of gender data and an understanding of how women and men participatory roles in the value chain. The agency is therefore working on a Corporate Social Responsibility/Fenceline Policy which would engage the Fenceline communities and be able to increase data and information on the role of women and men in the waste sector.

Under the GEF #5558 POPs Project, Component 3 of the Project includes development of a Risk Communication Plan for potentially affected populations surrounding the Guanapo Landfill. The aim of this Communication Plan will be for information sharing about potential environmental and human health risks in the affected area and the mitigation measures to tackle them, using a gender sensitive approach. It is to be noted that the target population will include some persons employed at the Materials Recovery Facility operated by SWMCOL at the Guanapo Landfill.

Based on SWMCOL's remuneration packages there are no difference in pay based on gender. In general, for persons employed in the public service and in Statutory Authorities, either as public servants or contract workers, the terms and conditions of employment including salaries are determined independently by the Chief Personnel Office (CPO), in accordance with the nature of the post. However, it should be noted that women are in abundance (72 percent) in the non-technical and administrative section of the agency where it can be expected that renumeration will be lower than the technical and managerial levels.

4.5 Gender Analysis of Executing Agency

The execution of the project will be managed by the BCRC-Caribbean team consisting of the following project staff:

1. Director
2. Senior Technical Officer (Vacant presently)
3. Project Execution Officers(4)
4. Research Analyst (Vacant presently)
5. Research Assistants (2)
6. Associate Professional(1)

The gender breakdown of the project management unit of the agency is as follows:

Table 25: Breakdown of Project Management Staff

Position	No of Females	No of Males	Total
Executive Director	1	0	1
Senior Technical Officer	0	0	0
Project Execution Officers	4	0	4
Research Analyst	0	0	0

Position	No of Females	No of Males	Total
Research Assistants	2	0	2
Associate Professional	1	0	1
Total	**8**	**0**	**8**

The project management unit has a resounding participation (100 %) of females in the project staff presently. The organization employs an equal employment opportunity policy in the recruitment of staff. The high number of females maybe a reflection of the higher number of females graduating in science and environmental related fields in the region. Nevertheless, the Center is cognizant of the need for the recruitment of males in its operations and have been encouraging males to apply to open positions.

The gender policy and strategy of the center is driven by the gender action plans of the international waste and chemical conventions and the donors of the projects it implements particularly UNEP. Gender mainstreaming is therefore an important component of all project activities and it is done through the development and implementation of gender mainstreaming guidelines or gender action plans.

5 Conclusions

The lack of information and data on gender in the waste management sectors of the countries though expected, limited the analysis. A complete picture of gender in the section was therefore not possible. However, there are several conclusions that can be drawn based on the status presently. These are as follows:

- The associated policies of the waste management sector of the project countries lack gender-responsiveness. Gender nor women are not mentioned nor considered in the policies and strategies. Gender policies do exist nationally in all of the countries and the national development strategies do mention gender with varying degrees. However, it is not mainstreamed throughout the various sectors of the economy especially the chemicals and waste management sectors. Interviews with the national gender agencies and review of their annual plans and programs reveal a dearth of focus on chemicals and waste management. There is also very little coordination and collaboration between the agencies focused on chemicals and waste management and the gender agencies. There is some collaboration between some Non-Governmental Organizations (NGOs) focused on women issues and the national agencies. However, the weight of their inputs into the national agencies is not discernible. In some countries, (Guyana, Antigua and Barbuda)[69] gender mainstreaming is being driven by the implementation of international environmental conventions in general and the ones associated with the chemicals and waste management sector such as Basel, Stockholm, SAICM and Minamata in particular. However, even in these instances' collaboration with gender bureaus and agencies is limited.

- The absence of gender-responsiveness in the policies and strategies translated into a lack of gender-mainstreaming in the sector resulting in the lack of collection of gender-related data . Data is the foundation of sound plans, policies and programmes and lack of data affects the ability to recognise and mainstream gender and develop gender sensitive and responsive policies. At present gender data is not informing programmes in the sector.

- The lack of data also results in the lack of visibility of gender roles, particularly for women. The true picture of women's contribution to the sector is not possible without the collection of gender and sex-disaggregated data.

- Men and women are affected by the lack of sustainable chemicals and waste management in the project countries. For men their higher participation in the agricultural (all project countries), mining and quarrying, manufacturing's and energy sectors imply that they are more exposed to chemicals in their productive roles . Women's exposure to chemicals come from their lesser participation in the sectors associated with chemicals use and their involvement in the domestic spheres and reproductive roles, hotel and tourism and manufacturing sectors. Both genders suffer from the improper disposal of chemicals and wastes in the community and countries. Women because of their dominance in the reproductive sphere may be impacted more by improper waste disposal. For example, pollution of water sources by mining in Guyana and Suriname affect women disproportionately as they spend longer time to obtain water for domestic chores.

[69] This was reported by stakeholders interviewed.

- Women work both formally and informally in the chemical and waste management sector as recyclers, waste pickers, sorters, intermediaries, business owners, and employees of municipal waste service providers[70]. For some, especially women in the lower income groups, employment in this sector allows for the combination of childcare and household responsibilities with income earning. Participation in the chemicals and waste management industry pose several direct and indirect health risks for women. Women often spend longer times at dumpsites since they are sorting through waste and hence, they experience greater exposure to pollutants and the associated health risks. Women are also exposed to greater risks of sexual harassment, violence and abuse. Adherence to traditional gender roles that impede attracting, hiring, promoting, and retaining women; a male-dominated culture; overt or covert discrimination; and lack of exposure to the benefits of working in the waste management and recycling sector restrict women's ability to contribute fully and equally at all activity and decision-making levels in the sector.
- For the national agencies for the majority of countries women are actively participating in the development and implementation of policies in both sectors. The analysis revealed that whilst the number of women in managerial and technical positions is lower than men (40 percent for countries that responded) it is more favourable compared to other developing countries (USAID 2019). This is in sync with the high numbers of women in the public sector of the project countries. However, women are still the majority in the non-managerial and non-technical positions of the agencies especially in the administrative sections. In the waste management sectors, women rank low in actual waste workers (20 percent in Barbados, being the highest).

- For the private sector waste enterprises, women ownership of businesses surveyed is lower than men. Anectodical information suggests this is the case in the other countries (despite in both Barbados and Trinidad and Tobago, two of the leading business owners in the waste sector are women). Barriers to higher female participation in the countries include sectoral and gendered impediments to credit and business in general. The social normative values of waste management being a man's business affects women ability to participate at all levels of the value chain but in particular the profitable enterprise sections.

[70] USAID (2020) *Factsheet: Women in Solid Waste Management and Recycling: Latin America and the Caribbean Landscape.* Available at: https://www.alnap.org/help-library/womens-economic-empowerment-and-equality-in-solid-waste-management-and-recycling-latin

6 Engendering Waste and Chemicals Sectors in the Caribbean-Constraints and Opportunities

The following constraints and opportunities exist for mainstreaming gender in the chemicals and waste management sectors of the countries:

- Gender mainstreaming in the chemicals and waste management sectors of the countries must become a priority. Since gender mainstreaming in the countries is presently mainly driven by international donor-funded projects this project offers such an opportunity in its associated gender action plan.

- The entry point for gender mainstreaming in the project must be the creation of awareness for the need to develop gender-responsiveness in the sectors and increase the visibility of gender roles especially women's contributions and roles. This requires developing mandates for the mainstreaming of gender in plans, strategies, policies and programs. The mandate can only be achieved with political will resulting from increased awareness targeted at decision-makers.

- In the development of mandates for gender mainstreaming in the sector, implementation must be a primary consideration. A constraint of successful implementation is the present national frameworks and institutions. Successful implementation of gendered programmes will require formalized frameworks between the national gender agencies and include women's NGOs and other social groups such as youth and indigenous people's representative organizations and chemicals and waste agencies. One possible way of achieving this is the establishment of gender focal points or departments in the chemicals and solid waste agencies that liaise with the Gender Affairs Bureaus. One such example is Guyana Geology and Mines Commission, the agency that is responsible for mining in Guyana which established a Trafficking in Person and Social Unit in the agency. The unit works with the Gender Bureaus to address social issues associated with mining including issues of Gender Based Violence and the effects of mercury on indigenous communities and women. Since men are highly exposed to the effects of chemicals and waste through productive roles, organizations that represent men or work with men must also be included in these efforts.
- In addition to coordination, the effort will require the strengthening of the technical capacity of the gender agencies in chemicals and waste management issues and gender and gender-responsive budgeting in the chemical and waste management agencies.

- Data is a major constraint presently to gender mainstreaming. Collection of gender and sex-disaggregated data should commence in all countries. Collection mechanisms can be built into already existing mechanisms in the environmental management agencies (some countries have Environmental Information Management Systems) and other agencies such as agriculture and energy have their own databases. The agencies can also leverage the collection of data for other international agreements such as the United Framework for Climate Change (UNFCCC).

- Efforts must be directed at increasing the number of women in the technical roles in the sector. A starting point can be by creating awareness of the sector among high school and

university students. The number of women graduating from universities in the science and engineering subject, subject associated with the sector is increasing in all countries (CDB 2017). This is an opportunity that can be capitalized on. Women therefore need to be guided and informed of the possible careers in the sector.

- Capacity building and institutional strengthening for the fledging NGOs that address waste and chemical pollution issues in communities should be a focus. Target organizations should include women's NGOs, community-based organisations, indigenous organizations, women's agricultural and mining organizations and others.

6.1 Private Sector

The following are recommended specifically for the enterprise segment of the sectors:

- Women are constrained by social and cultural norms of the society from joining the enterprise segment of the sector. This can be addressed by a demystifying and destigmatizing the chemicals and waste management sector through business awareness and entrepreneurial training. The sector should no longer be seen by all and especially by women as or others from the lower social groups as being male work or unsuitable work. This is especially needed for the English-speaking Caribbean project countries where formal as in "office work" is seen as desirable by all social groups.

- Since many women's participation in the sector is at the informal segment of the value chain, efforts must be made at attracting them to the formal enterprise segments. Leadership and business training should be conducted with women (and others from the lower social groups) to increase their participation in the profitable sections of the waste value chain. This training should also include awareness of discriminatory practices and awareness and actions to address Gender Violence.

- Women reported facing issues of accessing credit to participate in the enterprise segments of the value chains. Establishment of funding and credit facilities specifically targeting women will increase their access to credit and equipment. Leveraging of institutions and agencies that have existing programs with women can be done. These include banks, credit unions, micro-finance institutions, small business bureaus and donor-funded projects mechanisms.

- Social programs should be leveraged to assist women and other informal waste workers in the various countries. Assistance should be targeted towards collective organization and formalization as is the case in Guyana, protection from sexual harassment and gender violence, better working conditions and facilities and training to access other sections of the waste value chain such as craft production associated with recycling or thrift shops.

Private enterprises interviewed indicate a very low understanding and awareness of gender issues in the sector and what is required to achieve gender equity. This deficit can be tackled by gender awareness and equal employment opportunity training for business owners. National gender seals can be developed or those already existing such as the Gender Equality Seal can be adopted, and

incentives offered for implementation by businesses[71]. Incentives and training should also be offered for businesses to adapt their work environments for the accommodation of women and others.

[71] The Gender Equality Seal is a certification programme for public and private enterprises sponsored by UNDP. A few businesses in the Caribbean have adopted it with support of the IDB and other donor agencies.

7 Appendices

7.1 Appendix 1: Gender Mainstreaming Questionnaire for the Public Sector

Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS) Project

Gender Mainstreaming Questionnaire

Dear Colleague:

The Implementing Sustainable Low and Non-Chemical Development in SIDS (ISLANDS) Programme is to support Small Island Developing States (SIDS) in entering into a safe chemical development pathway, thereby strengthening country's ability to control the flow of chemicals, products and materials into their territories. Overall, the ISLANDS programme will support work in thirty (30) SIDS in the Caribbean, Pacific and Indian Ocean to manage and eliminate toxic chemicals and wastes in their territories. We are pleased that twelve (12) Caribbean countries will receive benefits from participation. This programme will be implemented by the United Nations Environment Programme, The United Nations Development Programme, the Food and Agriculture Organization of the United Nations and the Inter-American Development Bank. The BCRC-Caribbean will serve as the Executing Agency for the Caribbean. The Programme will provide technical support for importation, promote the exchange of information and engage in outreach to relevant stakeholders to help Governments and stakeholders make significant progress on chemicals and waste management. Child Project 2 of the programme, an incubator facility will be developed by the Inter-American Development Bank (IDB) The project has the following 3 components:

Component 1: Creation of Programme visibility.

Component 2: Providing information and opportunities for exchange among SIDS governments and other SIDS stakeholders to take action technically, legally and through partnerships.

Component 3: Monitoring and evaluation of the GEF ISLANDS Programme.

As part of the PPG (Project Preparation Grant Phase for the child project, agender analysis and action plan are required to ensure that gender considerations are mainstreamed in the investment projects. This questionnaire is the tool designed by the gender consultant to obtain information on gender and chemicals and waste (C&W) management in your country. Please answer the questions with as much details as possible.

Thank you in advance of your participation.

Question 1: What is the gender composition of the national solid waste agency in your country?				
Title/ Category	**Gender**			**Total**
	Female	**Male**	**Non-Binary**	
Managerial				
Technical				
Non-Technical Staff				
Waste Workers				

Question 2: Does the organization have a gender mainstreaming policy or strategy? If yes, can you provide some information on it?

Question 3: What is the gender composition of the private municipal or regional solid waste entities in your country?				
Title	**Gender**			**Total**
	Female	**Male**	**Non-Binary**[72]	

[72] Non-Binary means neither exclusively male or female or is in between or beyond both genders.

Question 4: What data exists on the number of men and women involved in the chemicals and waste management sector in your country? If the information below is available kindly fill in table.			
Category	**Tick if Yes**	**No. or % of Females**	**No. or % of Males**
Formal			
Recycle Workers			
Recycle Business owners			
Municipal Waste Service Providers			
Municipal Waste Service Employees			
Waste Business Owners			
Waste workers			
In-Formal			
Sorters			
Intermediaries			
Waste Pickers			

Question 5: If the data **is not available,** what is your estimate of the number/percentage of males, females, in the chemicals and waste management sector?			
Category	**Tick if Yes**	**No. or % of Females**	**No. Or % of Males**
Formal			
Recycle Workers			
Recycle Business owners			
Municipal Waste Service Providers			
Municipal Waste Service Employees			
Waste Business Owners			
Waste workers			
In-Formal			
Sorters			
Intermediaries			
Waste Pickers			

Question 6: What efforts, if any, have been undertaken to increase data and information on the role of men and women in the sector?

Question 7: Are there other ways women are involved in the chemicals and waste management sector of your country? What are the numbers/percentage or estimates of the number/percentage of women?

Question 8: Is the number of women involved in the business/entrepreneurship elements of the chemicals and waste sector in your country less than men?	
Yes ☐	No ☐

Question 9: Can you identify some common and specific barriers women face in the chemicals and waste management sector?

Question 10: Are you aware of any initiatives, public/private/ Non-governmental Organization to promote gender mainstreaming in chemicals and waste management? If yes, can you provide some details?

Question 11: What do you think can be done to improve the involvement of women in the entrepreneurship and business opportunities of the sector?

Question 12: How are women's contributions in the sector leading to recycling, waste management and environmental goals?

Question 13: Are there explicit and implicit restrictions in the chemical and waste management sector that limit women's empowerment and economic opportunities?

Question 14: How does women pay compare to men for their different roles in the sector?

Question 15: Are there Gender-Based Violence issues that women face in the waste sector? If yes, is this a deterrent to their involvement in the sector?

Question 16: What are the opportunities for women in the sector, especially in the decision-making and leadership roles in your country?

7.2 Appendix 2: Gender Mainstreaming Questionnaire for the Private Sector

Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS) Project

Gender Mainstreaming Questionnaire
Private Sector

Dear Sir or Madam:

The Implementing Sustainable Low and Non-Chemical Development in SIDS (ISLANDS) Programme is to support Small Island Developing States (SIDS) in entering into a safe chemical development pathway, thereby strengthening country's ability to control the flow of chemicals, products and materials into their territories. Overall, the ISLANDS programme will support work in thirty (30) SIDS in the Caribbean, Pacific and Indian Ocean to manage and eliminate toxic chemicals and wastes in their territories. We are pleased that twelve (12) Caribbean countries will receive benefits from participation. This programme will be implemented by the United Nations Environment Programme, The United Nations Development Programme, the Food and Agriculture Organization of the United Nations and the Inter-American Development Bank. The BCRC-Caribbean will serve as the Executing Agency for the Caribbean. The Programme will provide technical support for importation, promote the exchange of information and engage in outreach to relevant stakeholders to help Governments and stakeholders make significant progress on chemicals and waste management. Child Project 2 of the programme, an incubator facility will be developed by the Inter-American Development Bank (IDB) The project has the following 3 components:

Component 1: Creation of Programme visibility.

Component 2: Providing information and opportunities for exchange among SIDS governments and other SIDS stakeholders to take action technically, legally and through partnerships.

Component 3: Monitoring and evaluation of the GEF ISLANDS Programme.

As part of the PPG (Project Preparation Grant Phase for the child project, agender analysis and action plan are required to ensure that gender considerations are mainstreamed in the investment projects. This questionnaire is the tool designed by the gender consultant to obtain information on gender and chemicals and waste (C&W) management in your country. Please answer the questions with as much details as possible.

Thank you in advance of your participation.

Question 1: Is the ownership of the enterprise male or female? (if a joint venture list the gender of all the owners)

Question 2: If your company has a board of directors what is the gender composition of the Board or Executive?		
Females	**Males**	**Total**

Question 3: What is the composition of your enterprise staff?		
Position/Title	**Female**	**Male**

Question 4: What is the ratio of male to female members of your staff?	
Female (Percentage)	**Male (Percentage)**

Question 5: Do you have a strategy to attract female members to your staff? If yes what is it?

Question 6: Have you provided any specific facility in your company for female members of staff e.g. washrooms, changing stations, etc.?

Question 7: Do you think it is necessary to recruit women to your company?

Question 8: What difficulties, if any have you encountered in recruiting women to your enterprise?

7.3 Appendix 3: Gender Mainstreaming Questionnaire for Non-Governmental/ Civil Society Organizations

Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS) Project

Gender Mainstreaming Questionnaire
Non-Governmental/ Civil Society Organizations

Dear Sir or Madam:
The Implementing Sustainable Low and Non-Chemical Development in SIDS (ISLANDS)Programme is to support Small Island Developing States (SIDS) in entering into a safe chemical development pathway, thereby strengthening country's ability to control the flow of chemicals, products and materials into their territories. Overall, the ISLANDS programme will support work in thirty (30) SIDS in the Caribbean, Pacific and Indian Ocean to manage and eliminate toxic chemicals and wastes in their territories. We are pleased that twelve (12) Caribbean countries will receive benefits from participation. This programme will be implemented by the United Nations Environment Programme, The United Nations Development Programme, the Food and Agriculture Organization of the United Nations and the Inter-American Development Bank. The BCRC-Caribbean will serve as the Executing Agency for the Caribbean. The Programme will provide technical support for importation, promote the exchange of information and engage in outreach to relevant stakeholders to help Governments and stakeholders make significant progress on chemicals and waste management. Child Project 2 of the programme, an incubator facility will be developed by the Inter-American Development Bank (IDB) The project has the following 3 components:
Component 1: Creation of Programme visibility.
Component 2: Providing information and opportunities for exchange among SIDS governments and other SIDS stakeholders to take action technically, legally and through partnerships.
Component 3: Monitoring and evaluation of the GEF ISLANDS Programme.

As part of the PPG (Project Preparation Grant Phase for the child project, agender analysis and action plan are required to ensure that gender considerations are mainstreamed in the investment projects. This questionnaire is the tool designed by the gender consultant to obtain information on gender and chemicals and waste (C&W) management in your country. Please answer the questions with as much details as possible.

Thank you in advance of your participation.

Question 1: Do you possess gender disaggregated data on the chemicals and waste management in your country and region? If yes can you state, the type of data below?

Question 2: Are you aware of other holders of gender data on chemicals and waste management in your country and the region?	
Data Type	**Holder**

Question 3: Do you have programmes or projects that target gender mainstreaming in chemicals and waste management? If yes can you state/describe it?

Question 4: Are you aware of any NGO/CSO- governmental initiative on gender mainstreaming in the chemicals and waste management sector in your country or regionally? If yes can you describe?

Question 5: What are the key obstacles towards women participation in the waste management sector in general? Are these the same as other sectors? If not, what are the unique challenges?

Question 6: What can be done to improve women participation in the chemicals and waste management sector overall?

7.4 Appendix 4: Waste Pickers Association/Representatives/Key Informants

Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (ISLANDS) Project

Gender Mainstreaming Questionnaire
Waste Pickers Association/Representatives/Key Informants

Dear Sir or Madam:
The Implementing Sustainable Low and Non-Chemical Development in SIDS (ISLANDS) Programme is to support Small Island Developing States (SIDS) in entering into a safe chemical development pathway, thereby strengthening country's ability to control the flow of chemicals, products and materials into their territories. Overall, the ISLANDS programme will support work in thirty (30) SIDS in the Caribbean, Pacific and Indian Ocean to manage and eliminate toxic chemicals and wastes in their territories. We are pleased that twelve (12) Caribbean countries will receive benefits from participation. This programme will be implemented by the United Nations Environment Programme, The United Nations Development Programme, the Food and Agriculture Organization of the United Nations and the Inter-American Development Bank. The BCRC-Caribbean will serve as the Executing Agency for the Caribbean. The Programme will provide technical support for importation, promote the exchange of information and engage in outreach to relevant stakeholders to help Governments and stakeholders make significant progress on chemicals and waste management. Child Project 2 of the programme, an incubator facility will be developed by the Inter-American Development Bank (IDB) The project has the following 3 components:
Component 1: Creation of Programme visibility.
Component 2: Providing information and opportunities for exchange among SIDS governments and other SIDS stakeholders to take action technically, legally and through partnerships.
Component 3: Monitoring and evaluation of the GEF ISLANDS Programme.

As part of the PPG (Project Preparation Grant Phase for the child project, agender analysis and action plan are required to ensure that gender considerations are mainstreamed in the investment projects. This questionnaire is the tool designed by the gender consultant to obtain information on gender and chemicals and waste (C&W) management in your country. Please answer the questions with as much details as possible.

Thank you in advance of your participation.

Question 1: What is the gender composition of waste pickers in your country?	
Female (Percentage)	**Male (Percentage)**

Question 2: Are there any segment/roles that are occupied by females or males?	
Segment Role	**Gender Participation/Occupation**

Question 3: Are men and women paid the same for the same materials/work in the waste picking business?	
Yes ☐	No ☐

Question 4: Are waste pickers in your country formally organized? If yes what is the structure of the organization? Tick one	
Organization	**Tick**
Cooperative	
Union	
NGO	
CSO	
Small Business	
Other (State)	

Question 5: Can men and women in the sector organize, form a union, cooperative, or take other actions to increase their bargaining positions? If yes, describe what actions can be taken.

Question 6: Would your organization/country waste pickers be interested in engaging in ventures/enterprises in the sector? Do your organization /country have the capacity to do so?

Question 7: Is violence or threat of violence a deterrent for women participation in waste picking in your country?

Question 8: What can be done to improve women's roles and participation in waste picking?

8 References

Barbados, Ministry of Finance and Economic Affairs (2013) *Barbados Growth and Development Strategy 2013-2020.* Available at: https://www.greengrowthknowledge.org/sites/default/files/downloads/policy-database/BARBADOS%29%20Barbados%20Growth%20and%20Development%20Strategy%20%282013-2020%29.pdf

Belize, Ministry of Economic Development (2010) *Horizon 2030, National Development Framework for Belize 2010-2030.* https://observatorioplanificacion.cepal.org/sites/default/files/plan/files/Belice%20National%20Development%20Framework%202010%202030_0.pdf

Commonwealth of Nations (2014) *Antigua and Barbuda.* Available at: http://www.commonwealthofnations.org/wp-content/uploads/2012/10/antigua_barbuda_country_profile.pdf

Dominican Republic, Ministry of Planning and Development (2012) *National Development Strategy Law 2030.* Available at: https://www.siteal.iiep.unesco.org/sites/default/files/sit_accion_files/siteal_republica_dominicana_0341.pdf

Dominican Republic, Ministry of Women (2006) Second National Policy for Equality and Gender Equity for Women 2007-2017. Available at: http://extwprlegs1.fao.org/docs/pdf/dom153682.pdf

ECLAC (2019) *Antigua and Barbuda Country Profile.* ECLAC Gender Equality Observatory. Available at: https://oig.cepal.org/en/countries/65/profile

ECLAC (2020) *Gender mainstreaming in national sustainable development planning in the Caribbean.* 87. Available at: https://repositorio.cepal.org/bitstream/handle/11362/45086/S1901209_en.pdf?sequence=1&isAllowed=y

Evans, D.K.; Akmal, M. and Jakiela, P. (2020) *Gender gaps in education: the long view.* Centre for Global Development. Available at: https://www.cgdev.org/sites/default/files/gender-gaps-education-long-view.pdf

Government of Antigua (2015) *Medium-Term Development Strategy.* Ministry of Finance and Corporate Governance. Available at: https://www.oneplanetnetwork.org/sites/default/files/antigua_barbuda_medium_term_development_strategy.pdf

Government of Barbados (2002) *The Constitution of Barbados.* Available at: https://www.oas.org/dil/The_Constitution_of_Barbados.pdf

Government of Belize (2010) *National Development Framework for Belize (2010-2030).* Available at: https://observatorioplanificacion.cepal.org/sites/default/files/plan/files/Belice%20National%20Development%20Framework%202010%202030_0.pdf

Government of the Republic of Trinidad and Tobago (2016) *Vision 2030 National Development Strategy 2016-2030.* Available at: https://www.planning.gov.tt/sites/default/files/Vision%202030-%20The%20National%20Development%20Strategy%20of%20Trinidad%20and%20Tobago%202016-2030.pdf

Guyana, Department of Public Information (2018) "National Gender and Social Inclusion Policy to be implemented this year- Minister Ally". Available at: https://dpi.gov.gy/national-gender-and-social-inclusion-policy-to-be-implemented-this-year-minister-ally/

Guyana, Department of Public Information (2018) "Social Inclusion Policy to tackle gender inequality". Available at: https://dpi.gov.gy/social-inclusion-policy-to-tackle-gender-inequality/

Guyana, Women's Affairs Bureau (2006) Revised National Policy on Women in Guyana. Available at: https://evaw-global-database.unwomen.org/-/media/files/un%20women/vaw/full%20text/americas/revised%20national_policy_on_women/revised%20national_policy_on_women11.pdf?vs=749

Guyana, Ministry of the Presidency (2017) *Framework of the Guyana Green State Development Strategy and Financing Mechanisms.* Available at: https://extwprlegs1.fao.org/docs/pdf/guy175622.pdf

Guyana, Ministry of the Presidency (2018) Green State Development Strategy Vision 2040. Volume 1. Available at: https://doe.gov.gy/published/document/5d12163ee571586f465b1b23

Guyana, Ministry of Social Cohesion (2017) Draft Strategic Plan for Promoting and Enhancing Social Cohesion in Guyana (2017-2021). Available at: https://www.motp.gov.gy/images/documents/draft_social_cohesion_strategis_plan_2017_2021.pdf

Huggins, T. (2014) *Country Gender Assessment: Antigua and Barbuda.* Available at: https://www.caribank.org/publications-and-resources/resource-library/gender-assessments/country-gender-assessment-antigua-and-barbuda-2014-volumes-1-and-2

IBRD, IFC and MIA (2015) Country Partnership Strategy for Suriname 2015-2019. Available at: https://documents.worldbank.org/curated/en/753311468311980671/pdf/91238-REPLACEMENT-FILE-Box391426B-PUBLIC-disclosed-4-29-15.pdf

ILO (2018) *Gender at work in the Caribbean Country Report: Antigua and Barbuda.* International Labour Organization. Available at: https://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/---sro-port_of_spain/documents/publication/wcms_651945.pdf

UN (2012) *Employment-to-population ratio.* Indicators for Monitoring the Millennium Development Goals. Available at: https://mdgs.un.org/unsd/mi/wiki/1-5-Employment-to-population-ratio.ashx

UNDP (2017) *Human Development Report St. Lucia.* Available at: https://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/LCA.pdf

UNDP (2018) *Human Development Report Belize.* Available at: hdr.undp.org/sites/default/files/Country-Profiles/BLZ.pdf UNDP (2020) *Human Development Indicators: Antigua and Barbuda.* United Nations Development Programme. Available at: hdr.undp.org/en/countries/profiles/ATG

UNDP (2017) *Human Development Report Trinidad and Tobago.* Available at: hdr.undp.org/sites/default/files/Country-Profiles/TTO.pdf

UNDP (2018) *Human Development Country Profile: St. Kitts and Nevis.* Available at: https://hdr.undp.org/en/countries/profiles/KNA

UNDP (2019a) *Antigua and Barbuda Human Development Report 2019.* United Nations Development Programme. Available at: hdr.undp.org/sites/all/themes/hdr_theme/country-notes/ATG.pdf

UNDP (2019b) *Human Development Country Profile Antigua and Barbuda.* Available at: hdr.undp.org/en/countries/profiles/ATG

UNDP (2019c) *Human Development Report Barbados.* Available at: hdr.undp.org/sites/all/themes/hdr_theme/country-notes/BRB.pdf

UNDP (2019d) *Human Development Report Suriname.* Available at: hdr.undp.org/sites/all/themes/hdr_theme/country-notes/SUR.pdf

UNDP (2019e) *Human Development Report Dominican Republic.* Available at: hdr.undp.org/sites/all/themes/hdr_theme/country-notes/DOM.pdf

UNDP (2019f) *Human Development Report Guyana.* Available at: hdr.undp.org/sites/all/themes/hdr_theme/country-notes/GUY.pdf

UNDP (2019g) *Human Development Report St. Kitts and Nevis.* Available at: hdr.undp.org/sites/all/themes/hdr_theme/country-notes/KNA.pdf

USAID (2020) *Factsheet: Women in Solid Waste Management and Recycling.* Available at: https://www.alnap.org/help-library/womens-economic-empowerment-and-equality-in-solid-waste-management-and-recycling-latin

Ramessar (2020). Interviews with national and local stakeholders

Saint Lucia Department of Economic Development (2020) *Medium Term Development Strategy 2020-2023.* Available at: https://issuu.com/departmentofeconomic/docs/department_of_economic_development_mtds_book_web

Suriname, Ministry of Home Affairs (2019) Gender Vision Policy Document 2021-2035. Available at: https://homeaffairs.gov.sr/media/1058/3-juli-engelse-printversie-gender-vision-policy-document-2021-2035-1.pdf

Suriname, Ministry of Home Affairs (2019) *Gender Plan of Action 2019-2020.* Available at: https://homeaffairs.gov.sr/media/1055/3-juli-engelse-printversie-genderactieplan-2019-2020-1.pdf

Suriname, Planning Bureau Foundation (2017) *Policy Development Plan 2017-2021.* Available at: https://observatorioplanificacion.cepal.org/sites/default/files/plan/files/SurinamePolicy-Development-Plan2017-2021-PartI.pdf

Trinidad and Tobago, Office of the Prime Minister (2018) *National Policy on Gender and Development: A Green Paper*. Available at: www.opm-gca.gov.tt/portals/0/Documents/National%20Gender%20Policy/NATIONAL%20POLICY%20ON%20GENDER%20AND%20DEVELOPMENT.pdf?ver=2018-03-08-134857-323

McFee (2014) *National Gender Policies in the English Speaking Caribbean.* International Development Research Centre.

MoFCG (2016) *2015 Labour Force Survey.* Ministry of Finance and Corporate Governance, Antigua and Barbuda. https://statistics.gov.ag/wp-content/uploads/2017/12/2015-LFS-Preliminary-Release.pdf

MoFCG (2020) *2018 Labour Force Survey Bulletin.* Ministry of Finance and Corporate Governance, Antigua and Barbuda. Available at: https://statistics.gov.ag/wp-content/uploads/2020/03/2018-Labour-Force-Survey-Bulletin.pdf

MoFEA (2005) *Draft National Strategic Plan of Barbados (2005-2025).* Ministry of Finance and Economic Affairs – Barbados. Available at: www.sice.oas.org/ctyindex/brb/plan2005-2025.pdf

MoFEA (2013) *Barbados Medium-Term Growth and Development Strategy (2013-2020).* Ministry of Finance and Economic Affairs – Barbados. Available at: https://www.greengrowthknowledge.org/sites/default/files/downloads/policy-database/BARBADOS%29%20Barbados%20Growth%20and%20Development%20Strategy%20%282013-2020%29.pdf

Appendix 6 – Stakeholder Engagement Plan

Stakeholder engagement plan – ISLANDS Child Template

1. Stakeholders, their relevant interests, and why they are included

GEF ISLANDS aims to collect and analyze stakeholder expectations and concerns as well as to take appropriate responsive measures throughout the Programme in order to ensure that there is enough support for the project. The tables below (Table 1; Table 2) identify social groups and persons that are associated with the project in different ways at all stages. In Table 1, under international stakeholders, "stakeholders affected directly or indirectly by…Project implementation" are stakeholders that will be consulted in some project activities, while "stakeholders that participate in the project" will be engaged in project execution. The roles of national stakeholders are defined in the table.

Table 1: General stakeholder classification

Stakeholders affected directly or indirectly by the outcomes of the Project implementation	Stakeholders that participate in the project directly or indirectly	Stakeholders who are able to influence and decide the outcomes and the manner of the Project implementation or make decisions based on the outputs of the project
International Stakeholders		
International Maritime Organization World Bank CLME+ Project UN World Tourism Organization ReSEMBiD Project Cruise Lines International Association The Ocean Foundation Caribbean Youth Environment Network	International Union for the Conservation of Nature Organization of Eastern Caribbean States CARICOM COTED US Agency for International Development US Environmental Protection Agency Japan International Cooperation Agency Norwegian Embassy in Cuba UK DEFRA OCT Governments DEAL Guadeloupe Shipping companies Cartagena Convention Secretariat	GEF UNEP FAO IDB BCRC-Caribbean CARICOM CROSQ EcoRed Carnival Cruise Line
National Stakeholders		
Project country citizens Project country citizens will benefit from successful project implementation, through: job opportunities throughout life cycle management of chemicals;	Professionals invited to the workshops and meetings for capacity building	Professionals who provide feedback on workshops and meetings.

increased potential to enjoy services offered by the environment; increased environmental awareness.		
Offices of the Attorney General and other legislative bodies	Legal officers invited to workshops and meetings and who will champion the cause to pass legislation and implement roadmaps developed under the project. Legislative Review Committees and Chief Parliamentary Counsels for reviewing legislation and submitting to Parliament.	Permanent Secretaries in Ministries of Legal Affairs Attorney General
Ministries with portfolios of environmental, health, agricultural and tourism matters in project countries	Invited personnel from respective ministries who may be on National Working Groups or invited to workshops/meetings	Chief Technical Officers (e.g. waste management specialists, personnel with responsibility for implementing MEAs) and Permanent Secretaries for these ministries. Officers responsible for drawing up agreements with cruise ships and hotels regarding waste management.
Ministries with portfolios of environmental, health, agricultural and tourism matters in non-project countries in the region. They are likely to use models developed under this project to advance their own chemicals and waste management frameworks.	None	None
Focal Points and Competent Authorities for BRSM Conventions in project countries.	Focal Points and Competent Authorities for BRSM Conventions in project countries	Focal Points and Competent Authorities for BRSM Conventions in project countries
Regulatory Agencies in all project countries	Agencies involved in NWGs	Environmental agencies, solid waste management authorities, pesticides and toxic chemicals inspectorates, bureau of standards, disaster management offices.
Customs and Excise Divisions in all project countries	Customs personnel invited to training workshops	Customs personnel who provide feedback on training workshops (e.g. KAP surverys, feedback forms); customs officers who sit on NWGs.
Waste Management Facilities in all project countries. All companies required to comply with new regulations implemented through work under project.	Companies who enter competitions under IDB.	E-waste and ELV management facilities. Recycling facilities for plastics.
Waste Management Facilities in non-project countries	Foreign companies may be procured to manage waste which cannot be handles via ESM in project countries.	Companies procured to manage waste via ESM.

Chemical Manufacturers in all project countries who used POPs and Hg. All companies required to comply with new regulations implemented through work under project.	Companies who used POPs in their operations, and who use mercury in their operations	Uptake of alternatives by these companies is an indicator of project success. Therefore, the uptake or lack thereof by these companies directly affects metrics which indicate project success.
Chemical Manufacturers in non-project countries Many countries import their chemicals. Should certain activities be successfully implemented as describes in the Alternative Scenarios, some companies may lose customers while other companies who manufacturer safer alternatives will gain clients. Other Caribbean countries may take up the models proposed under this project as there is support from CARICOM and CROSQ for the development of standards, which may affect their chemical manufacturing operations.	None	None
Chemical importers in project countries. If a chemical which they import is restricted or prohibited by national law, this will affect their business.	Companies invited to participate in workshops and meetings through Chambers of Commerce.	This group must be willing to adopt alternatives. Their lobbying against alternatives can hinder progress outlined in roadmaps to adopting alternatives.
Electricity Companies in all project countries. All companies required to comply with new regulations implemented through work under project.	Companies having PCB-contaminated equipment; companies who will provide feedback on current industry practices.	Companies having PCB-contaminated equipment; companies who will provide feedback on current industry practices. Those who take up the BEPs and BATs proposed under the project will serve as an indication of project success.
Mining companies in project countries who use mercury. All companies required to comply with new regulations implemented through work under project.	Companies invited to partake in workshops.	Companies using mercury in operations; companies who will provide feedback on current industry practices. Those who take up the BEPs and BATs proposed under the project will serve as an indication of project success.
Farmers/ Agro-shops in project countries. All farmers and agro shops will be required to comply with new regulations implemented through work under project.	Farmers and shop owners who participate in trainings and who provide feedback on project activities.	

Table 2: Key stakeholders Expectations and Concern Analysis

Stakeholder group	Key expectations	Key concerns	Recommendations for engagement
National Government	• Increased capacity for implementation of BRSM Conventions (technical and financial) and managing chemicals and wastes as per the obligations of the Conventions. • Improved infrastructure to support implementation of Conventions.	• Maintenance of infrastructure following termination of project- lack of financial resources may stymie continuity.	Inclusion on national coordination committee
Waste Management Companies in project countries	• Increased technical and financial capacity within operations. • Increased revenue.	• Costs for implementing BEPs and BATs. • Cost of integrating informal sector into operations.	Members of national working groups; regular consultations through national technical assistants
Chemical Manufacturers (chemicals here also include plastics polystyrene materials)	• Increased technical and financial capacity within operations. • Opportunities for niche market with alternative products.	• Some chemical manufacturers may suffer losses when safer alternatives to harmful chemicals are promoted.	Members of national working groups; regular consultations through national technical assistants
Chemical Importers	• Increased technical and financial capacity within operations. • Opportunities for niche market with alternative products.	• Some chemical manufacturers may suffer losses when safer alternatives to harmful chemicals are promoted.	Members of national working groups; regular consultations through national technical assistants
Companies who use POPs and mercury in their operations	• Opportunities to safely dispose of contaminated waste with limited costs involved.	• Cost and effort required in retrofitting operations to integrate safe alternatives.	Members of national working groups; regular consultations through national technical assistants
Farmers and agro-shops	• Increased capacity regarding integrated pest management and biopesticides • Opportunities for tapping into a niche market (e.g. persons concerned about organic content and pesticide content in food) • Opportunities for reaching foreign markets	• Cost of IPM and biopesticides • Appearance of food for sale (e.g. big, shiny peppers as opposed to small, dull peppers)	Members of national working groups

Gender groups	• Equality at decision-making levels	• Health effects related to exposure to chemicals and waste (e.g. on reproductive health)	Members of national working groups
Indigenous groups	• Increased quality of services offered by environment	• Assistance in managing chemicals and/or waste, if needed	Members of national working groups
Youth groups	• Increased environmental awareness • Sustainability for the future exploitation of environment for economic benefits and leisure	• Loss of certain job opportunities	Members of national working groups
Informal sector	• Opportunities for steady incomes	• Loss of economic revenue if security measures are imposed at landfills and informal workers are not absorbed by a company	Members of national working groups
Co-financing contributors	• ISLANDS activities harmonized with other activities being executed in the region	• Project activities are coordinated with other ongoing activities	Invited as observers to national working group meetings
Waste management companies in non-project countries	• Opportunities for collaboration on knowledge sharing on ESM of waste. • Opportunities for expansion into project countries where capacity increases. • Opportunities for sales where project countries have no capacity/infrastructure for ESM of waste streams.	• Economic viability of sale or investment (quantity may not be feasible; logistics may thwart economics). • Increased capacity and infrastructure in Caribbean countries may decrease opportunities for sales.	Invited as observers to national working group meetings
International private sector partners	• Ensure project activities related to recycling will facilitate involvement of private sector	• Sustainability of regional activities including EPR and Regional Hub activities	Members of national working groups
Inter-governmental organizations	• To be kept informed of project activities	• Project activities are in line with regional priorities	Members of national working groups

2. **Stakeholder roles and responsibilities, and timing of the engagement throughout the project cycle:**

Stakeholders will be engaged through meetings and workshops for trainings throughout the project cycle. Stakeholders at all levels will be able to access the training materials developed under this project through the online repository developed to house the materials. The BCRC-Caribbean will be responsible for establishing and maintaining this repository.

National working groups will be responsible for the review reports developed under the project. Their continued involvement will serve to increase the accuracy of the information being developed and published under the project.

National workshops and regional workshops will include round table discussions with different groups (e.g. GHS training workshops should have round table discussions with Comptrollers to understand the baseline in the first workshop and understand how GHS implementation has changed in by the second workshop). KAP surveys will also be conducted to illustrate the impacts of the project activities. Focus groups for private sector actors will also occur during workshops held throughout the project cycle in order to gain buy-in for project activities. It is important for this to start as early as possible. Updates on the project will also be shared via press releases, workshop reports and newsletters in order to ensure that the project is always seen as relevant and to therefore maintain support from all stakeholders involved.

The table below (Table 3) outlines stakeholder roles and responsibilities, and timing of the engagement throughout the project cycle, as well as detailing level of engagement during the project preparatory (PPG) stage.

Table 3: Outline of regional and national stakeholders engaged in project execution

Stakeholder	Engagement in project preparation	Engagement in child project	Timing (Years 1-5 of Project Execution)
Regional			
CROSQ	Virtual communications and consultations took place regularly throughout PPG phase	Component 1, Output 1.4	1-2
CARICOM	Virtual communications and consultations took place regularly throughout PPG phase	Component 1, Output 1.1-1.4 Component 2, Output 2.1	1-3
Carnival Cruise Line	Virtual communications and consultations took place regularly throughout PPG phase	Component 3, Output 3.3	Throughout
CANTO	Virtual communications and consultations took place regularly throughout PPG phase	Component 3, Output 3.1	3-4
COTED	Virtual communications and consultations took place regularly throughout PPG phase	Component 1. Output 1.3	1-2
National			
National governments	Consulted by national focal points, consultants and/or BCRC-Caribbean throughout the PPG, as well as at inception and validation workshops	All components and outputs	Throughout
Chambers of Commerce	Consulted by national focal points, consultants and/or BCRC-Caribbean throughout the PPG	Component 1, Output 1.5	Throughout

Border control agencies	Consulted by national focal points, consultants and BCRC-Caribbean throughout the PPG	Component 1, Output 1.3 – 1.4 Component 2, Output 2.2	Throughout
Waste management facilities	Consulted by national focal points, consultants and BCRC-Caribbean throughout the PPG	Component 3, Output 3.1 – 3.23	2-4
Chemical manufacturers	Consulted by national focal points, consultants and BCRC-Caribbean throughout the PPG	Component 1, Output 1.5	Throughout
Importers of chemicals and chemical-containing products	Consulted by national focal points, consultants and BCRC-Caribbean throughout the PPG	Component 1, Output 1.5 Component 3, Output 3.1 – 3.23	1-4
Farmers	Consulted by national focal points, consultants and BCRC-Caribbean throughout the PPG	Component 1, Output 1.5, Component 4	Throughout
Fire Services in Saint Lucia	Consulted by national focal points, consultants and BCRC-Caribbean throughout the PPG	Component 1, Output 1.5	1-2
Rural communities	Consultations moved to first part of implementation phase due to COVID-19	Component 2, Output 2.2	2-4
Indigenous communities	Consultations moved to first part of implementation phase due to COVID-19	Component 2, Output 2.2	2-4

3. **The budget for stakeholder engagement:**

20.

The budget for stakeholder engagement is included in the consultants budget line and totals $26,000.

4. **Monitoring stakeholder engagement**

GEF ISLANDS will monitoring stakeholder engagement as part of the monitoring activities of the CCKM project. ISLANDS is employing a harmonized set of indicators for engagement of stakeholders. The indicators in Table 9 are those proposed by the child project and are expected to be considered by the CCKM project.

Table 4: Monitoring stakeholder engagement

Proposed parameter	Reporting responsibility
No. of stakeholders attending national coordinating committee meeting (disaggregated by gender)	National technical assistant to Project Coordinator
No. of consultation meetings convened	National technical assistant to Project Coordinator
No. of international stakeholders attending national working groups (disaggregated by gender)	Project coordinator

Appendix 7 – SRIF

Safeguard Risk Identification Form (SRIF)

Section 1: Project Overview

Identification	GEF ID 10279 UNEP IMIS: 01727
Project Title	GEF ISLANDS —Implementing Sustainable Low- and Non-Chemical Development in Small Island Developing States. Caribbean Child project
Managing Division	Economy Division
Type/Location	Regional
Region	Latin America and the Caribbean
List Countries	Antigua and Barbuda; Barbados; Belize; Dominican Republic; Guyana; Saint Kitts and Nevis; Saint Lucia; Suriname; Trinidad and Tobago
Project Description	Under the Programming Directions for the 7th funding cycle of the Global Environment Facility (GEF 7), a specific allocation was made for Small Island Developing States (SIDS) for chemicals and waste management. The programme entitled ISLANDS – Implementing Sustainable Low and Non-Chemical Development in SIDS was approved by the GEF Council in June 2019. This global programme seeks to address the sound management of chemicals and waste through strengthening the capacity of sub-national, national and regional institutions, strengthening the enabling policy and regulatory framework in these countries and unlocking resources to implement sound management of chemicals and waste. The ISLANDS programmatic framework has been designed to ensure that lessons and knowledge from each of the child projects are captured and shared among SIDS globally. The aim is to facilitate the replication and scale-up of initiatives based on lessons learnt, the demonstration of best practices and fostering increased south-south cooperation. The ISLANDS programme will support 30 SIDS, including 12 Caribbean nations of which 9 nations form the child project addressed in this review note. SIDS not included in the ISLANDS programme will be informed of the results of the programme. This project is co-implemented between UNEP and FAO

Relevant Subprogrammes	—SP5
Estimated duration of project	60 months
Estimated cost of the project	$11 million ($8mil under UNEP and $3mil under FAO)
Name of the UNEP project manager responsible	Ludovic Bernaudat
Funding Source(s)	GEF Trust Fund
Executing/Implementing partner(s)	Executing Partner: Basel Convention Regional Centre Caribbean Implementing Partners: FAO

SRIF submission version	*If it is not the first time, mark the time of your previous submission* *Concept Review [ ]* *During Project development [ ]* *PRC [ ]* *Other _____*
Safeguard-related reports prepared so far *(Please attach the documents or provide the hyperlinks)*	• *Feasibility report [ ]* • *Gender Action Plan [x]* • *Stakeholder Engagement Plan [x]* • *Safeguard risk assessment or impact assessment [x]* • *ES Management Plan or Framework [ ]* • *Indigenous Peoples Plan [ ]* • *Cultural Heritage Plan [ ]* • *Others* _____

Section 2: Safeguards Risk Summary

A. Summary of the Safeguards Risk Triggered

Safeguard Standards Triggered by the Project	Impact of Risk[1] (1-5)	Probability of Risk (1-5)	Significance of Risk (L, M, H) *Please refer to the matrix below*
SS 1: Biodiversity, Ecosystems and Sustainable Natural Resource Management	1	1	L

[1] Refer to UNEP Environmental and Social Sustainability Framework (ESSF): Implementation Guidance Note to assign values to the Impact of Risk and the Probability of Risk to determine the overall significance of Risk (Low, Moderate or High).

SS 2: Climate Change and Disaster Risks	2	2	L
SS 3: Pollution Prevention and Resource Efficiency	3	2	M
SS 4: Community Health, Safety and Security	2	3	M
SS 5: Cultural Heritage	1	1	L
SS 6: Displacement and Involuntary Resettlement	1	1	L
SS 7: Indigenous Peoples	2	1	L
SS 8: Labor and working conditions	2	3	M

B. ESS Risk Level[2] -

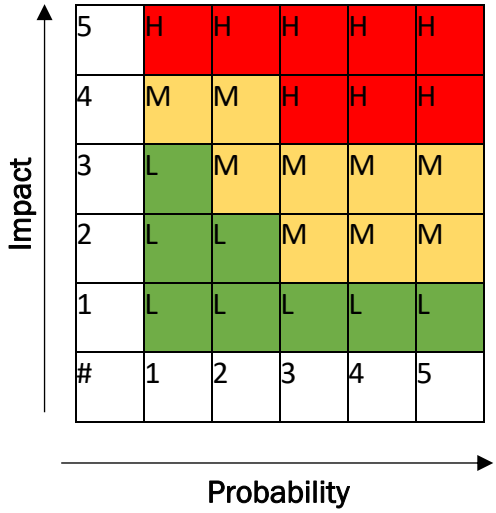
Refer to the UNEP ESSF (Chapter IV) and the UNEP's ESSF Guidelines.

Low risk ☐

Moderate risk [X]

High risk ☐

Additional information required ☐



C. Development of ESS Review Note and Screening Decision

Prepared by

Name: Miguel van der Velden Date: October 8, 2020

Screening review by

Name: Yunae Yi Date: 21 November 2020

[2] **Low risk**: Negative impacts minimal or negligible: no further study or impact management required.
Moderate risk: Potential negative impacts, but limited in scale, not unprecedented or irreversible and generally limited to programme/project area; impacts amenable to management using standard mitigation measures; limited environmental or social analysis may be required to develop a Environmental and Social Management Plan (ESMP). Straightforward application of good practice may be sufficient without additional study.
High risk: Potential for significant negative impacts (e.g. irreversible, unprecedented, cumulative, significant stakeholder concerns); Environmental and Social Impact Assessment (ESIA) (or Strategic Environmental and Social Assessment (SESA)) including a full impact assessment may be required, followed by an effective comprehensive safeguard management plan.

Cleared[3] Signature 

D. Safeguard Review Summary (by the safeguard team)

The project is likely to be in the moderate risk category. Safeguard standards 3, 4 and 8 would require environmental and social management plan based on the ES assessment. Project level grievance mechanism as well as the UNEP Stakeholder Response Mechanism should be developed and disclosed to the public.

E. Safeguard Recommendations (by the safeguard team)

- No specific safeguard action required ☐
- Take Good Practice approach[4] ☐
- Carry out further assessments (e.g., site visits, experts' inputs, consult affected communities, etc.) ■
- Carry out impact assessments (by relevant experts) in the risk areas and develop management framework/plan ☐
- Consult Safeguards Advisor early during the full project development phase ☐
- Other _____

Section 3: Safeguard Risk Checklist

Screening checklist	Y/N/ Maybe	Justification for the response (please provide answers to each question)
Guiding Principles (these questions should be considered during the project development phase)		

[3] This is signed only for the full projects latest by the PRC time.

[4] Good practice approach: For most low-moderate risk projects, good practice approach may be sufficient. In that case, no separate management plan is necessary. Instead, the project document demonstrates safeguard management approach in the project activities, budget, risks management, stakeholder engagement or/and monitoring segments of the project document to avoid or minimize the identified potential risks without preparing a separate safeguard management plan.

GP1	Has the project analyzed and stated those who are interested and may be affected positively or negatively around the project activities, approaches or results?	Y	A wide range of stakeholders have been analyzed and other interested parties and beneficiaries have been stated.
GP2	Has the project identified and engaged vulnerable, marginalized people, including disabled people, through the informed, inclusive, transparent and equal manner on potential positive or negative implication of the proposed approach and their roles in the project implementation?	Y	The Programme has approached women's groups and developed a Gender Action Plan. National guidelines/processes on engagement of Indigenous and other rural communities and organizations have been analyzed and will be used as reference. ISLANDS programme activities will not lead to displacement and/or involuntary resettlement. However, the Caribbean region has a high prevalence of informal recyclers and the ISLANDS programme may have a notable effect on informal recyclers' livelihoods due to the improvement and possibly, formalization of certain chemicals and waste management practices. Informal recyclers will be included in any activities that may affect their livelihoods as relevant stakeholders and the programme will provide adequate alternatives if informal recycling activities are halted or otherwise affected by programme activities.
GP3	Have local communities or individuals raised human rights or gender equality concerns regarding the project (e.g. during the stakeholder engagement process, grievance processes, public statements)?	N	Local communities are expected to gain from the Programme in terms of environmental and human health and even economic benefits. A Gender Action Plan has been developed to ensure gender equality concerns are tackled appropriately, if concerns are raised.
GP4	Does the proposed project consider gender-balanced representation in the design and implementation?	Y	Consideration has been given to gender-balanced representation in the design and implementation.
GP5	Did the proposed project analyze relevant gender issues and develop a gender responsive project approach?	Y	Chemicals and wastes tend to affect men and women differently. Even if chemicals and wastes reach and expose populations equally, factors such as: (i) poverty and socioeconomic status, (ii) gender-based and customary norms, (iii) health access and equity, and (iv) overall representation in decision-making processes and management policies relating to chemicals and wastes, determine the extent of repercussions and ramifications of these on population subgroups. For example, in many societies women are expected to fulfill roles of unpaid domestic work, including care of ill family members. In this way, chemical exposures and health effects (whether of men or women) can add to the existing and entrenched "time poverty" (i.e.

			the time required for non-productive or unpaid labour that limit women's opportunities to participate in remunerative economic activities), thus further entrenching gender inequality. As such, the programme did develop a gender analysis and will take a gender mainstreaming approach to ensure child project activities, either: • do not reinforce existing gender inequalities (that is, are Gender Neutral); or • attempt to redress existing gender inequalities (that is, are Gender Sensitive); or • attempt to re-define women and men's gender roles and relations (Gender Positive / Transformative). This work will be continued by the CCKM coordination project. The CCKM project uses the gender information from this child project and other ISLANDS child projects to develop a programmatic gender action plan to ensure the programme is delivered in a gender responsive manner.
GP6	Does the project include a project-specific grievance redress mechanism? If yes, state the specific location of such information.	Y	A grievance redress mechanism will be built into the ISLANDS programme website, which will include specific contact details (e-mail address and phone number) where persons can raise grievances.
GP7	Will or did the project disclose project information, including the safeguard documents? If yes, please list all the webpages where the information is (or will be) disclosed.	Y	All documents will be available on the Programme knowledge platform
GP8	Were the stakeholders (including affected communities) informed of the projects and grievance redress mechanism? If yes, describe how they were informed.	Y	Stakeholders will be informed of the grievance redress mechanism situated on the ISLANDS programme website.
GP9	Does the project consider potential negative impacts from short-term net gain to the local communities or countries at the risk of generating long-term social or economic burden?[5]	Y	All activities will follow a sustainable economic model that should make activities financially feasible in the long term.

[5]For example, a project may consider investing incommercial shrimp farm by clearing the nearby mangrove forest to improve the livelihood of the coastal community. However, long term economic benefit from the shrip farm may be significantly lower than the mangroves if we consider full costs factoring safety from storms, soil protection, water quality, biodiversity and so on.

GP10 Does the project consider potential partial economic benefits while excluding marginalized or vulnerable groups, including women in poverty?	N	Vulnerable groups related to chemicals and waste management (e.g. informal recyclers, waste pickers) will be informed, trained and involved in project activities to ensure equal benefits. More specifically, vulnerable groups will be approached as relevant stakeholders and collaborated with to ensure full involvement in demonstration activities. If their livelihoods are affected, for example through the formalisation of jobs, they will be provided affordable alternatives. In this way tangible benefits are expected beyond the executing timeline.
Safeguard Standard 1: Biodiversity, Ecosystems and Sustainable Natural Resource Management		
Would the project potentially involve or lead to:		
1.1 conversion or degradation of habitats (including modified habitat, natural habitat and critical natural habitat), or losses and threats to biodiversity and/or ecosystems and ecosystem services?	N	
1.2 adverse impacts specifically to habitats that are legally protected, officially proposed for protection, or recognized as protected by traditional local communities and/or authoritative sources (e.g. National Park, Nature Conservancy, Indigenous Community Conserved Area, (ICCA); etc.)?	N	
1.3 conversion or degradation of habitats that are identified by authoritative sources for their high conservation and biodiversity value?	N	
1.4 activities that are not legally permitted or are inconsistent with any officially recognized management plans for the area?	N	
1.5 risks to endangered species (e.g. reduction, encroachment on habitat)?	N	
1.6 activities that may result in soil erosion, deterioration and/or land degradation?	N	
1.7 reduced quality or quantity of ground water or water in rivers, ponds, lakes, other wetlands?	N	The quality of water in rivers, ponds, lakes or other wetlands is expected to be improved in the long term due to the expected improvements in management of chemicals and waste. For example, decrease in size of landfills will lead to better drainage. Moreover, any waste management technologies used by, for or through the ISLANDS programme will not be water intensive.
1.8 reforestation, plantation development and/or forest harvesting?	N	
1.9 support for agricultural production, animal/fish production and harvesting	N	
1.10 introduction or utilization of any invasive alien species of flora and fauna, whether accidental or intentional?	N	

1.11	handling or utilization of genetically modified organisms?	N	
1.12	collection and utilization of genetic resources?	N	
Safeguard Standard 2: Climate Change and Disaster Risks			
Would the project potentially involve or lead to:			
2.1	improving resilience against potential climate change impact beyond the project intervention period?	Y	Poor waste management can increase the vulnerability to environmental issues and decrease resilience to climate change impacts. Specifically, poor waste management can lead to environmental degradation which can in turn directly lead to disasters or worsen the effects of natural hazards. Therefore, it is expected that sound waste management practices implemented through the ISLANDS Programme will lead to increased resilience against climate change impacts.
2.2	areas subject to (natural) hazards such as earthquakes, floods, landslides, severe winds, storm surges, tsunami or volcanic eruptions?	Y	The Caribbean region is prone to natural hazards, in particular hurricanes but also earthquakes, floods and volcanic activity. The ISLANDS Programme will incorporate adaptive measures when developing activities, with an eye on local characteristics. For example, considerations will be made for changes in the project execution timeline to minimise the probability of natural disasters affecting the project timeline, thereby delaying project execution. Resilience to these external factors will be factored in the solutions introduced by the project.
2.3	outputs and outcomes sensitive or vulnerable to potential impacts of climate change (e.g. changes in precipitation, temperature, salinity, extreme events)?	N	
2.4	direct or indirect increases in vulnerability to climate change impacts or disasters now or in the future (also known as maladaptive practices)?	N	
2.5	increases of greenhouse gas emissions, black carbon emissions or other drivers of climate change?	N	Projects implemented or supported by the ISLANDS Programme in participant countries are unlikely to cause significant generation of GHG emissions. The programme can contribute to improvement (decreases) in greenhouse gas emissions under end-of-life vehicles management, as vehicle emissions would be considered under the control of imports. The ISLANDS Programme will not encourage the establishment of waste incinerator facilities or similar facilities, but if a participant country decides to establish a waste incinerator facility or similar facility, the Programme could assist to ensure best available techniques and best environmental practices are used. Renewable energy sources will be favoured.

2.6 capture of greenhouse emissions, resource-efficient and low carbon development, other measures for mitigating climate change	N	
Safeguard Standard 3: Pollution Prevention and Resource Efficiency		
Would the project potentially involve or lead to:		
3.1 the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	N	One of the ISLANDS Programme's goals is to prevent the release of pollutants to air, water and/or soil.
3.2 the generation of waste (both hazardous and non-hazardous)?	N	One of the ISLANDS Programme's main goals is to prevent the generation of wastes in participant countries, especially hazardous waste that cannot be reused, recycled or disposed of in an environmentally sound manner.
3.3 the manufacture, trade, release, and/or use of hazardous materials and/or chemicals?	Y	The ISLANDS Programme will assist participating countries in managing the use of, storage and disposal of hazardous chemicals, including pesticides, using best available techniques and best environmental practices.
3.4 the use of chemicals or materials subject to international bans or phase-outs? (e.g. DDT, PCBs and other chemicals listed in international conventions such as the Montreal Protocol, Minamata Convention, Basel Convention, Rotterdam Convention, Stockholm Convention)	N	The ISLANDS Programme will reinforce the capacity of countries to comply with the phase-out dates under the Minamata and Stockholm Conventions and prevent the release of chemicals to the environment.
3.5 the application of pesticides or fertilizers that may have a negative effect on the environment (including non-target species) or human health?	N	One of the ISLANDS Programme's goals is to reduce the use of highly hazardous pesticides and introduce more sustainable agricultural practices. This component is led by FAO.
3.6 significant consumption of energy, water, or other material inputs?	N	Projects implemented or supported by the ISLANDS Programme in participant countries are unlikely to consume or cause significant consumption of water, energy or other resources. The ISLANDS Programme will not encourage the establishment of waste incinerator facilities or similar facilities, as establishment of these facilities in small countries may lead to considerable emissions. However, if a participant country decides to establish a waste incinerator facility or similar facility nonetheless (separate from the ISLANDS programme), the Programme could assist to ensure best available techniques and best environmental practices are used.
Safeguard Standard 4: Community Health, Safety and Security		
Would the project potentially involve or lead to:		
4.1 the design, construction, operation and/or decommissioning of structural elements such as new buildings or structures (including those accessed by the public)?	N	

4.2	air pollution, noise, vibration, traffic, physical hazards, water runoff?	N	The ISLANDS programme will not fund the establishment of any infrastructure that could lead to air pollution, noise pollution, vibration, traffic or water runoff. Physical hazards such as due to the handling of hazardous wastes will be entirely mitigated through the provision of protective gear, training programmes, and regular monitoring that safety measures are being followed.
4.3	exposure to water-borne or other vector-borne diseases (e.g. temporary breeding habitats), communicable or noncommunicable diseases?	N	
4.4	adverse impacts on natural resources and/or ecosystem services relevant to the communities' health and safety (e.g. food, surface water purification, natural buffers from flooding)?	N	
4.5	transport, storage use and/or disposal of hazardous or dangerous materials (e.g. fuel, explosives, other chemicals that may cause an emergency event)?	Y	All waste management practices implemented or supported by the ISLANDS Programme will take into account reduction of risk to human health and the environment and BAT/BEP will be applied with wastes that need to be transported.
4.6	engagement of security personnel to support project activities (e.g. protection of property or personnel, patrolling of protected areas)?	N	
4.7	an influx of workers to the project area or security personnel (e.g. police, military, other)?	N	
Safeguard Standard 5: Cultural Heritage			
Would the project potentially involve or lead to:			
5.1	activities adjacent to or within a Cultural Heritage site?	N	
5.2	adverse impacts to sites, structures or objects with historical, cultural, artistic, traditional or religious values or to intangible forms of cultural heritage (e.g. knowledge, innovations, practices)?	N	
5.3	utilization of Cultural Heritage for commercial or other purposes (e.g. use of objects, practices, traditional knowledge, tourism)?	N	
5.4	alterations to landscapes and natural features with cultural significance?	N	
5.5	significant land clearing, demolitions, excavations, flooding?	N	
5.6 identification and protection of cultural heritage sites or intangible forms of cultural heritage		N/A	
Safeguard Standard 6: Displacement and Involuntary Resettlement			
Would the project potentially involve or lead to:			
6.1	full or partial physical displacement or relocation of people (whether temporary or permanent)?	N	
6.2	economic displacement (e.g. loss of assets or access to assets affecting for example crops, businesses, income generation sources)?	N	

6.2	involuntary restrictions on land/water use that deny a community the use of resources to which they have traditional or recognizable use rights?	N	
6.3	risk of forced evictions?	N	
6.4	changes in land tenure arrangements, including communal and/or customary/traditional land tenure patterns (including temporary/permanent loss of land)?	N	
Safeguard Standard 7: Indigenous Peoples			
Would the project potentially involve or lead to:			
7.1	areas where indigenous peoples are present or uncontacted or isolated indigenous peoples inhabit or where it is believed these peoples may inhabit?	Y	Belize, Guyana and Suriname have significant Indigenous populations. In the case that Indigenous peoples and/or rural communities are present in the area of influence of waste management projects implemented or supported by the ISLANDS Programme in these countries, the ISLANDS Programme will ensure that communications are established with representatives and that the relevant Indigenous peoples and communities will benefit from the improved management of chemicals and waste under these projects.
7.2	activities located on lands and territories claimed by indigenous peoples?	N	Indigenous communities will be actively engaged through meetings with Indigenous leaders. Where relevant Indigenous communities request assistance in managing chemicals and/or waste, the ISLANDS programme will support accordingly.
7.3	impacts to the human rights of indigenous peoples or to the lands, territories and resources claimed by them?	N	
7.4	the utilization and/or commercial development of natural resources on lands and territories claimed by indigenous peoples?	N	
7.5	adverse effects on the development priorities, decision making mechanisms, and forms of self-government of indigenous peoples as defined by them?	N	
7.6	risks to the traditional livelihoods, physical and cultural survival of indigenous peoples?	N	
7.7	impacts on the Cultural Heritage of indigenous peoples, including through the commercialization or use of their traditional knowledge and practices?	N	
Safeguard Standard 8: Labor and working conditions			
8.1	Will the proposed project involve hiring or contracting project staff ?	Y	The Executing Agency will be responsible for hiring project staff. As per PCA conditions, UNEP guiding principles on selection process and labour and working conditions will have to be adopted. The EA being an intergovernmental organisation under the BRS secretariat, this rules are already integrated in their operations.
If the answer to 8.1 is yes, would the project potentially involve or lead to:		N	

8.2 working conditions that do not meet national labour laws or international commitments (e.g. ILO conventions)?	N	
8.3 the use of forced labor and child labor?	N	
8.4 occupational health and safety risks (including violence and harassment)?	N	
8.5 the increase of local or regional unemployment?	N	
8.6 suppliers of goods and services who may have high risk of significant safety issues related to their own workers?	N	
8.7 unequal working opportunities and conditions for women and men	N	

Appendix 7 - COVID19 additional questions

UNEP's ESSF: Supplementary guidance to respond to COVID-19

In line with the UN Framework for the immediate socio-economic response to COVID-19 (April 2020), this paper provides additional safeguard measures to the recently approved UNEP Environmental and Social Sustainability Framework (ESSF) for UNEP's proper response during the COVID-19 and COVID-19 recovery phases. We encourage UNEP project managers to examine any changes in the project context as well as potential risks that may be exacerbated by the project activities using this tool. This document is to guide identify and manage potential environmental and social risks in projects in the context of COVID-19.[49]

CHECKLIST FOR IDENTIFYING AND MANAGING ENVIRONMENTAL AND SOCIAL RISKS IN PROJECTS IN CONTEXT OF COVID-19 PANDEMIC

Human Rights

Potential heightened risks to/from project due to COVID-19	Possible risk management measures and adjustments to project
Is there a heightened risk of vulnerability of marginalized groups and individuals in project approach due to the COVID-19 outbreak (e.g. lack of access to resources, information, health services)?	Vulnerable groups related to chemicals and waste management (e.g. informal recyclers, waste pickers) will be informed, trained and involved in project activities to ensure equal benefits. These same groups will also be given priority assistance in project activities and any risk communication efforts will primarily target vulnerable and marginalized groups and individuals in project areas.
Are there risks of discrimination and stigmatization against perceived virus carriers or other groups in project activities?	Non-discrimination policies will be reinforced in all project activities and the collection and sharing of accurate and accessible information regarding COVID-19 in project areas, especially regarding vulnerable individuals (e.g. elderly people, people with pre-conditions) and groups will be promoted. Use simple language and avoid clinical terms. Stakeholders, including country representatives, have been informed of possible project risks, including COVID-19. This was done through email updates, inception meetings, review and update calls and a validation workshop. They will continue to be informed of risks throughout the project execution phase, including risks posed by COVID-19. Stakeholder engagement activities have already largely been moved online to facilitate ongoing communication under restricted travel and stakeholders were assisted in their transition to online communication where needed.
Have emergency declarations or other COVID-19 restrictions limited human rights (e.g. freedom of expression, access to information) in project areas?	
Are there increased risks of privacy violations to project beneficiaries from	There are no increased risks of privacy violations to project beneficiaries from COVID-19 response activities and surveillance under the ISLANDS programme.

[49] This Guide is adapted from the draft "UN EMG Model Approach to Environmental and Social Standards for UN Programming-COVID19 Supplementary Guidance" for the UNEP projects.

COVID-19 response activities and surveillance?	
Does the COVID-19 outbreak present particular risks to indigenous peoples in project areas?	No waste management projects implemented or supported by the ISLANDS Programme will be located on lands and territories claimed by Indigenous peoples, unless assistance in managing chemicals and/or waste is requested by the relevant Indigenous communities. In the case that Indigenous peoples and/or rural communities are present in the area of influence of waste management projects implemented or supported by the ISLANDS Programme in these countries, the ISLANDS Programme will ensure that communications are established with representatives and that the relevant Indigenous peoples and communities will benefit from the improved management of chemicals and waste under these projects. Moreover, in the case of collaboration with Indigenous and/or rural communities, COVID-19 risks will be communicated clearly and measures taken accordingly. Specifically, Indigenous peoples' distinct concepts of health and diet will be taken into account, controls of entry to Indigenous territories will be supported in consultation and cooperation with the concerned Indigenous communities, and any decisions made by Indigenous communities to isolate themselves in the face of the pandemic will be respected.

Gender Equality and Women's Empowerment

Potential heightened risks to/from project due to COVID-19	21. Possible risk management measures and adjustments to project
Is there a risk that the virus outbreak and/or response regulations would increase gender inequality in access to project resources and benefits?	The ISLANDS Programme gender analysis will be reviewed and, if needed, updated to account for gender differentiated impacts of the virus and response regulations.
Is there a heightened risk of gender-based violence in project area due to COVID-19 response and regulations?	The ISLANDS Programme gender action plan will be reviewed and, if needed, updated to include prevention and response plans to minimize gender-based violence due to COVID-19 responses and regulations in collaboration with local institutions such as faith groups, women groups, schools, etc.

Stakeholder Engagement and Accountability/Operational and Procedural challenges

Potential heightened risks to/from project due to COVID-19	Possible risk management measures and adjustments to project
Are there planned meetings risking spread of the virus?	All engagement with project stakeholders have been moved to digital technologies since early 2020. Stakeholders have been assisted to ensure continued access to information and communications regarding the ISLANDS Programme.
Do restrictions on group meetings limit or rule out certain project activities?	Project components and activities that require in-person group meetings have been postponed until further notice. It is expected that the ISLANDS Programme will be able to continue as planned when travel restrictions are eased without increased risk of spreading the virus.

Do virus-related restrictions limit ability to share information with stakeholders?	If activities must be moved online during the execution phase of the ISLANDS Programme, action plans will be made for engagement of relevant vulnerable and marginalized groups with restricted access to forms of communication and media, e.g. Indigenous and rural communities.
Do limitations on social interaction impede stakeholder access to GRM?	Stakeholders have continued access to GRM.
Is the GRM able to continue to operate (e.g. lock-down, staff absence, call center closure)?	The GRM is able to continue to operate.
Is there a heightened risk of retaliation against stakeholders who complain about project activities that may exacerbate virus risks?	The project will ensure that all local team members understand that there is zero tolerance for any retaliatory actions against project stakeholders. The project will confirm that stakeholders are informed about Agency-level complaints mechanisms in addition to local GRM.
Will project be redesigned and/or postponed until the virus risk subsides?	All project deadlines were extended by six (6) months. Though the programme will not be redesigned, it has been reviewed to ensure Covid-19 risks and measures, as well as additional waste streams that could be tackled in the programme such as medical waste, are taken into account.
Is it still possible to undertake social and environmental assessments in collaboration with stakeholders (e.g. restricted field visits, cancellation of household surveys, no public meetings, etc.)?	Where possible, existing data will be used to replace in-person social and environmental assessments that could put persons or communities at risk. Where in-person assessments are needed, in-country recruitment will be prioritized to minimize risks and Covid-19 risks will be clearly communicated and any necessary mitigation measures taken.
Does the spread of the virus limit the ability to monitor project risks and implementation of mitigation measures?	Where possible, proxy data will be used to monitor project risks. Remote monitoring will also be consider. Trusted groups in project areas will be utilized to provide feedback on project execution. It is expected that the spread of the virus will not limit the ability to monitor project risks or implement mitigation measures.

Risks and impacts related to environment, biodiversity, climate change and disasters

Potential heightened risks to/from project due to COVID-19	Possible risk management measures and adjustments to project
Is there a risk of soil/water contamination from discarded PPE and use of disinfectants in project areas?	The ISLANDS alternative scenario is being adapted to ensure new waste streams from the effects of COVID-19, such as certain streams of medical waste, are managed soundly.
Are partner governments relaxing environmental regulations and/or enforcement in the context of their COVID-19 response?	Financial pressure caused by the pandemic could potentially cause governments to relax environmental regulations and/or enforcement, thereby increasing vulnerability to climate hazards in project areas. Governments will be advised on how they can uphold their own environmental and social safeguards in the chemicals and waste management context.

Will impacts from the pandemic increase vulnerability to climate hazards in project areas?	Financial pressure caused by the pandemic could potentially cause governments to relax environmental regulations and/or enforcement, thereby increasing vulnerability to climate hazards in project areas. If this is considered a particular risk in the chemicals and waste management sector, targeting and assistance will be reconsidered to address increased vulnerability.

Labor and Working Conditions/Community Health, Safety and Security

Potential heightened risks to/from project due to COVID-19	Possible risk management measures and adjustments to project
Is there a risk that project-supported workers would increase their risk of virus exposure (e.g. project labor camps, construction sites, worker housing)?	The ISLANDS programme will not finance new infrastructure and therefore there is not expected to be an increased risk to virus exposure for workers. Project activities will include especially coordination and capacity building efforts and therefore are expected to be low-risk.
Do project activities involve use and disposal of potentially contaminated PPE or other health care waste?	Yes, disposable PPE will be used in chemicals and waste disposal activities in the Caribbean. However, PPE will not be used in scenarios specific to COVID-19 or in any other scenarios that could increase risk of infections. If health care waste is used or disposed of as part of the programme, best practices will be followed for safely managing health care waste, including assigning responsibility and resources to ensure waste is collected safely in designated containers and bags, treated, and safely disposed of or treated. All who handle health care waste will wear appropriate PPE.
Is there a risk that use and storage of disinfectants and sanitizers may lead to health and safety risks?	Proper handling and storage of disinfectant chemicals, including prevention of fire hazards, leaks and contamination, will be ensured as required.
Are project activities being carried out in areas where military and security personnel are being utilized to manage the COVID-19 response (e.g. public health emergency)?	Project activities are not being carried out in areas where military and security personnel are being utilized to manage the COVID-19 response.
Is there a potential for social unrest that may threaten project-supported workers?	Social unrest in any of the participating countries due to the effects of COVID-19 is deemed unlikely at this stage.

Appendix 8 – Risk Mitigation Plan

GEF ISLANDS 10279
Risk Mitigation Plan

This document will serve to support the impact, probability and risk values identified in the UNEP Safeguard Risk Identification Form (SRIF) for the GEF ISLANDS Caribbean child project.

1. Introduction to the ISLANDS Programme

Under the Programming Directions for the 7th funding cycle of the Global Environment Facility (GEF 7), a specific allocation was made for Least Developed Countries (LDCs) and Small Island Developing States (SIDS) for chemicals and waste management. The programme entitled ISLANDS – Implementing Sustainable Low and Non-Chemical Development in SIDS was approved by the GEF Council in June 2019, and a subsequent allocation was approved for three (3) additional Caribbean countries, Bahamas, Cuba and Dominica, in December 2019.

This global programme seeks to address the sound management of chemicals and waste through strengthening the capacity of sub-national, national and regional institutions, strengthening the enabling policy and regulatory framework in these countries and unlocking resources to implement sound management of chemicals and waste. This will be achieved by:

- Implementing Sustainable Low and Non-Chemical Development Strategies in SIDS and LDCs;
- Promoting Best Available Techniques (BAT) and Best Environmental Practices (BEP) to reduce mercury and Unintentional Persistent Organic Pollutants (UPOPs) releases from sectors relevant to the Minamata and Stockholm Conventions in SIDS and LDCs;
- Promoting cleaner health-care waste management based on the lessons learnt from GEF-funded healthcare waste projects to reduce UPOPs and mercury releases
- Strengthening the management system for e-waste, addressing all stages of the life cycle (i.e. acquisition of raw materials, design, production, collection, transportation and recycling) in SIDS and LDCs;
- Phasing out of mercury-containing products;
- Undertaking gender mainstreaming and project monitoring and evaluation; and
- Developing a strategy to ensure that technical assistance and investments are firmly linked to enhance countries' ability to deal with the management of POPs and mercury in a sustainable manner.

This ISLANDS programme covers three (3) geographical regions including the Caribbean, Indian Ocean and Pacific Islands and is being implemented by the United Nations Environment Programme (UNEP), The United Nations Development Programme (UNDP), The United Nations Food and Agricultural Organisation (FAO) and the InterAmerican Development Bank (IDB).

The ISLANDS programmatic framework has been designed to ensure that lessons and knowledge from each of the child projects are captured and shared among SIDS globally. The aim is to facilitate the replication and scale-up of initiatives based on lessons learnt, the demonstration of best practices and fostering increased south-south cooperation. The

ISLANDS programme will support 30 SIDS, including 12 Caribbean nations. SIDS not included in the ISLANDS programme will be informed of the results of the programme. The SIDS covered in this child project are: Antigua and Barbuda; Barbados; Belize; Dominican Republic; Guyana; Saint Kitts and Nevis; Saint Lucia; Suriname; and Trinidad and Tobago.

2. Introduction to the SRIF

UNEP officially adopted the Environmental and Social Sustainability Framework (ESSF) on 31 December 2014. The ESSF was revised in February 2020. UNEP's Safeguards approach provides a holistic framework for the identification, assessment and management of a project's potential environmental, social and economic risks at each stage of the project cycle. Application of the Framework will help UNEP Project Managers avoid—or minimize where avoidance is not possible—potential associated negative environmental, social and economic impacts that might otherwise arise as unintended consequences of their projects. It is expected that many UNEP projects will not significantly change due to application of the safeguard requirements.

Review Notes are generated using a template available through UNEP's Project Information and Management System. The template includes a set of screening questions based on the eight Safeguard Standards presented in the Framework. It is essentially a checklist used to review the potential environmental, social and economic safeguard impacts of projects and to determine whether projects will trigger relevant safeguard policies. The eight Safeguard Standards presented in the Framework are as follows:

SS1: Biodiversity, Ecosystems and Sustainable Natural Resource Management

This safeguard aims to: preserve the integrity of ecosystems; conserve biodiversity; maintain and enhance the benefits of ecosystem services; promote nature-based solutions (NBS) wherever feasible or possible; promote sustainable management and use of living natural resources; ensure the fair and equitable sharing of the benefits from the utilization of genetic resources; and respect, preserve, and maintain knowledge, innovations and practices of indigenous peoples and local communities relevant for the conservation and sustainable use of biodiversity and their customary use of biological resources.

SS2: Climate Change and Disaster Risks

This safeguard aims to: strengthen resilience of communities to address risks of climate change impacts and disasters; ensure programmes and projects integrate climate change adaptation considerations and does not exacerbate vulnerability of communities to climate change impacts or disaster risks; and minimize programme and project-related greenhouse gas (GHG) emissions and intensity and maintain carbon sinks.

SS3: Pollution Prevention and Resource Efficiency

This safeguard aims to: avoid and minimize adverse impacts on human health and the environment from pollution and the unsound management of chemicals and wastes; promote more sustainable and efficient use of resources, including circular approaches and practices of using energy, land and water; avoid or minimize programme or project-related emissions of short and long-lived climate pollutants, unintentionally produced persistent organic pollutants, and ozone-depleting substances; avoid or minimize generation of hazardous and non-hazardous waste, and promote a human rights-based approach to the environmentally sound management and disposal of hazardous substances and wastes; avoid or minimize the generation of plastic waste in view of reducing the prevalence of marine plastic litter and microplastics in the marine environment; and promote safe, effective, and environmentally sound pest management.

SS4: Community Health, Safety and Security

This safeguard aims to: anticipate and avoid adverse impacts on health and safety of affected communities during the programme or project life cycle, from both routine and non-routine circumstances; ensure quality and safety in the design and construction of programme or project-related infrastructure, preventing and minimizing potential safety risks and accidents; avoid or minimize community exposure to disaster risks, diseases and hazardous materials

associated with programme or project activities; ensure the safeguarding of personnel and property minimizes risks to communities and is carried out in accordance with international human rights standards and principles; and have in place effective measures to address emergency events, whether human-made or natural hazards.

SS5: Cultural Heritage

This safeguard aims to: protect cultural heritage from damage, inappropriate alteration, disruption, removal or misuse and support its preservation and safeguarding and protection; ensure equitable sharing of benefits generated from integration and utilization of cultural heritage in programme or project; and promote meaningful consultation with stakeholders regarding preservation, protection, utilization and management of cultural heritage.

SS6: Displacement and Involuntary Resettlement

This safeguard aims to: avoid, or where avoidance is not possible, minimize and mitigate adverse impacts from land or resource acquisition or restrictions on land or resource use; prohibit forced evictions; enhance and restore the livelihoods and living standards of all displaced persons and to improve the living conditions and overall socioeconomic status of displaced poor and persons belonging to marginalized or disadvantaged groups; and ensure that resettlement activities are planned and implemented collaboratively with the meaningful and informed participation of those affected.

SS7: Indigenous Peoples

This safeguard aims to: recognize and foster full respect for indigenous peoples and their human rights, dignity, cultural uniqueness, autonomy, identity, and aspirations; promote indigenous peoples' rights to self-determination and development with culture and identity; recognize and respect the rights of indigenous peoples to their lands, territories, and resources that they have traditionally owned, occupied, or otherwise used or acquired; recognize, respect, protect and preserve indigenous peoples' culture, knowledge, and practices; promote interventions designed, managed, and implemented by indigenous peoples; ensure that programmes and projects are designed in partnership with indigenous peoples, with their full effective and meaningful consultation and participation, and respect free, prior and informed consent (FPIC); support countries to respect, protect and fulfill the rights of indigenous peoples; avoid adverse impacts on indigenous peoples from supported activities, and minimize, mitigate and remedy adverse impacts where avoidance is not possible; and ensure indigenous peoples obtain fair and equitable benefits and opportunities from supported activities in a culturally appropriate and inclusive manner.

SS8: Labour and Working Conditions

This safeguard aims to: promote, respect and realize fundamental principles and rights at work; protect and promote the safety and health of workers; ensure projects/programmes comply with national employment and labour laws and international commitments; and leave no one behind by protecting and supporting workers in disadvantaged and vulnerable situations, including a special focus, as appropriate, on women workers, young workers, migrant workers and workers with disabilities.

3. Regional context

Sound chemicals management is a key cross-cutting issue for sustainable development.[50] Aside from the chemical industry's heavy use of water and energy, chemical waste is a type of hazardous waste that can have adverse impacts on the environment and human health. Chemical waste is a high priority waste stream for Small Island Developing States (SIDS) in particular. Though SIDS generate only small quantities of hazardous waste, including chemical waste,

[50] SAICM. (n.d.). Strategic Approach to International Chemicals Management. Retrieved May 26, 2020, from http://www.saicm.org/About/SAICMOverview/tabid/5522/language/en-US/Default.aspx

they tend to lack the capacity and capability to effectively manage it and implement waste-stream specific management practices.[51]

Because of the high presence of chemicals in consumer products, chemical waste is difficult to tackle as a stand-alone waste stream. Instead, chemicals are present in a variety of waste streams, including but not limited to agricultural waste, end-of-life vehicles, e-waste and plastic waste. Therefore, for the sound management of chemicals it is important to have a holistic perspective on waste that includes a variety of products throughout their entire life cycle.

Several recent World Bank studies project that the Latin American and Caribbean region's waste generation per capita will continue to increase over the next few decades, with roughly 30% more waste generation per capita in 2050 as compared to 2016.[52] This is particularly worrying for the Caribbean region, as SIDS inhabitants already generate 48% more waste than the world average.[2]

Region-wide economic reliance on tourism exacerbates these numbers. Many of the highest waste generators in the Latin American and Caribbean region are island states with active tourism-based economies. Tourism drives an increase in consumer waste products that are difficult for SIDS to manage.[2]

Although unsound management of chemicals and waste is an urgent issue that must be tackled, Caribbean countries have specific environmental, social and economic characteristics that may pose challenges for the implementation of waste management programmes. It is important to keep these characteristics in mind when assessing the potential impacts of waste management programmes.

Waste management is one of the least recognized public policy issues in the Caribbean.[53] Often solid waste management has to compete with other pressing economic and social issues, and many times it does not receive the required priority in the political agenda. For this reason, many countries lack among other things: consistent data about the quantity and type of solid waste being disposed of; regulations on waste discharge, collection, storage, transport, recycling and disposal; partnerships to engage private sector; policies for the environmentally sound management of hazardous waste or enforcement, and; investment opportunities.[4]

As an example, according to regional industry professionals, a lack of policy and regulatory framework regarding the collection and processing of end-of-life vehicles has made it difficult for private waste management companies to implement more sustainable technologies. Furthermore, informal recyclers tend to strip vehicles bare before they are brought to these companies, meaning no or too few valuable parts are left for them to make a profit and make up for the costs of implementing more efficient and expensive technologies.

Another issue identified by industry professionals is the limited amount of land made available to private waste management companies by national governments. Limited land availability for waste management activities is a common feature of SIDS.[2] Available land has to compete with other land use purposes considered as priorities by governments.

Small islands worldwide face the challenge of choice of optimal location. Caribbean countries, for example, are often forced to establish landfills in the coastal area in order to minimize per capita waste haulage costs from towns or cities which are typically also located along the coasts, as well as to take advantage of more level coastal terrain for disposal.

---

[51] Seadon, J., & Giacovelli, C. (2019). Small Island Developing States Waste Management Outlook. (J. Seadon, Ed.). United Nations Environment Programme.

[52]. Kaza, S., Yao, L., Bhada-Tata, P., & Van Woerden, F. (Eds.). (2018). What A Waste 2.0. World Bank Group. Retrieved from http://documents.worldbank.org/curated/en/697271544470229584/pdf/132827-PUB-9781464813290.pdf

[53] Phillips, W., & Thorne, E. (2013). Municipal solid waste management in the Caribbean: A benefit-cost analysis. ECLAC – Studies and Perspectives Series – The Caribbean, 22. Retrieved from https://repositorio.cepal.org/bitstream/handle/11362/5053/1/S2012122_en.pdf

Coastal landfill sites are a particularly acute issue for SIDS because of limited land availability, proximity to oceanic waters and waterways and limited availability for soil cover. Significant health and environmental issues that can result from mismanaged coastal landfill sites include strong odours, pollution from stormwater runoff, lack of leachate control, poor access roads, scavenging and lack of security.[2] In addition, communities situated closest to landfills tend to have a lower income demographic, which makes community members more vulnerable to health and environmental impacts of the landfill.

Because of the issue of limited available space, shipping waste between islands could be a promising solution. However, it has been mentioned anecdotally by regional industry professionals that the cost of transporting waste just between neighboring Caribbean islands can be more expensive than transporting waste from Caribbean to Asian countries. Though distances between Caribbean islands are relatively short, distance explains only one fifth of the variance of freight rates. The high cost of transporting waste between Caribbean islands could be explained by low connectivity between islands and poor port infrastructure.[54] In any case, high costs to transport small amounts of wastes to a regional hub may limit the profitability of established material recovery or repurposing initiatives, and there is difficulty engaging shipping companies to find solutions for this issue.

Partly because of the aforementioned difficulties, the adequate final disposal of waste continues to be one of the most difficult solid waste management problems for Latin America and the Caribbean. Estimates for how much of the region's solid waste is disposed in sanitary landfills runs from under 35% to 54%.[55] [56] However, numbers are assumed to be lower for the Caribbean sub-region, as only a few Caribbean nations dispose their solid waste in sanitary landfills, and in many cases open air dumpsites—which generate serious environmental problems—are still the prevailing mechanism. Other inadequate and highly contaminating practices of solid waste final disposal in Latin America and the Caribbean include open-air burning, disposal in bodies of water and disposal as animal feed.

Within the domain of environmental sustainability, the Caribbean region faces a compounded issue thanks to the interconnectedness of environmental challenges such as land and coastal degradation, biodiversity loss, and climate change. Poor waste management can increase the vulnerability to other environmental issues and decrease resilience.[3] Specifically, poor waste management can lead to environmental degradation which can in turn directly lead to disasters or worsen the effects of natural hazards, such as by causing or exacerbating localised flooding.[57]

Prior to 2000, very few system models considered social aspects, including health impacts, of solid waste management, focusing solely on the environmental and economic spheres. None considered involving all relevant stakeholders, including local communities and informal recyclers, and none considered the full waste management life cycle.[58]

The high presence of informal recyclers in particular, is a notable characteristic of chemicals and waste management in the Caribbean region. Because of the informal nature of waste pickers' livelihoods, it is difficult to determine how many there are in any given country. Estimates for the Latin American and Caribbean region as a whole run from just over 400,000 (between 8 and 9 per 10,000 inhabitants) to nearly 4 million. In addition, numbers vary widely on a country-to-country basis. For example, an EVAL 2010 report estimates nearly 12 waste pickers per 10,000 inhabitants

[54] Sánchez, R. J., & Wilmsmeier, G. J. (2009). Maritime sector and ports in the Caribbean: the case of Caricom countries. Santiago, Chile: United Nations Conference on Trade and Development.
[55] UNEP. (2009). Solid Waste and Marine Litter. Retrieved June 1, 2020, from https://www.unenvironment.org/cep/solid-waste-and-marine-litter
[56] Terraza, H., Daza, D., Martínez Arce, E., Soulier Faure, M., & Tello Espinoza, P. (2010). Regional evaluation on urban solid waste management in Latin America and the Caribbean.
[57] Uitto, J. I., & Shaw, R. (Eds.). (2016). Sustainable Development and Disaster Risk Reduction. Springer Japan.
[58] Marshall, R. E., & Farahbakhsh, K. (2013). Systems approaches to integrated solid waste management in developing countries. Waste Management, 33, 988–1003. Retrieved from https://edisciplinas.usp.br/pluginfile.php/4448762/mod_resource/content/1/Texto - Systems approaches to integrated solid waste management.pdf

in Belize for a country total of just under 200 but 7 waste pickers per 10,000 inhabitants in the Dominican Republic for a country total of nearly 2500.[6]

Waste pickers typically live in very precarious socio-economic conditions and even extreme poverty. Living conditions are characterised by social exclusion, precarious housing, overcrowding, and a lack of public services. Schooling levels are very low and the dropout rate for children and adolescents is high. They are highly dependent on current waste management practices which include high levels of waste generation, limited source segregation and few low-cost options for the environmentally sound management of hazardous waste streams, hence their vulnerability to waste management development.[3] Aside from waste pickers, a lack of regulations or lack of enforcement has led to many private chemicals and waste operations that are not formalised. The displacement of informal recyclers when a new disposal site comes in operation or waste management practices are improved or formalised, is a challenge that has to be addressed in all countries.

Despite the high presence of informal recyclers, as in parts of the Arab world and Latin America, opportunities to strengthen waste institutions may be limited by the fact that solid waste management is not seen as an honourable profession.[6] This has been identified as an issue by some industry professionals in the Caribbean. There is a lack of interest for solid waste management jobs and relatively high salaries need to be paid, thereby increasing the overall cost of solid waste management in the region. A lack of human resources is a common challenge in the region and a lack of funds for remuneration is one factor influencing that. Therefore, the recycling sector has been difficult to formalize in the Caribbean region.

With regards to recycling, absence of a de facto market for recyclables is a main constraint to the development of a formal recycling sector in the Caribbean.[3] Disposal activies, including recycling, are also greatly influenced by social attitudes, thus there is a need for awareness-raising activities to support the implementation of new waste disposal practices.[6]

It has been widely recognized that waste management systems that ignore social components and priorities are doomed to failure. The issues of public acceptance, changing value systems, public participation in planning and implementation stages, and consumer behaviour are equally as important as the technical and economic aspects of waste management.[6]

Finally, corruption is a constraint for sustainable development in the Caribbean region. Corruption in the Latin American and Caribbean region has led to a public skepticism about privatization and its association with corruption and lack of transparency. This adds to a lack of municipal capacity to manage contracts with private waste management contractors and ensure service standards, which restricts the possibilites to increase or improve private participation.[59]

4. Risks of proposed interventions and management plan

SS1: Biodiversity, Ecosystems and Sustainable Natural Resource Management

The quality of water in rivers, ponds, lakes or other wetlands is expected to be improved in the long term by the ISLANDS Programme due to the expected improvements in management of chemicals and waste. However, to ensure there is no risk to biodiversity or ecosystems in the project countries, activities such as **2.1.2**, which include active handling of chemicals and/or waste, will be assessed for their impacts on the natural environment. Where specific

[59] Hoornweg, D., & Giannelli, N. (2007). Managing municipal solid waste in Latin America and the Caribbean: Integrating the private sector, harnessing incentives. Grid Lines - World Bank. Retrieved from https://openknowledge.worldbank.org/bitstream/handle/10986/10639/417030LAC0Muni1ridlines02801PUBLIC1.pdf?Sequence=1 & isAllowed=y

chemicals and waste management practices are discouraged (such as **2.1.3**) the programme will provide alternative, more sustainable practices so that these practices are not replaced by other unsustainable practices.

Finally, activities must be assessed on their location. Activities in regions with more proximity to extensive or vulnerable natural environments (or possibly, biodiversity hotspots) such as activities in rural areas (**2.2.3**), will be assessed for their possible impact on biodiversity and ecosystems. However, it should be noted that it is a project goal to decrease the environmental impact of chemicals and waste management activities. Therefore, adverse impacts are unlikely and in fact, current chemicals and waste impacts on biodiversity and ecosystems are expected to decrease.

SS2: Climate Change and Disaster Risks

Climate change disturbances and environmental disasters are frequent in the Caribbean region, be it due to climate change, erosion, prolonged droughts, or other. Therefore, it is important that project activities have short-term strategies in mind for disasters during the project execution phase and mid- to long-term strategies for climate change effects felt during and after project execution. To ensure the sustainability of mid- to long-term strategies in the face of climate change specifically, climate risk mitigation plans must be worked into any activities that extend beyond the project execution, such as during the development of waste management strategies, guidelines and roadmaps (**2.1.2, 2.2.1, 2.2.2, 2.2.3, 3.1.1, 3.1.2**). These include both national and regional level activities.

Climate risk mitigation plans will vary depending on activity and location, but may include, for example, plans to increase resilience to the effects of hurricanes, such as infrastructure destruction and transport disruption, and assessments of locations and transport routes on their climate change vulnerability and/or resilience. Long-term solutions will bear in mind environmental changes up to and including 2050 and will use tools such as the Climate Change Knowledge Platform, Think Hazard, and others, to determine climate sensitivity, vulnerability and resilience.

SS3: Pollution Prevention and Resource Efficiency

One of the ISLANDS Programme's goals is to prevent the release of pollutants to air, water and/or soil. This will be achieved through, for example: preventing the generation of wastes in project countries, especially hazardous waste; development of circular economy and 3R approaches for chemicals and waste management in the region; reinforcement of trade bans; and chemical release prevention. To this end, activities in all outcomes will aim at reducing pollution and increasing resource efficiency and negative environmental impacts are unlikely.

Projects implemented or supported by the ISLANDS Programme in project countries are unlikely to consume or cause significant consumption of water, energy or other resources. The ISLANDS Programme will not encourage the establishment of waste incinerator facilities or similar facilities, but if a project country decides to establish a waste incinerator facility or similar facility, the Programme could assist to ensure best available techniques and best environmental practices are used.

One possible source of pollution would be the increase of transport in the region due to the development of take-back system models and regional hub and spoke models (**3.1.3** and **3.2.2**). However, the benefits in pollution prevention and resource efficiency are assumed to be greater than the increase in pollution caused by increased transport.

SS4: Community Health, Safety and Security

Community health, safety and security must always be protected and, where possible, improved by the programme. As such, mitigation plans for risks to community health will be included in the assessment and execution of all activities that handle potentially hazardous chemicals and waste, such as **2.1.2**. Newly developed roadmaps (**2.2.1**) and newly established guidelines (**2.2.2**) will also assess the vulnerability of affected communities and include risk mitigation measures.

SS5: Cultural Heritage

The ISLANDS programme will not be involved in the handling of cultural heritage or include activities in cultural heritage areas.

SS6: Displacement and Involuntary Resettlement

ISLANDS programme activities will not lead to displacement and/or involuntary resettlement. However, the Caribbean region has a high prevalence of informal recyclers and the ISLANDS programme may have a notable effect on informal recyclers' livelihoods due to the improvement and possibly, formalization of certain chemicals and waste management practices. Informal recyclers should be included in any activities that may affect their livelihoods as relevant stakeholders and the programme should provide adequate alternatives if informal recycling activities are halted or otherwise affected by programme activities.

SS7: Indigenous Peoples

Belize, Guyana and Suriname have significant Indigenous populations. However, no waste management projects implemented or supported by the ISLANDS Programme will be located on lands and territories claimed by Indigenous peoples, unless assistance in managing chemicals and/or waste is requested by the relevant Indigenous communities.

In the case that Indigenous peoples and/or communities are present in the area of influence of waste management projects implemented or supported by the ISLANDS Programme (notably **2.2.3**), the ISLANDS Programme will ensure that communications are established with representatives and that the relevant Indigenous peoples and communities will benefit from the improved management of chemicals and waste under the programme. Specifically, ISLANDS will reach out to Indigenous communities proactively to ensure that potential requests are addressed at the earliest stage possible.

SS8: Labour and Working Conditions

In all activities, the programme should aim to improve the labour and working conditions of current labourers/workers in the chemicals and waste sector. Notably, the labour and working conditions of informal recyclers should be assessed and improved where possible. Where informal sectors are formalised, this must necessarily lead to better working conditions.

Appendix 9 – List of Images and Tables

List of Figures

List of Tables

Appendix 10 – Acronyms

ABWREC	Antigua Barbuda Waste Recycling Corporation
ACP	African, Caribbean and Pacific Group of States
ACP-MEAs	African, Caribbean and Pacific MEAs
ADF	Advanced Deposit Fee
AIMS	Atlantic, Indian Ocean, Mediterranean and South China Sea
AMRECO	Amazona Recycling Company
ASGM	Artisanal and Small-scale Gold Mining
ASYCUDA	Automated System for Customs Data
ATF	Authorized Treatment Facilities
B2B	Business-to-Business
BAT	Best Available Technologies
BCRC-Caribbean	Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean
BD	Biological Diversity
BEP	Best Environmental Practices
BRS Conventions	Basel, Rotterdam and Stockholm Conventions
BUR	Biennial Update Report
CAF	Development Bank of Latin America
CANTO	Caribbean Association of National Telecommunications Organizations
CARICOM	Caribbean Common Market
CARIFORUM	Caribbean Forum of ACP States
CCKM	Communication, Coordination and Knowledge Management
CCOA	Commonwealth Clean Ocean Alliance
CDB	Caribbean Development Bank
CE	Consumer Equipment
CEDAW	Convention on the Elimination of all Forms of Discrimination Against Women
CEO	Chief Executive Officer
CETESB	Companhia Ambiental do Estado de São Paulo
CGPC	Coordinating Group of Pesticides Control boards of the Caribbean
CLIA	Cruise Lines International Association
CLiP	Commonwealth Litter Programme
CO2e	Carbon Dioxide Equivalent
CoD	Certificate of Destruction
COP	Conference of the Parties
COTED	CARICOM Council for Trade and Economic Development
COVID-19	2019 Novel Coronavirus
CPC	Chief Parliamentary Council
CROSQ	CARICOM Regional Organisation for Standards and Quality
CSOs	Civil Society Organisations
CTC-N	Climate Technology Centre and Network
CWWA	Caribbean Water and Wastewater Association
CYDAP	CARICOM Youth Development Action Plan

DDT	Dichlorodiphenyltrichloroethane
DEFRA	Department for Environment, Food and Rural Affairs
E&ET	Electrical and Electronic Tools
EA	Executing Agency
EC	European Commission
ECA-G	Effect-Cause-Action Global
EEE	Electrical and Electronic Equipment
ELVs	End of Life Vehicles
EM	Environmental Management
EMA	Environmental Management Authority
ENFORCE	Environmental Network for Optimizing Regulatory Compliance on Illegal Traffic
EPA	Environmental Protection Agency
EPD	Environmental Protection Department
EPMA	Environmental Protection and Management Act
EPR	Extended Producer Responsibility
ESM	Environmentally Sound Management
EST	Environmentally Sound Technologies
EU	European Union
EUR	Euro
FAO	Food and Agriculture Organization
FSM	Federated States of Micronesia
GDP	Gross Domestic Product
GEBs	Global Environmental Benefits
GEF	Global Environment Facility
GEF C&W	Global Environment Facility Chemicals and Waste
GEF GOLD	Global Environment Facility Global Opportunities for Long-term Development in Artisanal and Small-Scale Mining Programme
GEFSEC	GEF Secretariat
GEFTF	GEF Trust Fund
GETF	Global Environment & Technology Foundation
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
GMP	Global Mercury Partnership
GNI	Gross National Income
gTEQ	Grams of Toxic Equivalent
HCWM	Health-Care Waste Management
HDI	Human Development Index
HDPE	High-density polyethylene
Hg	Mercury
HHPs	Highly Hazardous Pesticides
HS Codes	Harmonized System Codes
IA	Implementing Agencies
IAST	Institute of Applied Science and Technology
IDB	InterAmerican Development Bank
IETC	International Environment Technology Centre
ILO	International Labour Organizations
IMO	International Maritime Organization

IOMC	Inter-Organization Programme for the Sound Management of Chemicals
IPM	Integrated Pest Management
ISLANDS	Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States
ISWA	International Solid Waste Association
IT&T	Information Technology and Telecommunications
IUCN	International Union for Conservation of Nature
JICA	Japan International Cooperation Agency
KAP	Knowledge, Attitudes and Perception Survey
KPI	Key Performance Indicators
LDC	Least Developed Countries
LDCF	Least Developed Countries Fund
LDPE	Low-density polyethylene
LE	Lighting Equipment
LED	Light Emitting Diode
LHA	Large Household Appliances
M&CE	Mining and Construction Equipment
M&E	monitoring and Evaluation
MAPs	Mercury-Added Products
MARPOL	International Convention for the Prevention of Pollution from Ships
MC	Minamata Convention
MD	Medical Devices
MEAs	Multilateral Environmental Agreement
MIA	Minamata Initial Assessment
MOOCs	Massive Open Online Courses
MOU	Memorandum of Understanding
MRL	Maximum Residue Limits
MSP	Medium-Sized Project
MSW	Municipal Solid Waste
MT	Metric tonne
MTE	Mid Term Evaluation
NAP	National Action Program
NAPA	National Action Plan for Adaptation
NBSAP	National Biodiversity Strategies and Action Plan
NC	National Communication
NCEMA	National Conservation and Environmental Management Act
NCEP	National Conservation and Environmental Protection
NCSAs	National Capacity Self-Assessment
nd	No data
NGOs	Non-Governmental Organisations
NIMBY	Not in my backyard
NIP	National Implementation Plan
NORAD	Norwegian Agency for Development Cooperation
NPFE	National Portfolio Formulation Exercise
NSWMA	National Solid Waste Management Authority
NWG	National Working Groups
NYC	New York City

OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OECD	Organisation for Economic Co-operation and Development
OECS	Organisation of Eastern Caribbean States
PBDE	Polybrominated diphenyl ethers
PCBs	Polychlorinated biphenyls
PCDD	Polychlorinated dibenzodioxins
PCDFs	Polychlorinated dibenzofurans
PCG	Programme Coordinating Group
PCNs	Polychlorinated naphthalene
PCU	Project Coordinating Unit
PET	Polyethylene Terephthalate
PFAS	Per- and Polyfluoroalkyl substances
PFD	Programme Framework Document
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulfonic acid
PIC	Prior Informed Consent
PIF	Project Identification Form
PMC	Project Management Cost
POP-PBDEs	Persistent Organic Pollutants - Polybrominated Diphenyl Ethers
POPs	Persistent Organic Pollutants
PPG	Project Preparation Grant
PRO	Producer Responsibility Organisation
PRSP	Poverty Reduction Strategy Paper
PSC	Project Steering Committee
PSMS	Pesticide Stock Management System
PTCA	Pesticides and Toxic Chemicals Act
PTCCB	Pesticides and Toxic Chemicals Control Board
PVC	Polyvinyl chloride
PWC	Project Working Committee
R2 Certification	Responsible Recycling Certification
Roadmap	A detailed national plan for the effective implementation, execution and/or establishment of new policies, strategies, laws, regulations, guidance, criteria, standards, legislation or facilities.
RS Caribbean	Risk Solutions Caribbean
SAICM	Strategic Approach to International Chemicals Management
SAMOA	SIDS Accelerated Modalities of Action
SBRC	Sustainable Barbados Recycling Centre
SC	Stockholm Convention
SCCF	Special Climate Change Fund
SCCPs	Short Chain Chlorinated Paraffins
SDGs	United Nations Sustainable Development Goals
SIDS	Small Island Developing States
SMEs	Small and Medium Enterprises
SOPs	Standard Operating Procedures
SPREP	Secretariat of the Pacific Regional Environment Programme
SSA	Sanitation Service Authority

STEP	Solving The E-waste Problem
SWMA	Solid Waste Management Authority
SWMCOL	Solid Waste Management Company Limited
TE	Terminal Evaluation
TEQ	Toxic Equivalent
THA	Tobago House of Assembly
TNA	Technology Needs Assessment
TOR	Terms of Reference
UBEEC	Unleashing the Blue Economy of the Eastern Caribbean
UEEE	Used Electrical and Electronic Equipment
UK	United Kingdom
UN	United Nations
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNDAF	UN Development Assistance Framework
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UPOPs	Unintentional Persistent Organic Pollutants
US$/USD	United States Dollar
USAID	United States Agency for International Development
USEPA	US Environmental Protection Agency
UWI	University of the West Indies
VUCE	Single Window for Foreign Trade
WEEE	Waste Electrical and Electronic Equipment
WHO	World Health Organization
WM	Waste Management
XRF	X-ray Fluorescence

Appendix 11 – Technical project specific annexes: WEEE Trade Flows Report

IMPLEMENTING SUSTAINABLE LOW AND NON-CHEMICAL DEVELOPMENT IN SMALL ISLAND DEVELOPING STATES (ISLANDS) PROJECT PREPARATION GRANT PHASE

TRADE FLOW ASSESSMENT

Final report

EXECUTED BY:
BASEL CONVENTION REGIONAL CENTRE FOR TRAINING AND TECHNOLOGY TRANSFER FOR THE CARIBBEAN

PREPARED BY:
ALEJANDRA ACOSTA AND ANA CORALLO

Submitted 9th April 2020

CONTENTS

ABBREVIATIONS AND ACRONYMS

E-waste	Waste of Electronic and electrical equipment
EEE	Electronic and electrical equipment
EOL	End-of-life
EPR	Extended Producer Responsibility
ESM	Environmental Sound Management
MFA	Mass Flow Assessment
MSW	Municipal Solid Waste
OEM	Original Equipment Manufacturer
PBDEs	Polybrominated diphenyl ethers
PCDD	Polychlorinated dibenzo-p-dioxins
PCDF	Polychlorinated dibenzofurans
PPP	Purchasing Power Parity
UPOPs	Unintentional Persistent Organic Pollutants
UEEE	Used Electronic and electrical equipment
WEEE	Waste Electronic and electrical equipment

CONTEXT

Electrical and Electronic Equipment (EEE), including all its parts, when discarded or disposed by its owner is known as Waste Electrical and Electronic Equipment (WEEE), or e-waste.

The volume of WEEE being generated is growing rapidly due to the widespread use of electrical and electronic equipment in both developed and developing countries. The total amount of global e-waste generated in 2005 was estimated to be 40 million tons (StEP, 2009). The latest estimates indicate that in 2016 44.7 million metric tons of e-waste were generated globally (The Global E-waste Monitor 2017). The amount of e-waste is expected to grow to 52.2 Mt in 2021, with an annual growth rate of 3 to 4%[1].

One of the primary concerns with respect to the growth of this waste stream is that there is almost no in-country capacity to manage/treat and dispose of this waste stream properly. Of particular concern are the current practices that are being used to extract precious and strategic metals, resulting in the release of Unintentional Persistent Organic Pollutants (UPOPs), regulated by the Stockholm Convention on Persistent Organic Pollutants, such as Polychlorinated dibenzo-p-dioxins (PCDD) and dibenzofurans (PCDF)[2]; Polybrominated diphenyl ethers (PBDEs) contained as flame retardants in plastics of TV and computer casings; and, PCBs[3]. It is estimated that brominated flame retardant-containing plastics make up approximately 20% of the total plastics contained in the WEEE stream, however currently there is not a precise quantification of the release of UPOPs as a result of WEEE recycling/recovery practices. As electronic goods also contain a wide variety of other hazardous substances (arsenic, cadmium, mercury, bromides, lead, phosphorus pentachloride; mercury) these are also often released during unsafe dismantling, recovery and recycling practices. Informal sector involvement is in this context another issue of concern. In developing countries, waste pickers recover material without taking into account safety and health standards.

In addition, the WEEE stream also includes mercury-containing wastes, regulated by the Minamata Convention on Mercury, such as mercury-containing energy efficient lights and primary batteries. Unfortunately, the capacity for the treatment and disposal of mercury containing products is very limited in the Caribbean Region.

WEEE often contains valuable materials that can be recovered for recycling, including iron, aluminum, copper, gold, silver, platinum, palladium, indium, gallium and rare earth metals, and thereby contribute to sustainable resource management, since the extraction of these metals from the Earth has significant environmental impacts. The recovery and use of such materials as raw materials after they have become waste can increase the efficiency of their

[1] Baldé, C.P., Forti V., Gray, V., Kuehr, R., Stegmann,P. : The Global E-waste Monitor – 2017, United Nations University (UNU), International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Vienna.

[2] From smoldering of cables or plastic metal mixes in order to obtain copper and precious metals as well as from burning of printed circuit boards and plastics in order to reduce the volume of unusable waste fractions.

[3] Released from uncontrolled combustion of e-waste and during the dismantling of older electronic and household appliances.

use and lead to the conservation of energy and a reduction in greenhouse gas emissions when adequate technologies and methods are applied.

Direct reuse of equipment or reuse after repair or refurbishment can contribute even more to sustainable development. By extending the life of equipment, reuse reduces the environmental footprint of the resource-intensive processes involved in producing the equipment. Reuse may also facilitate the availability of equipment to groups in society that otherwise would not have access to it, since the cost of used equipment is lower than that of new equipment.

Failure to handle equipment properly can have negative impacts and often entails disposal when parts are replaced and discarded. The lack of clarity in defining when used equipment is waste and when it is not has led to a number of situations where such equipment is mishandled, or exported to, in particular, developing countries ostensibly for reuse but where a large percentage of the exported equipment is in fact not suitable for further use or is not marketable and must be disposed of as waste in recipient countries.

METHODOLOGY

The methodology applied to elaborate this assessment included a combination of quantitative and qualitative activities that would collate, analyze and synthesize data and information obtained via primary and secondary sources in order to understand the generation, flows and management of WEEE and EEE with the ultimate end-point of developing recommendations that would lead to the design and implementation of strategies to enhance the Environmentally Sound Management (ESM) of WEEE in Project Countries[4].

In the data collection phase, a variety of methods were used to gather information for this study including a survey conducted to national stakeholders (Annex A) and desktop review of the existing literature documents and databases.

Challenges faced when developing the survey were the lack of information available for national stakeholders in terms of statistics related to EEE and WEEE and the lack of time available for interviewees to provide requested data[5]. Thus, the main input of this report comes from the desktop review.

EEE AT THE PROJECT COUNTRIES

In order to obtain an estimation of the generation of WEEE, a key-input when designing WEEE management strategies, an assessment of the EEE quantities placed in the Project Countries market by weight was conducted, considering that the it is directly related to the following:

WEEE= (EEE produced + EEE imported – EEE exported) * [according to their useful lifespan]

Based on responses from national stakeholders there is no representative manufacture of EEE in the Project Countries, therefore retailers and consumers acquire their products from foreign suppliers. In terms of quantities imported in general, there is a lack of easy access of official information from customs. The need of a MoU, or a similar collaboration instrument, between customs and governmental waste managers is identified as an opportunity to facilitate an open access to updated valuable information. During the project implementation phase, the generation of a regular report on EEE entering the countries would provide waste managers with important information for designing and implementing EEE extended producer responsibility (EPR) programs. For that end, as per annex B[6], a preliminary analysis of custom codes related to the proposed categorization of EEE is provided, which should be validated with customs officials and EEE companies.

[4] Antigua and Barbuda, Barbados, Belize, Dominican Republic, Guyana, Saint Kitts and Nevis, Saint Lucia, Suriname and Trinidad and Tobago.

[5] The Project Countries that did not answer the survey were: Antigua and Barbuda, Barbados, Belize, Dominican Republic, Saint Kitts and Nevis and Saint Lucia.

[6] Based on an analysis done on the assessments of Waste Electrical and Electronic Equipment for the Republic of Trinidad and Tobago and Suriname, BCRC-Caribbean, 2014 and 2016.

An assessment of imports was conducted, based on a 4-digit analysis of the data available at the Trademap database[7] for the selected EEE 4-digit HS codes (Annex B) for 2018 and extrapolated to the period 2015-2018, since these were the most consummate available datasets that could have been used to fortify the e-waste assessment for the project. However the use of the trade data from the HS Codes presented several challenges. Specifically the main issues that were encountered were as follows:

- The use of 4-digit HS codes instead of 6-digit codes and the vague description of the HS may have led to the inclusion of irrelevant or exclusion of pertinent data. The classification of codes described as "Other" will have also presented limitations to the assessment.
- Country codes were extrapolated from the E-waste SurWEEE Project of Suriname[8] and verified on the Trademap database owing to the non-possession of the full list of HS codes for the rest of the countries, uncertainties on the complete coverage of all of the applicable codes and related descriptions for the various WEEE categories exist.
- Most of the HS Codes that were selected for the study illustrated data for volume (tons) but only a few of these HS Codes in the categories studied had unit values.
- Within the database there was an overlap of products between two categories. To avoid duplication of data, the product was made exclusive to one category, however, there is the possibility this may have occurred in other instances and gone unnoticed.
- The imports done through e-retailers (Amazon, ebay, others) or personal luggage are not considered.

Figure 1 presents the total annual EEE imports in the nine project countries during the period 2015-2018. During 2018 there was an increase in the imports compared to the previous years, while during 2015-2017 imports remained quite steady without a representative growth, which may be attributed to economic factors such as stabilization of purchasing power and demand for these products. On average, during 2016-2018, imports per year were of 210,523 tons and 2,317,283 thousand USD.

Imports EEE	2015	2016	2017	2018
SMALL ISLANDS PROJECT COUNTRIES TONS	212752	206038	172634	250671
SMALL ISLANDS PROJECT COUNTRIES USD thousand	2277760	2187467	2055385	2748521

Figure 1: EEE imports in the project countries over the period 2015-2018

Figures 2 and 3 present the annual EEE imports during the period 2015-2018 categorized according to the following categories[9]:

[7] Archival records sourced online from the International Trade Centre's Trademap database (https://www.trademap.org/) was then used as the primary database to acquire the imports for the products abstracted from the HS Codes. The trade data was classified at the level of the 4-digit HS codes for the period 2015-2018 and this information was then compiled in a database and trends observed.

[8] Assessment of Waste Electrical and Electronic Equipment for Suriname, BCRC-Caribbean, 2016.

[9] Based on the European Union (EU) Framework Directive and the Assessments of Waste Electrical and Electronic Equipment for the Republic of Trinidad and Tobago and Suriname, BCRC-Caribbean, 2014 and 2016.

1. Large household appliances (LHA)
2. Small household appliances (SHA)
3. IT and telecommunications equipment (IT&T)
4. Consumer equipment (CE)
5. Lighting equipment (LE)
6. Electrical and electronic tools (E&ET)
7. Toys, leisure and sports equipment (TL&SE)
8. Medical devices (MD)
9. Monitoring and control instruments (M&CE)
10. Automatic dispensers (AD)

Annex C presents guidance on a range of products that have been assessed as to whether they fall under the scope of each category.

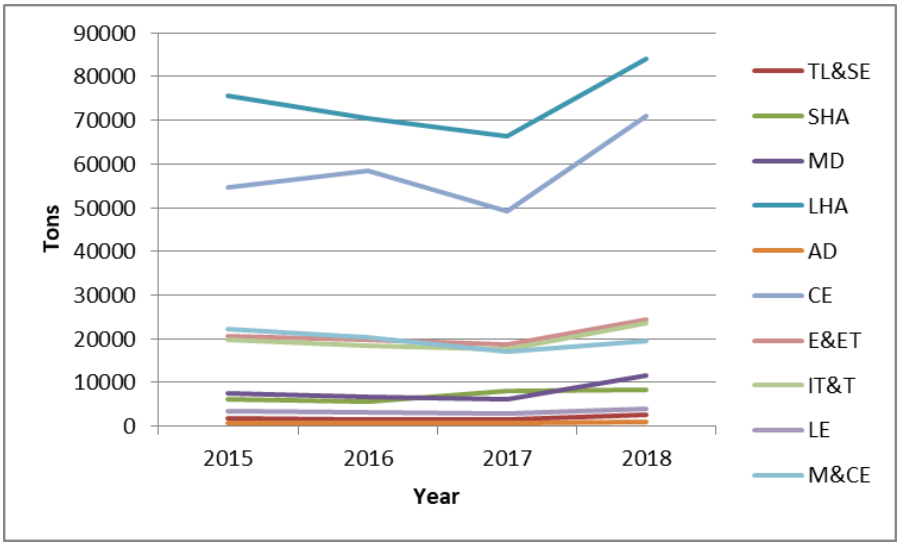


Figure 2: Annual EEE imports at the Project Countries per category in tons over the period 2015-2018

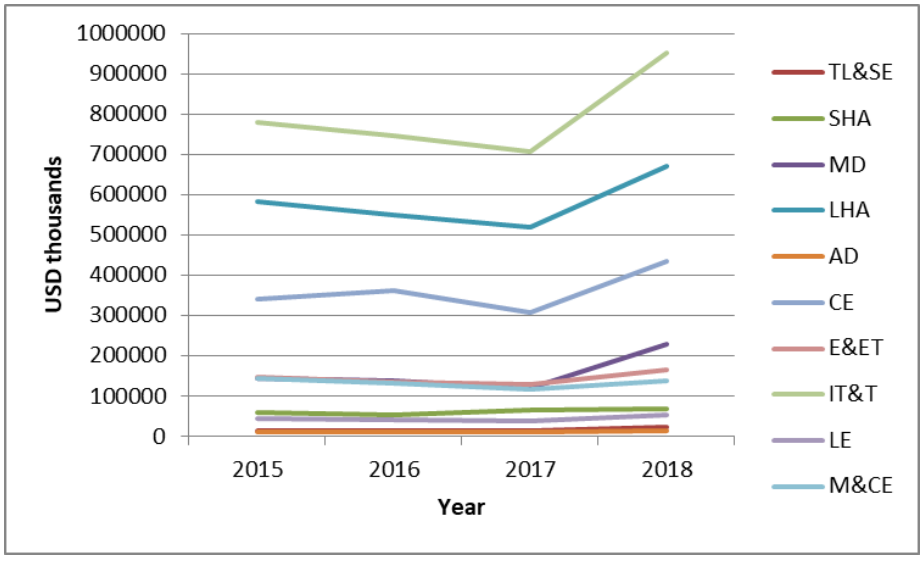
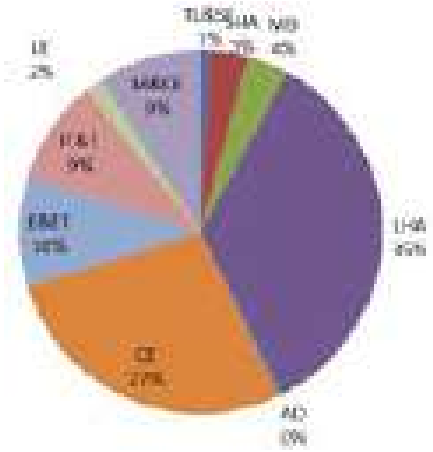


Figure 3: Annual EEE imports at the Project Countries per category in USD thousands over the period 2015-2018

Figures 4 and 5 show the annual average of imports of EEE in tons per category and per country over the period 2015-2018. The category of highest impact in terms of tons imported is LHA followed by CE, E&ET and IT&T. These four categories together represent 81% of the total tons imported.



EEE category	Average tons	Accumulated percentage
LHA	74.133	35%
CE	58.268	62%
E&ET	20.857	72%
IT&T	19.818	81%
M&CE	19.789	90%
MD	8.026	94%
SHA	7.058	97%
LE	3.396	99%
TL&SE	1.923	100%
AD	790	100%
TOTAL	**214.058**	**100%**

Figure 4: Annual average of imports of EEE in tons per category over the period 2015-2018

The imports of EEE by each Project Country are compared in figures 5, 6 and 7. The amount of EEE imported at Dominican Republic represents more than 50% of total imports, at all categories, both in weight and in value. This may be due to the fact that, in terms of population, it represents almost 74% of total population at the Project Countries. If added together with Trinidad and Tobago´s imports, more than 75% of total imports are covered. In the case of Trinidad and Tobago, this may be due to its higher level of industrialization.

When comparing percentages of imports in weight vs in value per country, the order of participation changes. This can be related to the different Purchasing Power Parity (PPP) [10] of the Project Countries; countries with a higher PPP rank higher that those with mid or low PPPs when imported values are compared:

- Trinidad and Tobago, Saint Kitts and Nevis, Antigua and Barbuda, Barbados and Dominican Republic fall under high PPP category.
- Belize and Saint Lucia fall under mid PPP category.
- Guyana and Suriname fall under low PPP category.

For detailed information of each Country´s specifics go to section *Country Profiles.*

[10] https://data.worldbank.org/

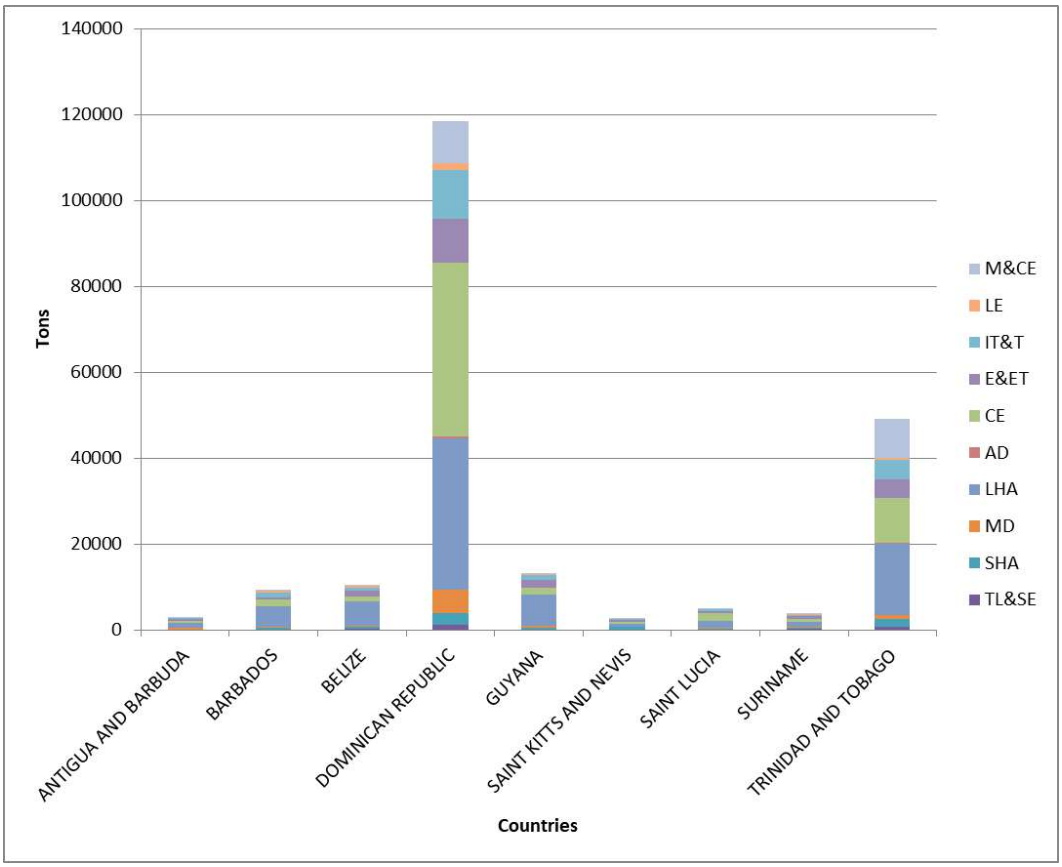


Figure 5: Annual average of imports of EEE in tons per country over the period 2015-2018 per category

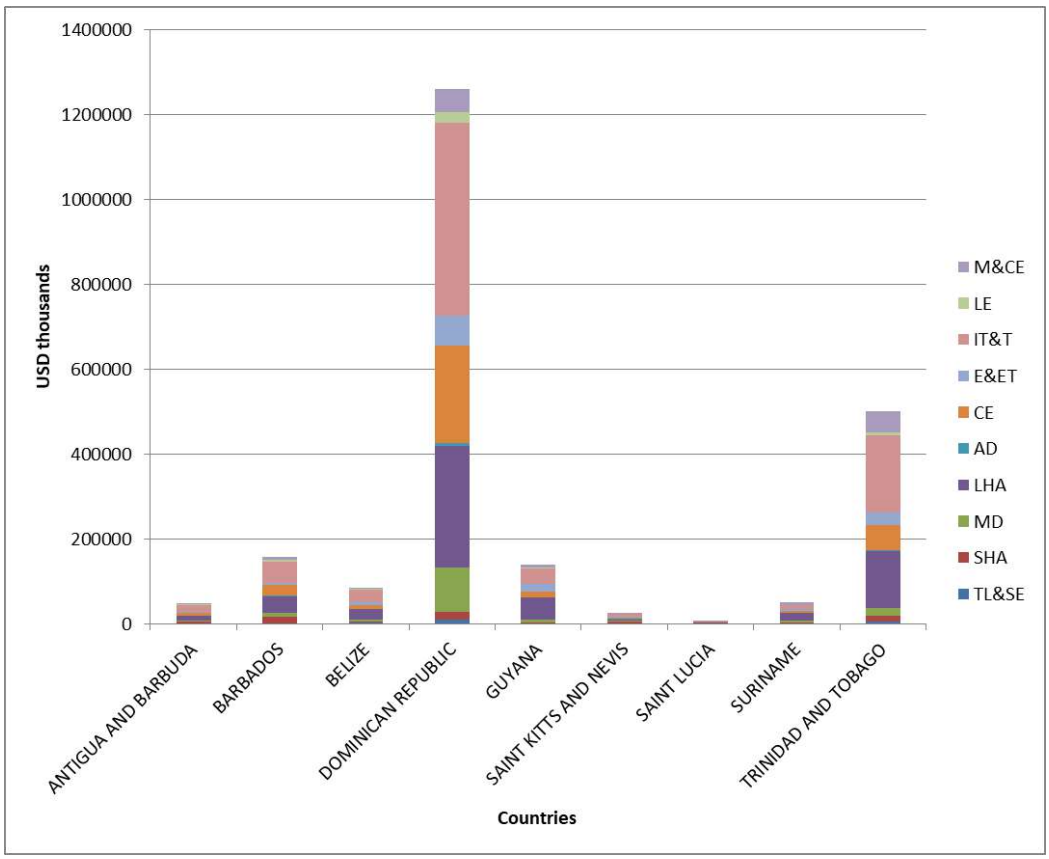


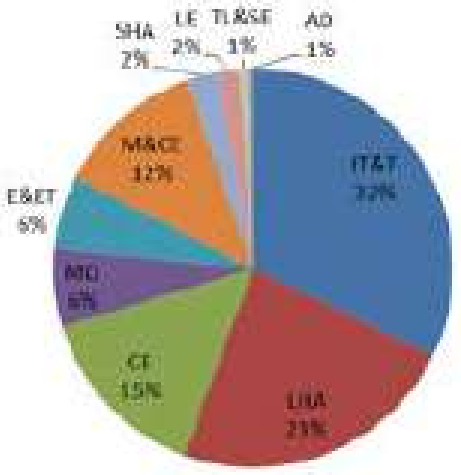
Figure 6: Annual average of imports of EEE in USD thousands per country over the period 2015-2018 per category

Country	Percentage of imports over total imports in tons at Project Countries
DOMINICAN REPUBLIC	55%
TRINIDAD AND TOBAGO	23%
GUYANA	6%
BELIZE	5%
BARBADOS	4%
SAINT LUCIA	2%
SURINAME	2%
ANTIGUA AND BARBUDA	1%
SAINT KITTS AND NEVIS	1%

Country	Percentage of imports over total imports in USD thousands at Project Countries
DOMINICAN REPUBLIC	55%
TRINIDAD AND TOBAGO	22%
BARBADOS	7%
GUYANA	6%
BELIZE	4%
ANTIGUA AND BARBUDA	2%
SURINAME	2%
SAINT KITTS AND NEVIS	1%
SAINT LUCIA	0,30%

Figure 7: Percentage of imports of EEE in tons and USD thousands per country vs total imports over the period 2015-2018

Figure 8 shows the annual average of imports of EEE in USD thousands per category over the period 2015-2018. In this case, the order is modified, being IT&T the category of highest impact, followed by LHA, CE and MD. These four categories together represent almost 80% of the total imports in value.



EEE category	Average USD thousands	Accumulated percentage
IT&T	795.697	32%
LHA	580.709	56%
CE	360.653	70%
MD	157.148	77%
E&ET	144.834	82%
M&CE	298.713	95%
SHA	61.755	97%
LE	44.294	99%
TL&SE	15.828	99%
AD	12.633	100%
TOTAL	**2.472.263**	**100%**

Figure 8: Annual average of imports of EEE in USD thousands per category over the period 2015-2018

For the purposes of this assessment, by extrapolating the conclusions of the E-waste SurWEEE Project[11] in terms of EEE exports to the rest of the Project Countries, the assumption can be made that they are estimated to be 10% of imports. Thus, the potential for accumulation of WEEE in the Project countries is quite high, taking into consideration that the amount of WEEE generation is directly related to the following:

WEEE= (EEE imported + EEE produced – EEE exported) * [lifespan and behavior analysis]

It is recommended during the project phase to develop a deeper analysis of exports since, if a country is importing EEE to export them to another Project Country, there would be a duplication of data.

[11] Assessments of Waste Electrical and Electronic Equipment for the Republic of Trinidad and Tobago and Suriname, BCRC-Caribbean, 2014 and 2016.

TRADE FLOWS FOR EEE AND WEEE

The following assessment on trade flows is based on the responses obtained from national stakeholders to the survey conducted and the findings from the E-waste SurWEEE Project[12].

In the Project Countries, the EEE market is mainly composed of few large – quantity importers. Imports mainly consist of new equipment, used electrical and electronic equipment imports is not representative. Most EEE are sold through a lot of small volume resellers. Shared importers and retailers are found alongside Project Countries.

Distribution and retailing stakeholders across the board indicated that they get warranties on the items that they import but that, whenever problems are encountered with EEE, re-exporting to the Original Equipment Manufacturer (OEM) is not practiced since it is a costly process. Based on the results, it was found that stakeholders provide their customers with a warranty period on their purchases and some stakeholders even have repair services available.

EOL equipment is a term used with respect to a product supplied to customers, indicating that the product is in the end of its life from the vendor's point of view, and the vendor stops marketing, selling, or rework sustaining it. Some reasons for reaching EOL may be due to market demands, technology innovation and development driving changes in the product or the products simply mature over time and are replaced by functionally richer technology. As the EEEs are upgraded, a large quantity of EOL equipment will be generated.

Baring this in mind, any efficient WEEE policy must consider EOL equipment as well as WEEE generated from households and large quantity generators (e.g. private sector or governmental offices).

For the case of EOL equipment management, common practice is that they are either sent to recyclers for reuse of their components or they become WEEE that should be properly managed. Based on findings from the E-waste SurWEEE Project[13] it was identified that very little EOL equipment ended up in the municipal solid waste (MSW). The majority of EOL equipment (50%) is stored by the stakeholders, followed by the option of repair. Given the popularity of in-house storage, it would be profitable and logical to create a more formalized collection system to address these stored quantities on a larger scale.

On the other hand, WEEE generated from households and large quantity generators, in general ends up being commonly managed with the rest of the municipal solid waste and disposed at landfills, and occasionally, at illegal dump sites. The main cause for this is that there is no governmental approach at the national or regional level to manage e-waste as a specific stream of waste.

[12] Assessments of Waste Electrical and Electronic Equipment for the Republic of Trinidad and Tobago and Suriname, BCRC-Caribbean, 2014 and 2016.
[13] Assessments of Waste Electrical and Electronic Equipment for the Republic of Trinidad and Tobago and Suriname, BCRC-Caribbean, 2014 and 2016.

Based on findings from the E-waste SurWEEE Project[14], the Private sector states that the market is not sufficient to attract entrepreneurs to relieve the pressures from government; the main economically limiting issues are labor and freight prices, complexities of materials, low market price and challenges with the informal sector.

There is evidence of open burning of WEEE around some landfills of the Project countries as observed during the E-waste SurWEEE Project. In the reports it is stated that this is conducted by waste pickers looking to extract copper and other high value metals without the plastic bulk. Also, the report states that "Recycling brokers interviewed state they do not purchase burnt metals; however, some most likely do".

The mass flow assessment (MFA) presented in Figure 9 illustrates the generalized flow of all EEE throughout the life cycle within the Project Countries. The main stages and processes within a product's lifecycle include:

- The stage of importation by distributers, retailers and consumers;
- The stage of consumption of these items until they lose their functional life, becoming ultimately WEEE. The stage of used EEE (UEEE) is not graphed since it is considered within the stage of EEE consumption;
- The stage of repair or refurbishment of EEE, which can fall under warranty of be done privately;
- The stage where repaired or refurnished EEE may go back to original owner or to retail;
- The stage where WEEE is generated and discarded from the process of repair or refurbishment;
- The stage where EOL EEE stock becomes WEEE;
- The stage where WEEE is being collected altogether with MSW, privately collected or directly by waste pickers;
- The stage where WEEE is sent to landfilling or open dumping sites;
- The stage where waste pickers may operate directly at landfills or open dumping sites, and discard WEEE back;
- The stage where recycling industries receive scrap materials from private collection systems or through waste pickers, and refurnish the UEEE for its reuse or dismantle the WEEE units and sell recovered materials to the international markets.

[14] Assessments of Waste Electrical and Electronic Equipment for the Republic of Trinidad and Tobago and Suriname, BCRC-Caribbean, 2014 and 2016.

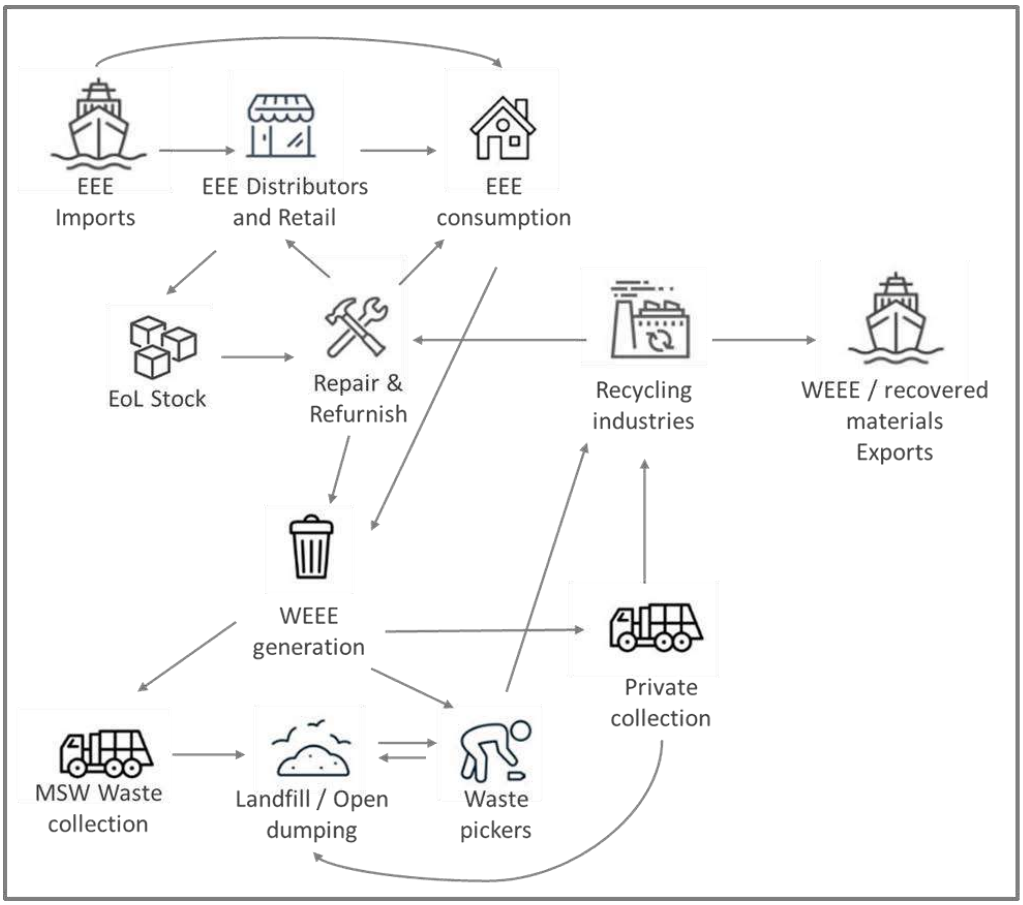


Figure 9: mass flow assessment showing the generalized flows of EEE and WEEE through the project countries. Source: prepared by the authors

WEEE GENERATION AT THE PROJECT COUNTRIES

The time lag between the year when EEE is putted on the market and the year when it becomes WEEE is currently not available[15]. It is recommended to collect this information through a monitoring program for WEEE collection. In order to make the assessment on estimated generation of waste, the following were considered based on the consultant's experience, and the information available from E-waste SurWEEE Project:

1. Large household appliances (LHA): 8 years.
2. Small household appliances (SHA): 3 years.
3. IT and telecommunications equipment (IT&T): 3 years.
4. Consumer equipment (CE): 5 years.
5. Lighting equipment (LE): 2 years.
6. Electrical and electronic tools (E&ET): 8 years.
7. Toys, leisure and sports equipment (TL&SE): 3 years.
8. Medical devices (MD): 9 years.
9. Monitoring and control instruments (M&CE): 10 years.
10. Automatic dispensers (AD): 10 years.

According to the Global E-waste Monitor – 2017[16], the Project Countries' annual growth rate in EEE consumption, taking into consideration their Purchasing Power Parity (PPP)[17], are:

- Trinidad and Tobago, Saint Kitts and Nevis, Antigua and Barbuda, Barbados and Dominican Republic fall under high PPP category, showing an annual growth rate of 5.2% in EEE consumption.
- Belize and Saint Lucia fall under mid PPP category, showing an annual growth rate of 13% in EEE consumption.
- Guyana and Suriname fall under low PPP category, showing an annual growth rate of 23% in EEE consumption.

Taking into account the weighted average of the countries according to their population, the annual growth rate in EEE consumption in the Project Countries is 7%.

Figure 10 displays the expected (not projected) generation of WEEE for the period 2015-2033, based on the EEE imports at the Project countries over the period 2015 to 2018, taking into account a 10% rate of exports, the annual growth rate in EEE consumption of 7% and the estimated lifespan of EEE for each category.

[15] Information on the lifespan of products is expected to be obtained from stakeholders answering the technical questionnaire and from the interviews to be conducted under Activity 3 of this consultancy.
[16] Baldé, C.P., Forti V., Gray, V., Kuehr, R., Stegmann,P. : The Global E-waste Monitor – 2017, United Nations University (UNU), International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Vienna.
[17] https://data.worldbank.org/

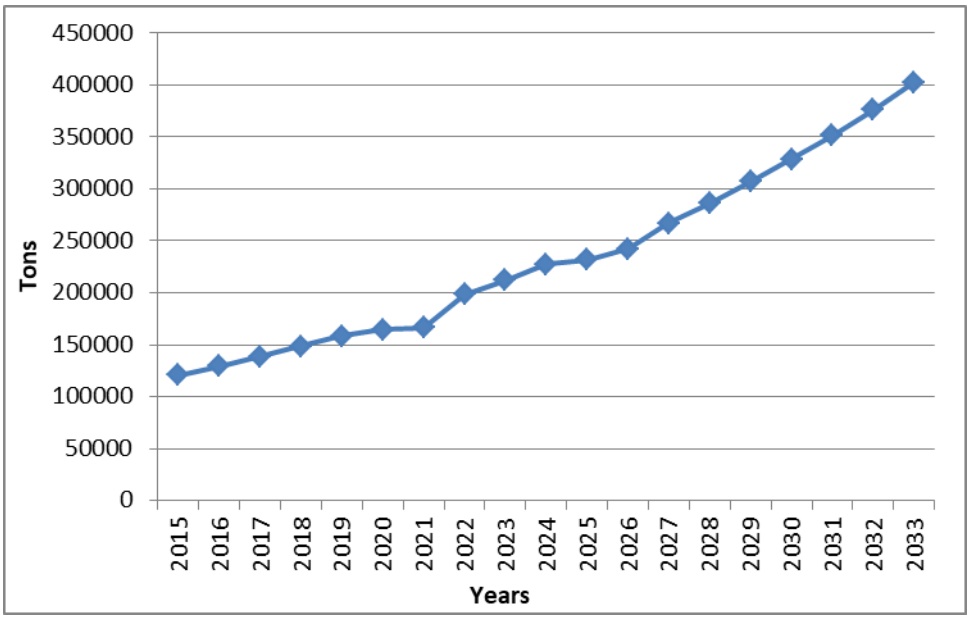


Figure 10: tons of WEEE generation expected at the Project Countries over the period 2015-2033

This results in an average WEEE generation of 10.31 kg/inh taking into consideration total amount of WEEE generated and total population at the Project Countries in 2018, which would be a level higher, in general, in respect to the estimations presented at the Global E-waste Monitor – 2017[18] presented in figure 11.

Figure 11: average generation of WEEE (kg/inh) [9]

[18] Baldé, C.P., Forti V., Gray, V., Kuehr, R., Stegmann,P. : The Global E-waste Monitor – 2017, United Nations University (UNU), International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Vienna.

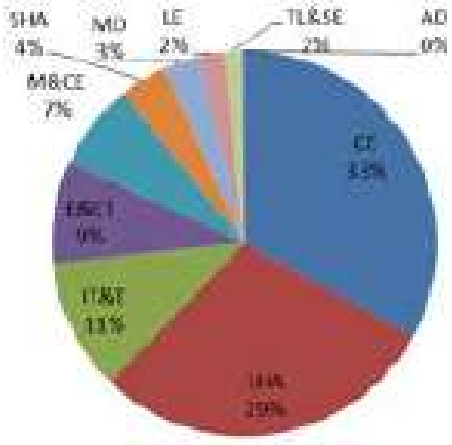
Figure 12 and 13 show the estimation of WEEE generation in tons per category in average and per year over the period 2015-2033. The category of highest impact in terms of tons generated is by CE followed by LHA, IT&T and E&ET. These four categories together represent 82% of the total estimated tons of WEEE generated.

When comparing the highest impact categories of WEEE generation vs of EEE imports, the four categories are repeated but order differs. In WEEE generation, CE becomes the category of highest impact; meanwhile LHA has the highest impact in EEE tons imported. This difference is due to the lifespan of products, where LHA has a longer lifespan that CE (8 vs 5 years).

The third category in terms of impact of WEEE generation is IT&T, which is the highest impact category in terms of values imported (USD).

In conclusion, in terms of volume and money, efforts could be focused in managing the following four categories, in order to address the most representative (+80% of total WEEE generated):

1. Consumer equipment (CE).
2. Large household appliances (LHA).
3. IT and telecommunications equipment (IT&T).
4. Electric and Electronic Tools (E&ET).



EEE category	Average tons WEEE	Accumulated percentage
CE	76.629	33%
LHA	67.859	62%
IT&T	25.821	73%
E&ET	19.805	82%
M&CE	16.812	89%
SHA	9.113	93%
MD	7.400	96%
LE	4.687	98%
TL&SE	3.276	100%
AD	673	100%
TOTAL	**232.074**	**100%**

Figure 12: Average of Project Countries WEEE generation in tons per category over the period 2015-2033

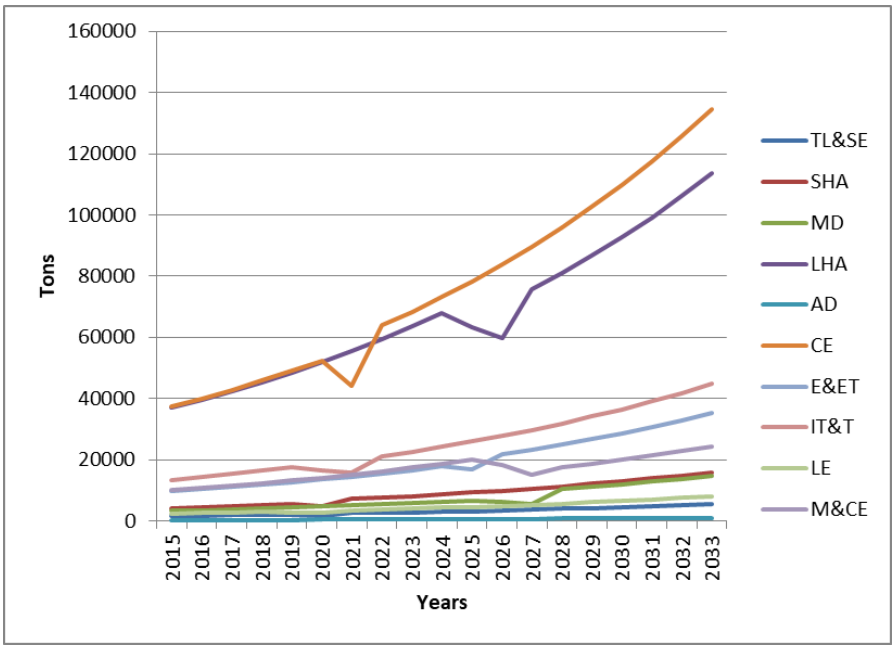


Figure 13: Project Countries' WEEE generation in tons per category over the period 2015-2033

As categories of main concern in terms of their components and potential negative impacts to environment and health if mismanaged, it is worth to remark that Persistent Organic Pollutants (POPs) regulated by the Stockholm Convention, such as Polychlorinated dibenzo-p-dioxins (PCDD) and dibenzofurans (PCDF)[19]; Polybrominated diphenyl ethers (PBDEs) contained as flame retardants in plastics of TV and computer casings, and PCBs[20], are present mainly in categories IT&T and CE.

In addition, categories LE and MD may include mercury components, regulated by the Minamata Convention on Mercury, such as mercury-containing energy efficient lights and primary batteries.

In terms of WEEE with potential to contain POPs or Mercury, the quantities are as follows:

- Waste with potential to contain POPs (CE + IT&T): 44% of total WEEE, in average over the period 2015-2033, equivalent to 102.450 tons per year.
- Waste with potential to contain Mercury (MD + LE): 5% of total WEEE, in average over the period 2015-2033, equivalent to 12.087 tons per year.

From Figures 14 and 15, the amount of WEEE generated at Dominican Republic is estimated to represent more than 50% of total WEEE generation, at all categories. If added together with Trinidad and Tobago´s and Guyana´s estimated WEEE generation, 74% of total WEEE generated are covered.

[19] From smoldering of cables or plastic metal mixes in order to obtain copper and precious metals as well as from burning of printed circuit boards and plastics in order to reduce the volume of unusable waste fractions.

[20] Released from uncontrolled combustion of e-waste and during the dismantling of older electronic and household appliances.

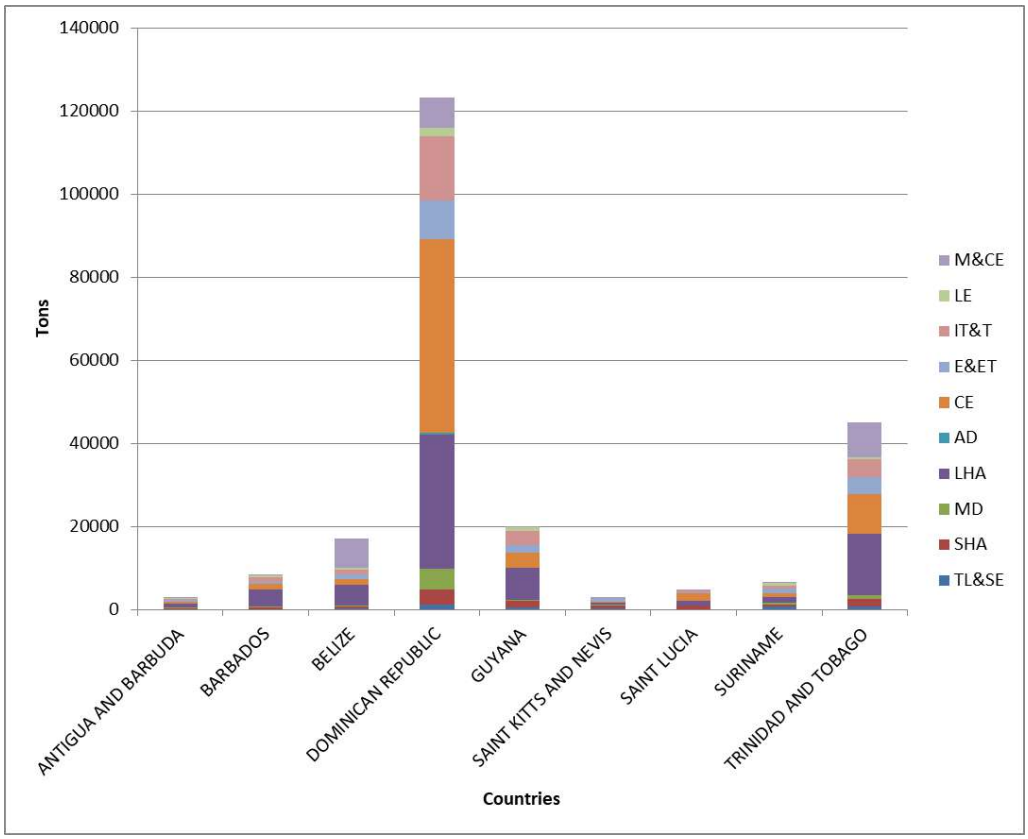


Figure 14: Annual average of WEEE generation in tons per country over the period 2015-2033 per category

Country	Percentage over total WEEE generation in tons at Project Countries
DOMINICAN REPUBLIC	54%
TRINIDAD AND TOBAGO	20%
GUYANA	9%
BELIZE	7%
BARBADOS	4%
SURINAME	3%
SAINT LUCIA	2%
ANTIGUA AND BARBUDA	1%
SAINT KITTS AND NEVIS	1%

Figure 15: Percentage of WEEE generation in tons per country vs total WEEE generation over the period 2015-2033

COUNTRY PROFILES

ANTIGUA AND BARBUDA

Amount of e-waste generated 2018: 15.51 kg/habitant/year[21]

Separate collection of e-waste: Very limited[22] to none[23]

Frequency of collection: Daily, collected commingled with other wastes[24]

Destination of e-waste: open dumpsites[25]

Recycling of e-waste: No[26]

Annual growth rate in consumption of EEE[27]: 5.2%

EEE IMPORTS

Antigua and Barbuda imports represent the 1% of total imports in tons and 2% of total imports in value with respect to total imports at Project Countries. This difference may be related to its high PPP, thus, higher value items can be acquired.

Following are the figures that represent the EEE imports over the period 2015-2018 at Antigua and Barbuda.

Imports EEE	2015	2016	2017	2018
SMALL ISLANDS PROJECT COUNTRIES TONS	212752	212752	212752	212752
SMALL ISLANDS PROJECT COUNTRIES USD thousand	2277760	2277760	2277760	2277760
Country´s imports (tons)	2091	2533	2888	3976
Country´s imports (USD thousand)	36106	42412	46172	63812

Figure 16: Antigua and Barbuda EEE imports

[21] The per capita generation in excess of the global average can be attributed to the dependence on tourism of the island, which has resulted in importation of consumer goods to meet the needs of the tourist.

[22] Wills Recycling is an initiative that handles WEEE recycling.

[23] Extracted from the WASTE MANAGEMENT SURVEY FORM done under "Implementing Sustainable Low and Non-Chemicals Development in Small-Island Developing States (GEF ISLANDS) in the Caribbean" Project Preparation Grant Phase.

[24] Extracted from the WASTE MANAGEMENT SURVEY FORM done under "Implementing Sustainable Low and Non-Chemicals Development in Small-Island Developing States (GEF ISLANDS) in the Caribbean" Project Preparation Grant Phase.

[25] Draft baseline chapter on waste generation, implementing sustainable low and non-chemical development in small island developing states (islands), for the BCRC-Caribbean, R. Roach, 2020.

[26] Extracted from the WASTE MANAGEMENT SURVEY FORM done under "Implementing Sustainable Low and Non-Chemicals Development in Small-Island Developing States (GEF ISLANDS) in the Caribbean" Project Preparation Grant Phase.

[27] Baldé, C.P., Forti V., Gray, V., Kuehr, R., Stegmann,P. : The Global E-waste Monitor – 2017, United Nations University (UNU), International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Vienna.

From 2015 to 2018 there was an increase in the EEE imports. The 81% of the total tons imported is configured by LHA, E&ET, CE, and MD. The order changes when the value is analyzed, due to the characteristics of each category. In this case, the 79% of imports in value is configured by: IT&T, LHA, CE, SHA.

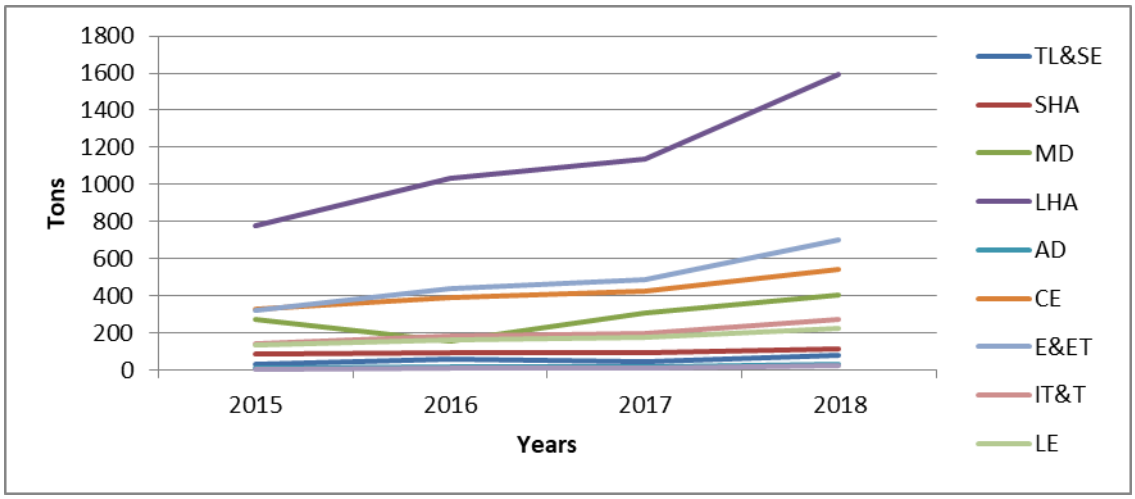
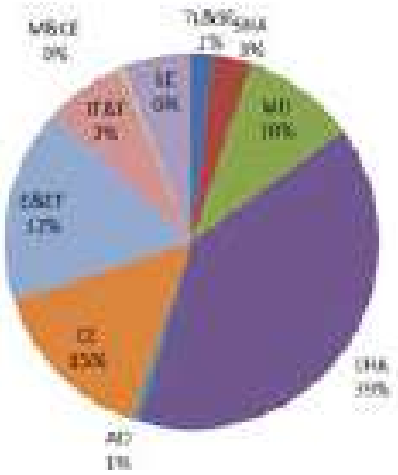


Figure 17: Antigua and Barbuda EEE imports in tons per category over the period 2015-2018



EEE category	Average tons	Accumulated percentage
LHA	1.136	40%
E&ET	486	56%
CE	421	71%
MD	283	81%
IT&T	198	88%
LE	172	94%
SHA	96	97%
TL&SE	52	99%
AD	19	100%
M&CE	10	100%
TOTAL	**2.872**	**100%**

Figure 18: Average of Antigua and Barbuda imports of EEE in tons per category over the period 2015-2018

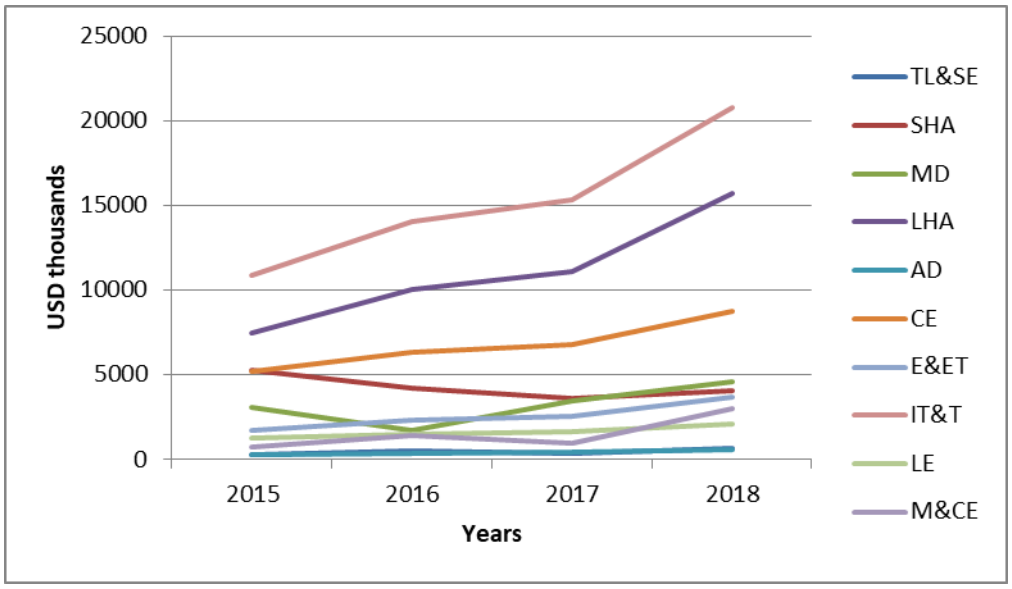
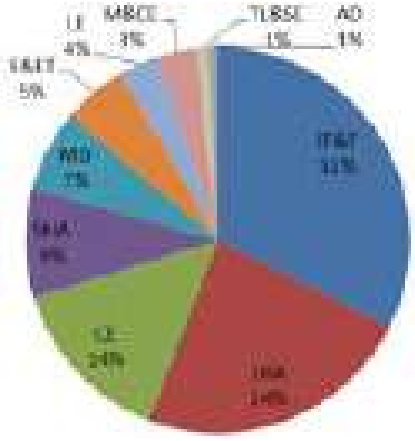


Figure 19: Antigua and Barbuda EEE imports in USD thousands per category over the period 2015-2018



EEE category	Average USD thousands	Accumulated percentage
IT&T	15.251	32%
LHA	11.066	56%
CE	6.762	70%
SHA	4.299	79%
MD	3.190	86%
E&ET	2.559	92%
LE	1.624	95%
M&CE	1.523	98%
TL&SE	446	99%
AD	405	100%
TOTAL	**47.125**	**100%**

Figure 20: Average of Antigua and Barbuda imports of EEE in USD thousands per category over the period 2015-2018

WEEE GENERATION

Antigua and Barbuda WEEE generation represents 1% of total WEEE generation at Project countries. Figure 21 displays the expected (not projected) generation of WEEE based on the corresponding EEE imported at Antigua and Barbuda over the period 2015 to 2018, taking into account a 10% of exports, the annual growth rate of 5.2% in EEE consumption and the estimated lifespan of EEE for each category.

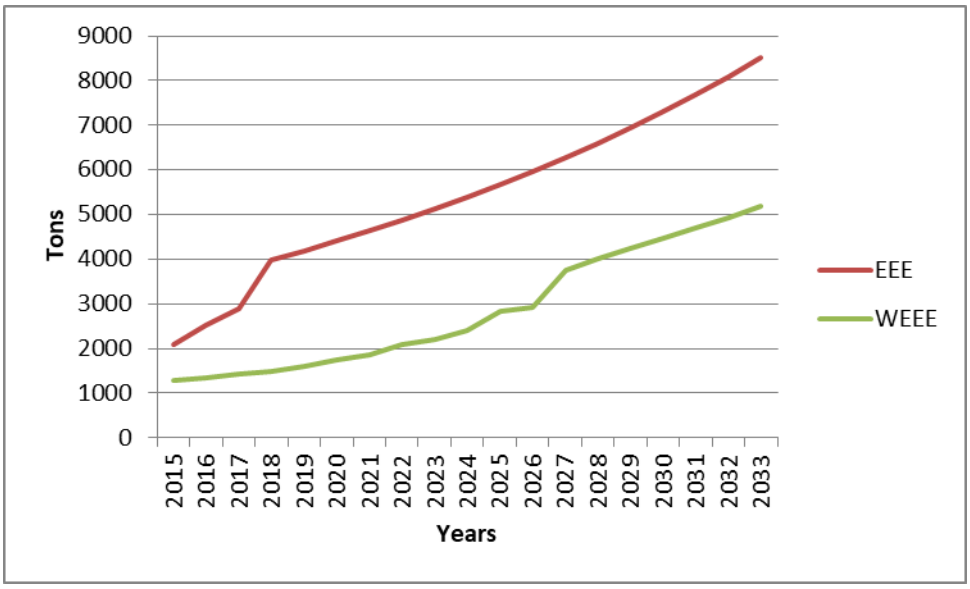
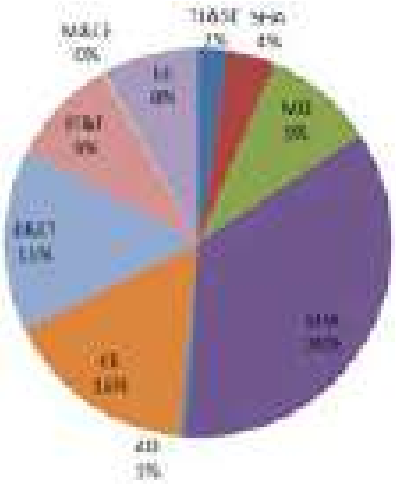


Figure 21: Antigua and Barbuda expected total imports of EEE vs total WEEE generated in tons over the period 2015-2033

Opposite to the situation at the regional level, WEEE´s 85% generation is distributed among several categories: LHA, CE, E&ET, MD and IT&T.



EEE category	Average WEEE generation (tons)	Accumulated percentage
LHA	1.017	36%
CE	458	52%
E&ET	437	67%
MD	263	76%
IT&T	255	85%
LE	228	93%
SHA	115	97%
TL&SE	69	99%
AD	14	100%
M&CE	8	100%
TOTAL	**2.865**	**100%**

Figure 22: Average of Antigua and Barbuda WEEE generation in tons per category over the period 2015-2033

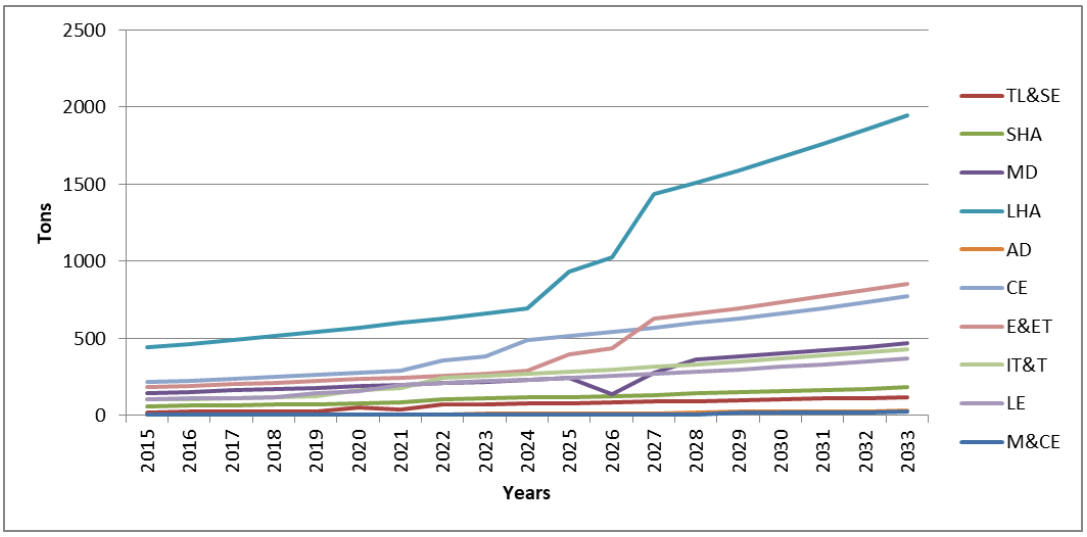


Figure 23: Antigua and Barbuda WEEE generation in tons per category over the period 2015-2033

In terms of WEEE with potential to contain POPs or Mercury, the quantities are as follows:

- Waste with potential to contain POPs (CE + IT&T): 25% of total WEEE, in average over the period 2015-2033, equivalent to 714 tons per year.
- Waste with potential to contain Mercury (MD + LE): 17% of total WEEE, in average over the period 2015-2033, equivalent to 491 tons per year.

BARBADOS

Amount of e-waste generated 2018: 26.05 kg/habitant/year[28]

Separate collection of e-waste: Commingled with Other Wastes, Bulky items may be collected separately for a fee and sent to the processing facility Sustainable Barbados Recycling Centre[29].

Frequency of collection: not informed

Destination of e-waste: engineered sanitary landfills[30]

Recycling of e-waste: some, quantities not informed (Caribbean E-Waste and B's Recycling) [31].

Annual growth rate in consumption of EEE[32]: 5.2%

EEE IMPORTS

Barbados imports represent the 4% of total imports in tons and 7% of total imports in value with respect to total imports at Project Countries. This difference may be related to its high PPP, thus, higher value items can be acquired.

Following are the figures that represent the EEE imports over the period 2015-2018 at Barbados.

Imports EEE	2015	2016	2017	2018
SMALL ISLANDS PROJECT COUNTRIES TONS	212752	212752	212752	212752
SMALL ISLANDS PROJECT COUNTRIES USD thousand	2277760	2277760	2277760	2277760
Country´s imports (tons)	10258	9744	8960	7948
Country´s imports (USD thousand)	174802	167947	149686	136836

Figure 24: Barbados EEE imports over the period 2015-2018

[28] The per capita generation in excess of the global average can be attributed to the dependence on tourism of the island, which has resulted in importation of consumer goods to meet the needs of the tourist.

[29] Extracted from the WASTE MANAGEMENT SURVEY FORM done under "Implementing Sustainable Low and Non-Chemicals Development in Small-Island Developing States (GEF ISLANDS) in the Caribbean" Project Preparation Grant Phase.

[30] Draft baseline chapter on waste generation, implementing sustainable low and non-chemical development in small island developing states (islands), for the BCRC-Caribbean, R. Roach, 2020.

[31] Extracted from the WASTE MANAGEMENT SURVEY FORM done under "Implementing Sustainable Low and Non-Chemicals Development in Small-Island Developing States (GEF ISLANDS) in the Caribbean" Project Preparation Grant Phase.

[32] Baldé, C.P., Forti V., Gray, V., Kuehr, R., Stegmann,P. : The Global E-waste Monitor – 2017, United Nations University (UNU), International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Vienna.

From 2015 to 2018 there was a minor decrease in the EEE imports which could be related to economic aspects. The 79% of the total tons imported is configured by LHA, CE, and IT&T. The order changes when the value is analyzed, due to the characteristics of each category. In this case, the 81% of imports in value is configured by: IT&T, LHA, CE, SHA.

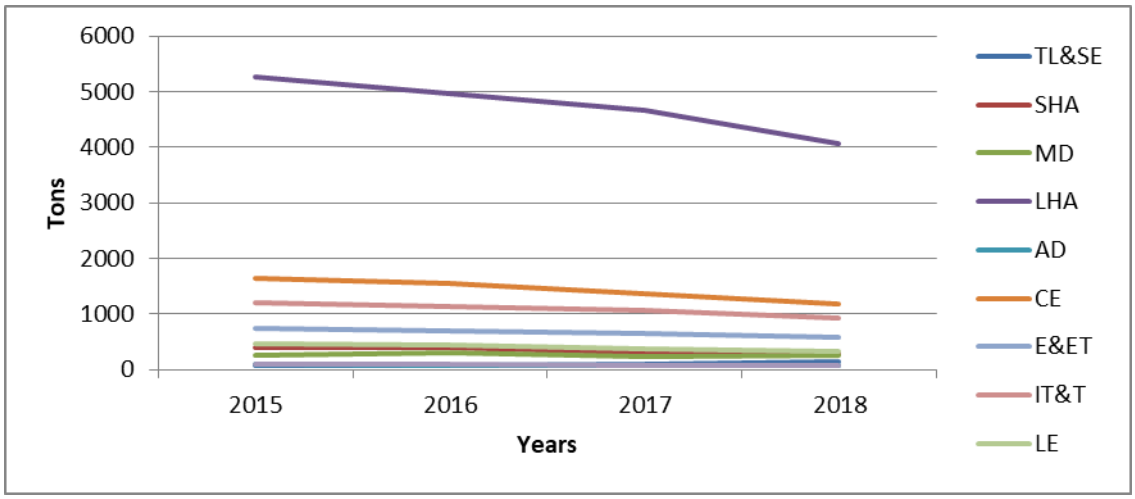
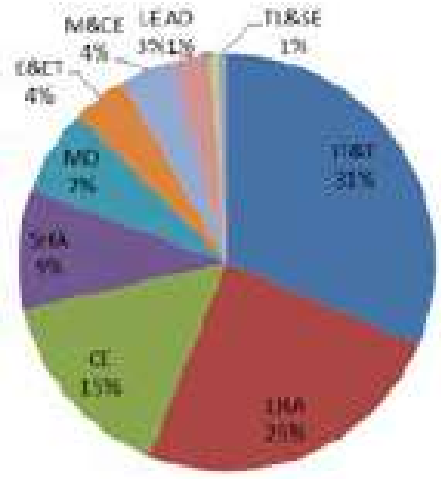


Figure 25: Barbados EEE imports in tons per category over the period 2015-2018



EEE category	Average tons	Accumulated percentage
LHA	4.740	51%
CE	1.445	67%
IT&T	1.085	79%
E&ET	665	86%
LE	409	90%
SHA	351	94%
MD	263	97%
TL&SE	97	98%
M&CE	90	99%
AD	82	100%
TOTAL	**9.228**	**100%**

Figure 26: Average of Barbados imports of EEE in tons per category over the period 2015-2018

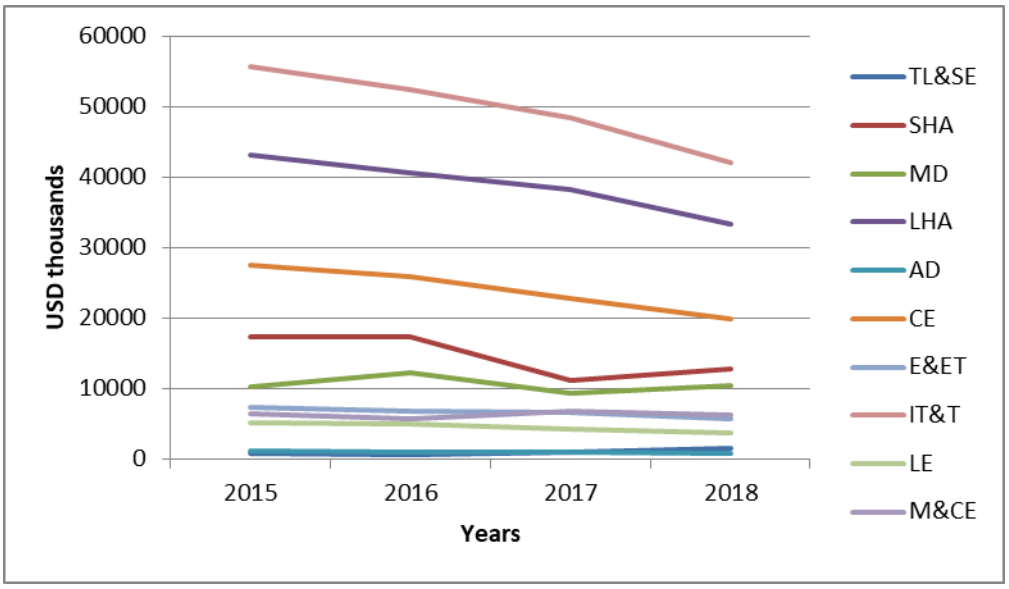


Figure 27: Barbados EEE imports in USD thousands per category over the period 2015-2018

EEE category	Average USD thousands	Accumulated percentage
IT&T	49.658	32%
LHA	38.799	56%
CE	23.992	71%
SHA	14.696	81%
MD	10.613	87%
E&ET	6.633	92%
M&CE	6.633	96%
LE	4.543	99%
AD	1.049	99%
TL&SE	1.002	100%
TOTAL	**157.618**	**100%**

Figure 28: Average of Barbados imports of EEE in USD thousands per category over the period 2015-2018

WEEE GENERATION

Barbados WEEE generation represents 4% of total WEEE generation at Project countries. Figure 29 displays the expected (not projected) generation of WEEE based on the corresponding EEE imported at Barbados over the period 2015 to 2018, taking into account a 10% of exports, the annual growth rate of 5.2% in EEE consumption and the estimated lifespan of EEE for each category.

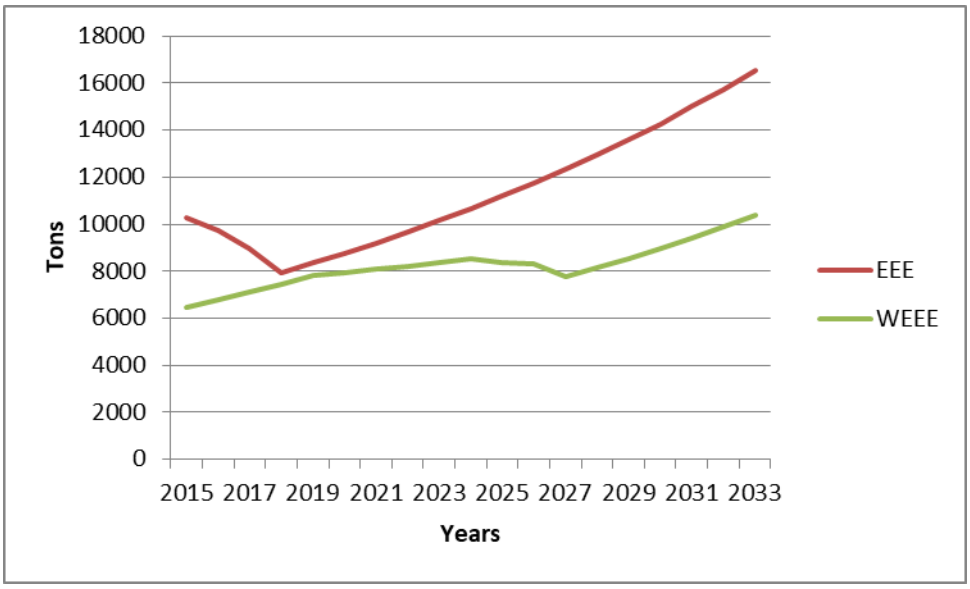
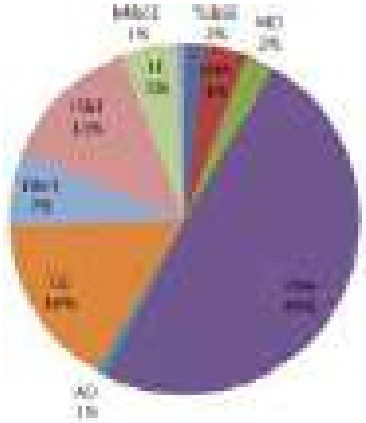


Figure 29: Barbados total imports of EEE vs total WEEE generated in tons over the period 2015-2033

WEEE´s 78% generation is distributed among the following categories: LHA, CE and IT&T. This are the same three top ranked categories that configure most WEEE generation at Project Countries Level, though the order changes, being LHA the highest impact category at Barbados.



EEE category	Average WEEE generation (tons)	Accumulated percentage
LHA	4.046	49%
CE	1.326	65%
IT&T	1.062	78%
E&ET	568	85%
LE	406	90%
SHA	342	94%
MD	215	97%
TL&SE	135	98%
M&CE	71	99%
AD	67	100%
TOTAL	**8.239**	**100%**

Figure 30: Average of Barbados WEEE generation in tons per category over the period 2015-2033

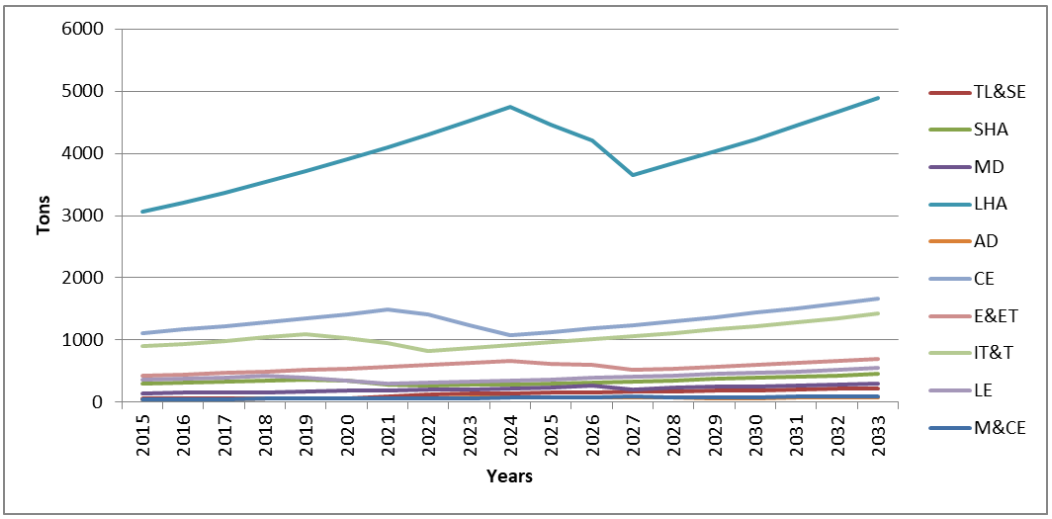


Figure 31: Barbados WEEE generation in tons per category over the period 2015-2033

In terms of WEEE with potential to contain POPs or Mercury, the quantities are as follows:

- Waste with potential to contain POPs (CE + IT&T): 29% of total WEEE, in average over the period 2015-2033, equivalent to 2389 tons per year.
- Waste with potential to contain Mercury (MD + LE): 8% of total WEEE, in average over the period 2015-2033, equivalent to 621 tons per year.

BELIZE

Amount of e-waste generated 2018: 15.63 kg/habitant/year

Separate collection of e-waste: none

Frequency of collection: no data available at the time

Destination of e-waste: engineered sanitary landfills[33]

Recycling of e-waste: very limited[34]

Annual growth rate in consumption of EEE[35]: 13%

EEE IMPORTS

Belize imports represent the 5% of total imports in tons and 4% of total imports in value with respect to total imports at Project Countries. This difference may be related to its mid PPP, thus, less value items are acquired.

Following are the figures that represent the EEE imports over the period 2015-2018 at Belize.

Imports EEE	2015	2016	2017	2018
SMALL ISLANDS PROJECT COUNTRIES TONS	212752	212752	212752	212752
SMALL ISLANDS PROJECT COUNTRIES USD thousand	2277760	2277760	2277760	2277760
Country´s imports (tons)	11516	10740	9406	9283
Country´s imports (USD thousand)	92600	88065	77193	76867

Figure 32: Belize EEE imports over the period 2015-2018

[33] Draft baseline chapter on waste generation, implementing sustainable low and non-chemical development in small island developing states (islands), for the BCRC-Caribbean, R. Roach, 2020.
[34] Done by Mile 8, small quantities and covers a small geographical area of the country.
[35] Baldé, C.P., Forti V., Gray, V., Kuehr, R., Stegmann,P. : The Global E-waste Monitor – 2017, United Nations University (UNU), International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Vienna.

From 2015 to 2018 there was a minor decrease in the EEE imports which could be related to economic aspects. The 80% of the total tons imported is configured by LHA, ET&T and CE. The order changes when the value is analyzed, due to the characteristics of each category. In this case, the 83% of imports in value is configured by: IT&T, LHA, CE, ET&T.

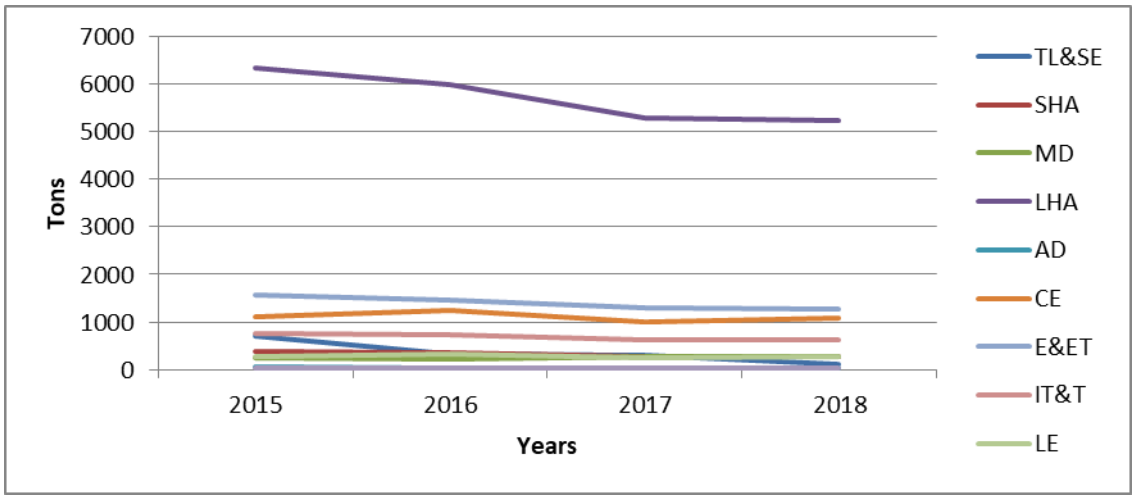
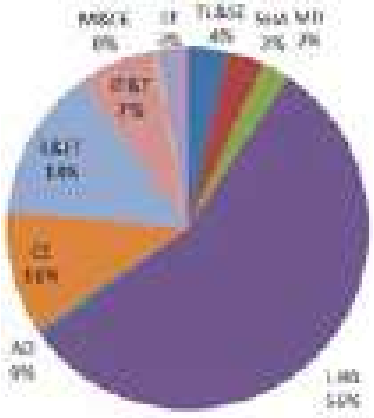


Figure 33: Belize EEE imports in tons per category over the period 2015-2018



EEE category	Average tons	Accumulated percentage
LHA	5.711	56%
E&ET	1.396	69%
CE	1.119	80%
IT&T	690	87%
TL&SE	369	91%
SHA	331	94%
LE	287	97%
MD	256	99%
AD	45	100%
M&CE	32	100%
TOTAL	**10.237**	**100%**

Figure 34: Average of Belize imports of EEE in tons per category over the period 2015-2018

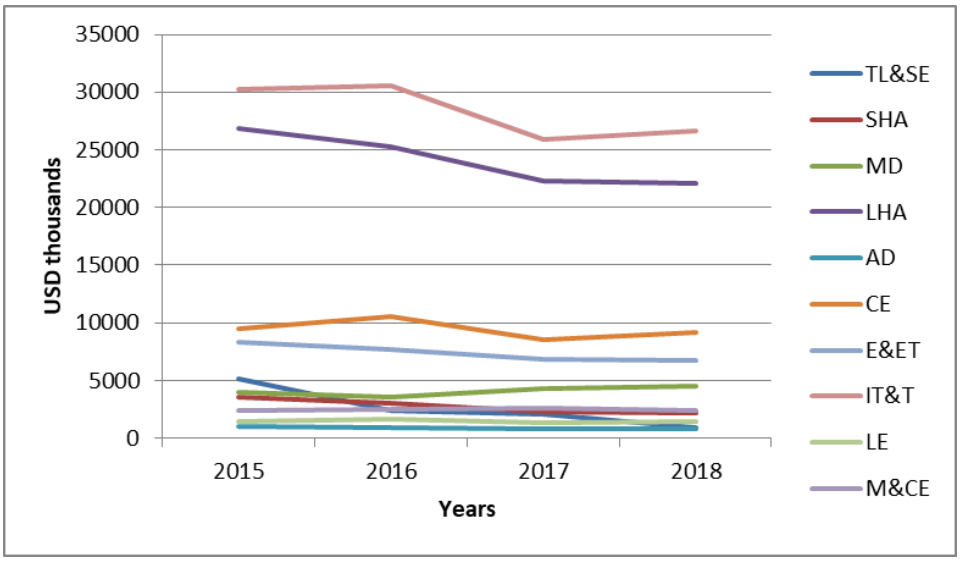
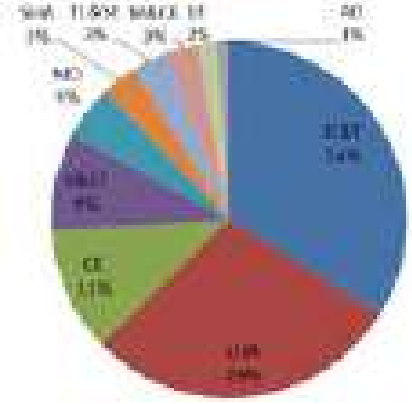


Figure 35: Belize EEE imports in USD thousands per category over the period 2015-2018



EEE category	Average USD thousands	Accumulated percentage
IT&T	28.356	34%
LHA	24.128	63%
CE	9.444	74%
E&ET	7.408	83%
MD	4.074	88%
SHA	2.758	91%
TL&SE	2.646	94%
M&CE	2.519	97%
LE	1.469	99%
AD	878	100%

Figure 36: Average of Belize imports of EEE in USD thousands per category over the period 2015-2018

WEEE GENERATION

Belize WEEE generation represents 7% of total WEEE generation at Project countries. Figure 37 displays the expected (not projected) generation of WEEE based on the corresponding EEE imported at Belize over the period 2015 to 2018, taking into account a 10% of exports, the annual growth rate of 13% in EEE consumption and the estimated lifespan of EEE for each category.

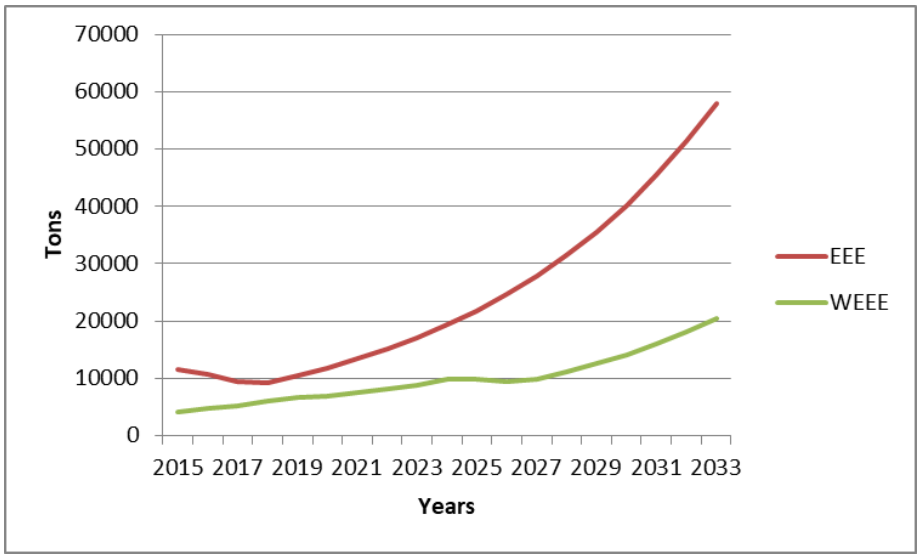
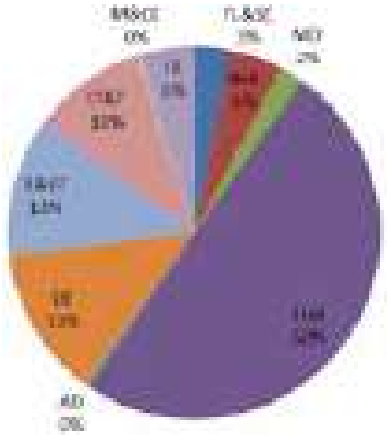


Figure 37: Belize total imports of EEE vs total WEEE generated in tons over the period 2015-2033

WEEE´s 85% generation is distributed among the following categories: LHA, CE, ET&T and IT&T. These include the same three top ranked categories that configure most WEEE generation at the Project Countries level (CE, LHA, IT&T), thought ET&T appears ranked third.



EEE category	Average WEEE generation (tons)	Accumulated percentage
LHA	4.956	50%
CE	1.320	63%
E&ET	1.212	75%
IT&T	982	85%
LE	471	90%
SHA	452	94%
TL&SE	321	97%
MD	212	99%
AD	33	100%
M&CE	23	100%
TOTAL	**9.981**	**100%**

Figure 38: Average of Belize WEEE generation in tons per category over the period 2015-2033

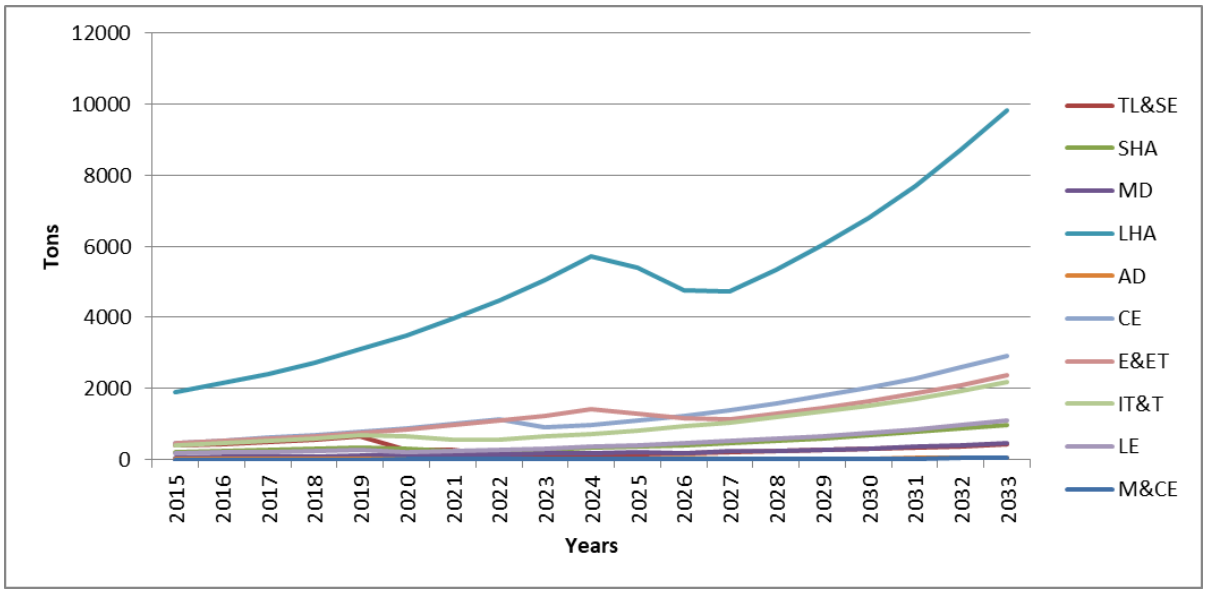


Figure 39: Belize WEEE generation in tons per category over the period 2015-2033

In terms of WEEE with potential to contain POPs or Mercury, the quantities are as follows:

- Waste with potential to contain POPs (CE + IT&T): 23% of total WEEE, in average over the period 2015-2033, equivalent to 2302 tons per year.
- Waste with potential to contain Mercury (MD + LE): 7% of total WEEE, in average over the period 2015-2033, equivalent to 683 tons per year.

DOMINICAN REPUBLIC

Amount of e-waste generated 2018: 6.21 kg/habitant/year

Separate collection of e-waste: no data available at the time

Frequency of collection: no data available at the time

Destination of e-waste: no data available at the time

Recycling of e-waste: no data available at the time

Annual growth rate in consumption of EEE[36]: 5.2%

EEE IMPORTS

Dominican Republic imports represent the 56% of total imports in tons and 55% of total imports in value with respect to total imports at Project Countries[37].

Following are the figures that represent the EEE imports over the period 2015-2018 at Dominican Republic.

Imports EEE	2015	2016	2017	2018
SMALL ISLANDS PROJECT COUNTRIES TONS	212752	212752	212752	212752
SMALL ISLANDS PROJECT COUNTRIES USD thousand	2277760	2277760	2277760	2277760
Country´s imports (tons)	91444	116280	102667	163332
Country´s imports (USD thousand)	981454	1195355	1078967	1782650

Figure 40: Dominican Republic EEE imports over the period 2015-2018

[36] Baldé, C.P., Forti V., Gray, V., Kuehr, R., Stegmann,P. : The Global E-waste Monitor – 2017, United Nations University (UNU), International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Vienna.

[37] As it was stated before, the population of Dominican Republic represents almost the 74% of the Project Countries´ total population.

From 2015 to 2018 there was an increase in the EEE imports. The 82% of the total tons imported is configured by CE, LHA, IT&T and ET&T. The order changes when the value is analyzed, due to the characteristics of each category. In this case, the 77% of imports in value is configured by: IT&T, LHA and CE.

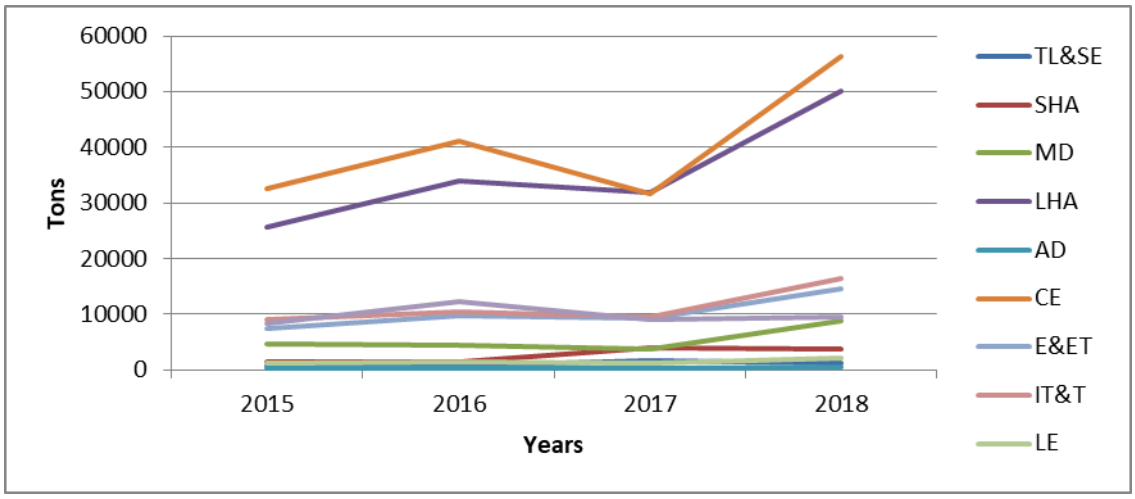
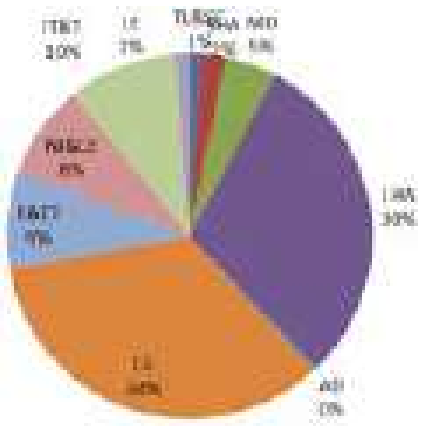


Figure 41: Dominican Republic EEE imports in tons per category over the period 2015-2018



EEE category	Average tons	Accumulated percentage
CE	40.377	34%
LHA	35.415	64%
IT&T	11.376	74%
E&ET	10.293	82%
M&CE	9.828	91%
MD	5.452	95%
SHA	2.692	97%
LE	1.503	99%
TL&SE	1.112	100%
AD	382	100%
TOTAL	**118.431**	**100%**

Figure 42: Average of Dominican Republic imports of EEE in tons per category over the period 2015-2018

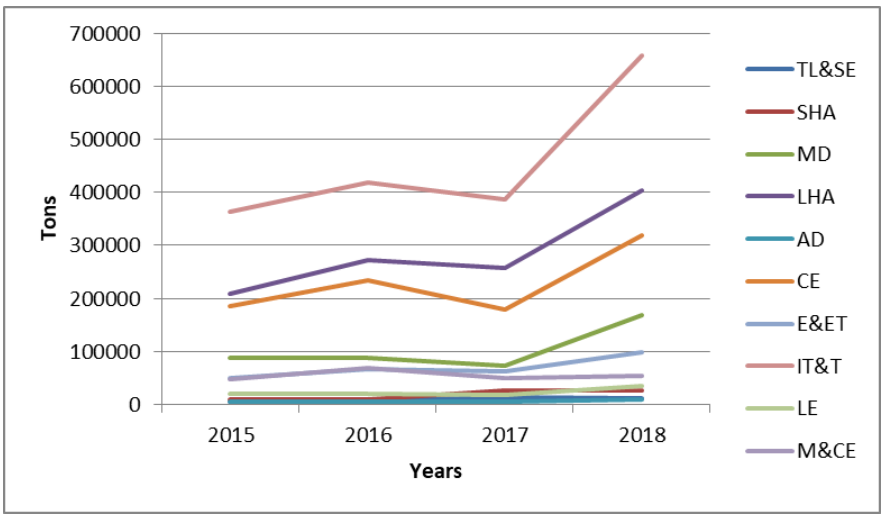
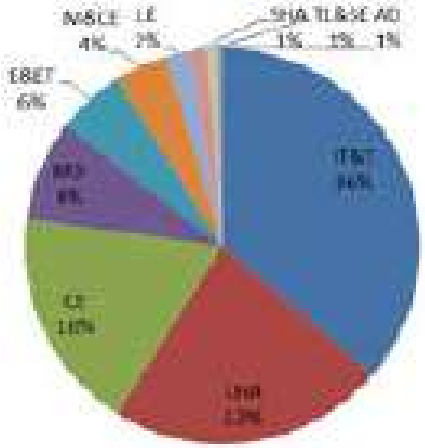


Figure 43: Dominican Republic EEE imports in USD thousands per category over the period 2015-2018



EEE category	Average USD thousands	Accumulated percentage
IT&T	456.327	36%
LHA	285.872	59%
CE	229.707	77%
MD	104.715	85%
E&ET	69.911	91%
M&CE	55.468	95%
LE	23.471	97%
SHA	18.357	99%
TL&SE	9.517	100%
AD	6.262	100%
TOTAL	**1.259.607**	**100%**

Figure 44: Average of Dominican Republic imports of EEE in USD thousands per category over the period 2015-2018

WEEE GENERATION

Dominican Republic WEEE generation represents 54% of total WEEE generation at Project countries. Figure 45 displays the expected (not projected) generation of WEEE based on the corresponding EEE imported at Dominican Republic over the period 2015 to 2018, taking into account a 10% of exports, the annual growth rate of 5.2% in EEE consumption and the estimated lifespan of EEE for each category.

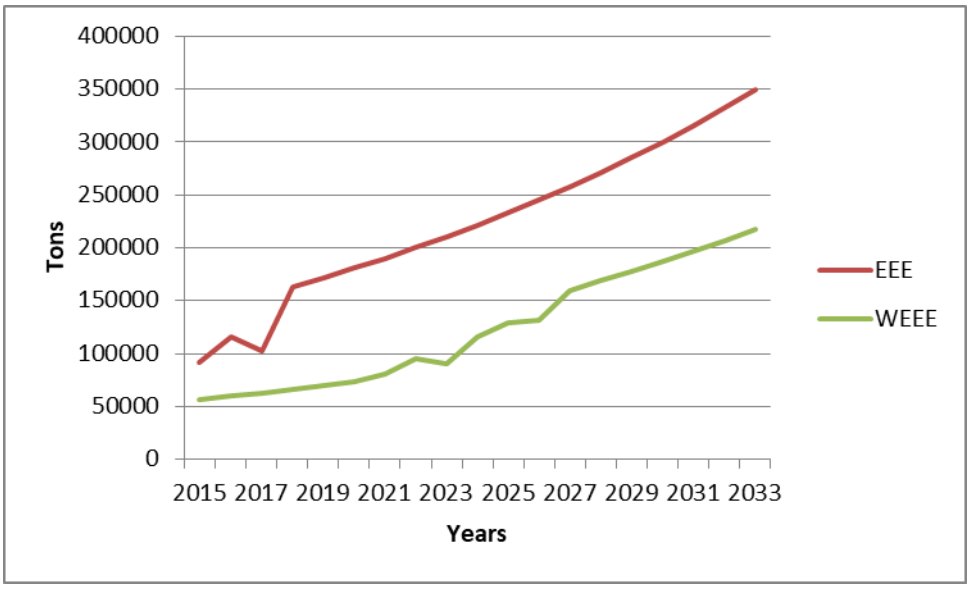
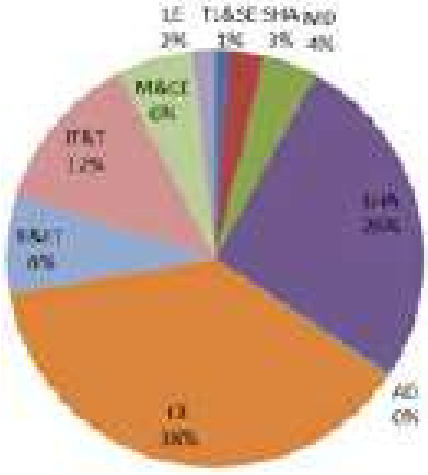


Figure 45: Dominican Republic total imports of EEE vs total WEEE generated in tons over the period 2015-2033

WEEE´s 77% generation is distributed among the following categories: CE, LHA and IT&T. This are the same three top ranked categories that configure most WEEE generation at the Project Countries level.



EEE category	Average WEEE generation (tons)	Accumulated percentage
CE	46.581	38%
LHA	32.352	64%
IT&T	15.385	77%
E&ET	9.378	84%
M&CE	7.216	90%
MD	5.134	94%
SHA	3.471	97%
LE	2.204	99%
TL&SE	1.229	100%
AD	296	100%
TOTAL	**123.246**	**100%**

Figure 46: Average of Dominican Republic WEEE generation in tons per category over the period 2015-2033

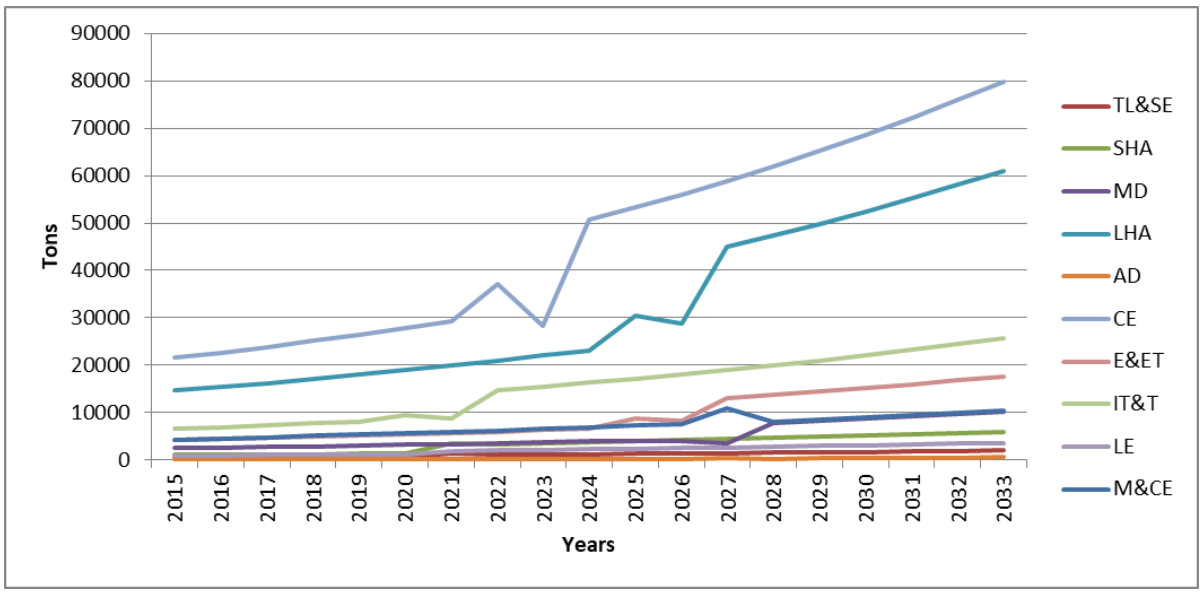


Figure 47: Dominican Republic WEEE generation in tons per category over the period 2015-2033

In terms of WEEE with potential to contain POPs or Mercury, the quantities are as follows:

- Waste with potential to contain POPs (CE + IT&T): 50% of total WEEE, in average over the period 2015-2033, equivalent to 61,965 tons per year.
- Waste with potential to contain Mercury (MD + LE): 6% of total WEEE, in average over the period 2015-2033, equivalent to 7,338 tons per year.

GUYANA

Amount of e-waste generated 2018: 9.04 kg/habitant/year

Separate collection of e-waste: in general no, sometimes by private collectors[38]

Frequency of collection: daily Commingled with Other Wastes[39]

Destination of e-waste: engineered sanitary landfills[40]

Recycling of e-waste: 24 tonnes/year by Eternity Investment[41]

Annual growth rate in consumption of EEE[42]: 23%

EEE IMPORTS

Guyana imports represent the 6% of total imports in tons and 6% of total imports in value with respect to total imports at Project Countries. This difference may be related to its low PPP, thus, less value items are acquired.

Following are the figures that represent the EEE imports over the period 2015-2018 at Guyana.

Imports EEE	2015	2016	2017	2018
SMALL ISLANDS PROJECT COUNTRIES TONS	212752	212752	212752	212752
SMALL ISLANDS PROJECT COUNTRIES USD thousand	2277760	2277760	2277760	2277760
Country´s imports (tons)	21220	8752	9493	13050
Country´s imports (USD thousand)	213118	93670	102344	147581

Figure 48: Guyana EEE imports over the period 2015-2018

[38] Extracted from the WASTE MANAGEMENT SURVEY FORM done under "Implementing Sustainable Low and Non-Chemicals Development in Small-Island Developing States (GEF ISLANDS) in the Caribbean" Project Preparation Grant Phase.

[39] Extracted from the WASTE MANAGEMENT SURVEY FORM done under "Implementing Sustainable Low and Non-Chemicals Development in Small-Island Developing States (GEF ISLANDS) in the Caribbean" Project Preparation Grant Phase.

[40] Draft baseline chapter on waste generation, implementing sustainable low and non-chemical development in small island developing states (islands), for the BCRC-Caribbean, R. Roach, 2020.

[41] Extracted from the WASTE MANAGEMENT SURVEY FORM done under "Implementing Sustainable Low and Non-Chemicals Development in Small-Island Developing States (GEF ISLANDS) in the Caribbean" Project Preparation Grant Phase.

[42] Baldé, C.P., Forti V., Gray, V., Kuehr, R., Stegmann,P. : The Global E-waste Monitor – 2017, United Nations University (UNU), International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Vienna.

From 2015 to 2016 there was an important decrease in the EEE imports, which could be related to economic aspects. The 81% of the total tons imported is configured by LHA, E&ET and CE. The order changes when the value is analyzed, due to the characteristics of each category. In this case, the 76% of imports in value is configured by: LHA, IT&T and E&ET.

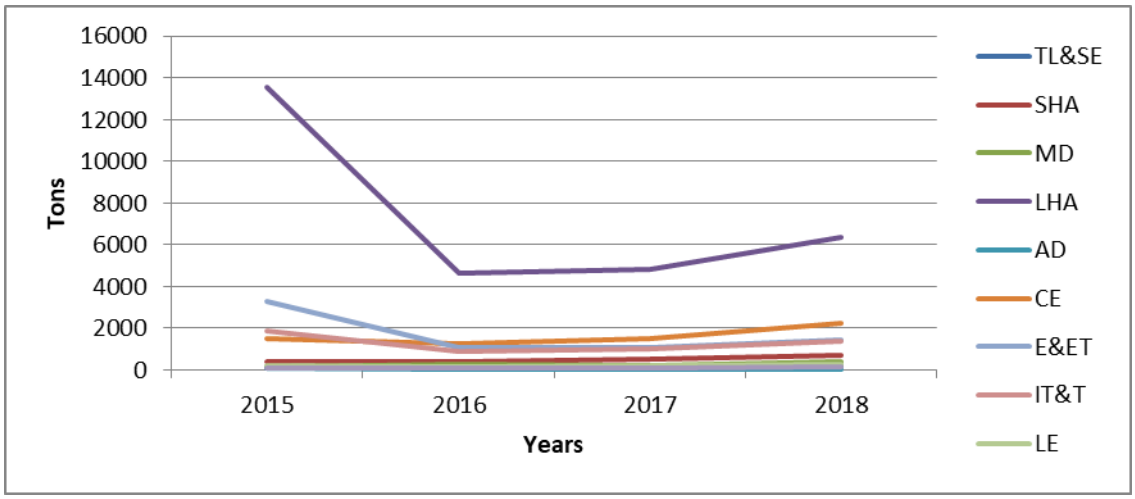
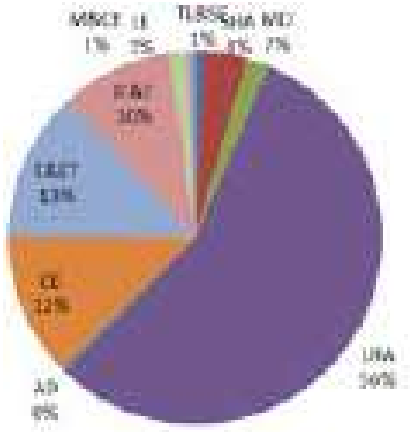


Figure 49: Guyana EEE imports in tons per category over the period 2015-2018



EEE category	Average tons	Accumulated percentage
LHA	7.331	56%
E&ET	1.719	69%
CE	1.622	81%
IT&T	1.267	91%
SHA	503	95%
MD	254	97%
LE	196	98%
M&CE	97	99%
TL&SE	92	100%
AD	48	100%
TOTAL	**13.129**	**100%**

Figure 50: Average of Guyana imports of EEE in tons per category over the period 2015-2018

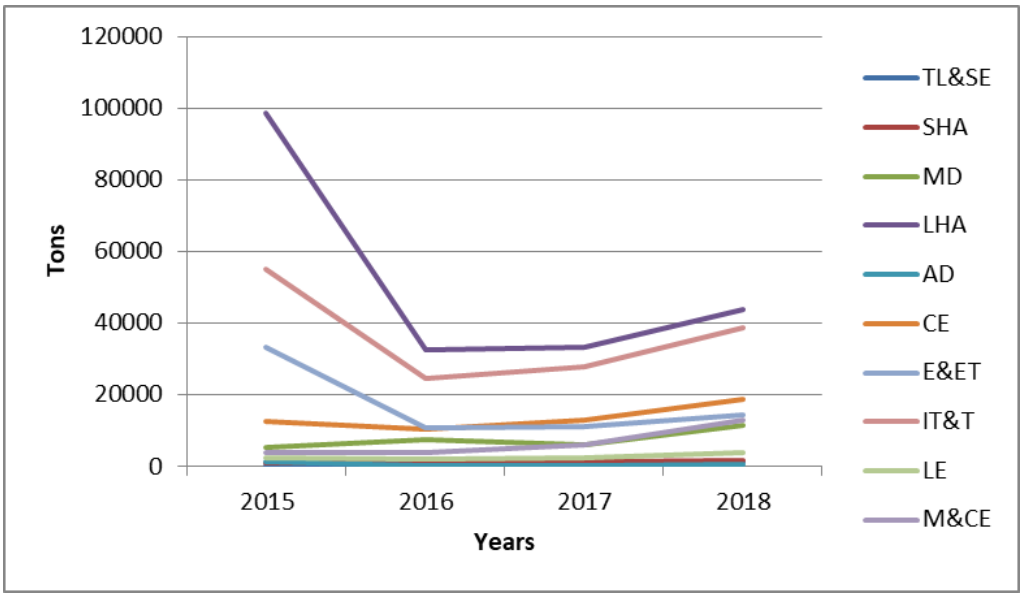
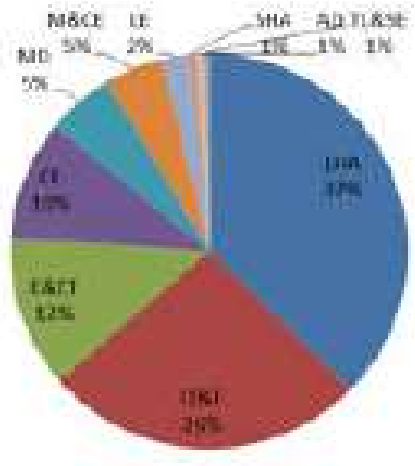


Figure 51: Guyana EEE imports in USD thousands per category over the period 2015-2018



EEE category	Average USD thousands	Accumulated percentage
LHA	52.025	37%
IT&T	36.527	64%
E&ET	17.313	76%
CE	13.639	86%
MD	7.585	91%
M&CE	6.698	96%
LE	2.766	98%
SHA	1.350	99%
AD	641	100%
TL&SE	635	100%
TOTAL	**139.178**	**100%**

Figure 52: Average of Guyana imports of EEE in USD thousands per category over the period 2015-2018

WEEE GENERATION

Guyana WEEE generation represents 9% of total WEEE generation at Project countries. Figure 53 displays the expected (not projected) generation of WEEE based on the corresponding EEE imported at Guyana over the period 2015 to 2018, taking into account a 10% of exports, the annual growth rate of 23% in EEE consumption and the estimated lifespan of EEE for each category.

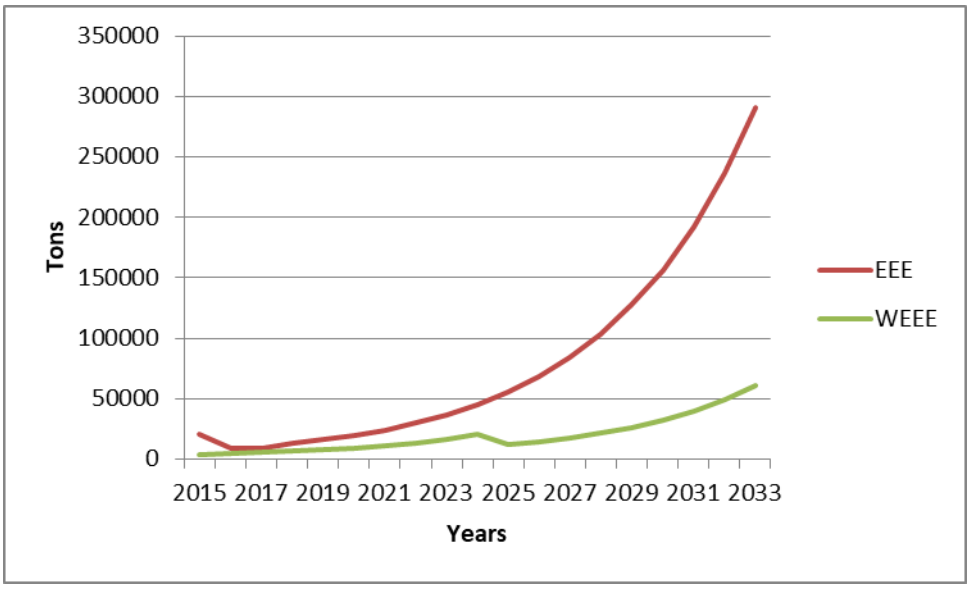
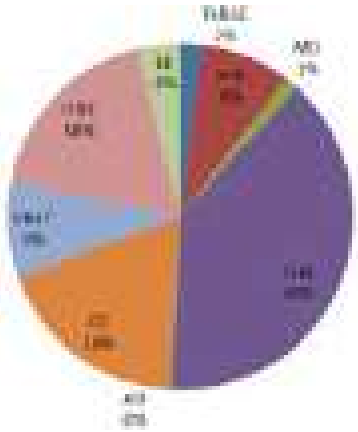


Figure 53: Guyana total imports of EEE vs total WEEE generated in tons over the period 2015-2033

WEEE´s 75% generation is distributed among the following categories: LHA, CE and IT&. The three top ranked categories are the same that represent 80% WEEE generation at the Project Countries level (CE, LHA, IT&T).



EEE category	Average WEEE generation (tons)	Accumulated percentage
LHA	7.704	39%
CE	3.592	57%
IT&T	3.463	75%
E&ET	1.786	84%
SHA	1.647	92%
LE	811	96%
TL&SE	410	98%
MD	259	99%
M&CE	85	100%
AD	39	100%
TOTAL	**19.796**	**100%**

Figure 54: Average of Guyana WEEE generation in tons per category over the period 2015-2033

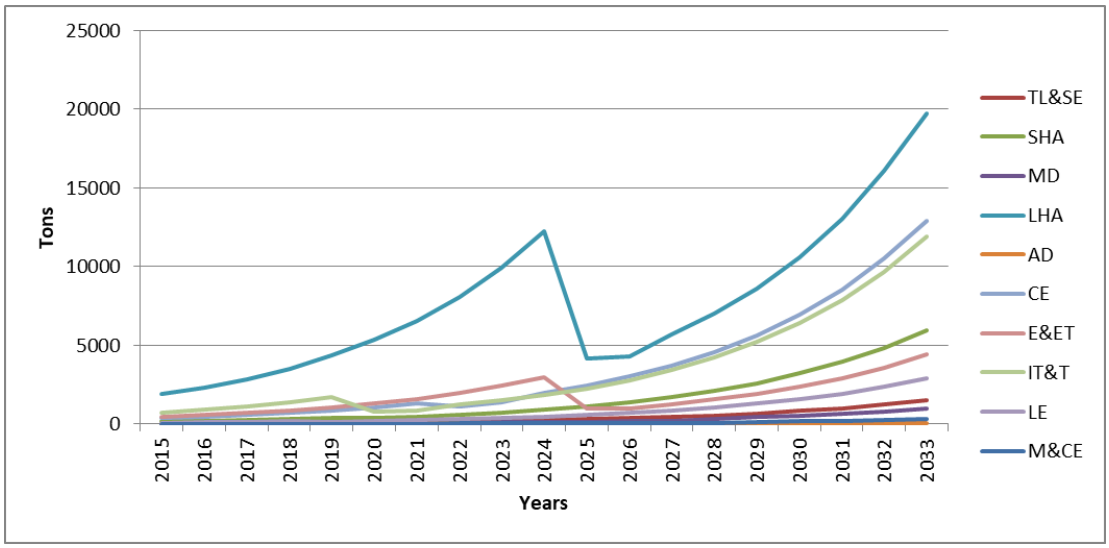


Figure 55: Guyana WEEE generation in tons per category over the period 2015-2033

In terms of WEEE with potential to contain POPs or Mercury, the quantities are as follows:

- Waste with potential to contain POPs (CE + IT&T): 36% of total WEEE, in average over the period 2015-2033, equivalent to 7,005 tons per year.
- Waste with potential to contain Mercury (MD + LE): 5% of total WEEE, in average over the period 2015-2033, equivalent to 1,070 tons per year.

SAINT KITTS AND NEVIS

Amount of e-waste generated 2018: 33.12 kg/habitant/year[43]

Separate collection of e-waste: Very limited[44] to none[45]

Frequency of collection: Twice per week in all collection areas, Commingled with Other Wastes[46]

Destination of e-waste: what is not covered by the Admiral initiative[47] ends up at open dumpsites[48]

Recycling of e-waste: No[49]

Annual growth rate in consumption of EEE[50]: 5.2%

EEE IMPORTS

Saint Kitts and Nevis imports represent the 1% of total imports in tons and 1% of total imports in value with respect to total imports at Project Countries.

Following are the figures that represent the EEE imports over the period 2015-2018 at Saint Kitts and Nevis.

Imports EEE	2015	2016	2017	2018
SMALL ISLANDS PROJECT COUNTRIES TONS	212752	212752	212752	212752
SMALL ISLANDS PROJECT COUNTRIES USD thousand	2277760	2277760	2277760	2277760
Country´s imports (tons)	2368	2881	2629	3581
Country´s imports (USD thousand)	21571	25920	23364	30315

Figure 56: Saint Kitts and Nevis EEE imports over the period 2015-2018

[43] The per capita generation in excess of the global average can be attributed to the dependence on tourism of the island, which has resulted in importation of consumer goods to meet the needs of the tourist.
[44] Admirals initiative on WEEE – voluntary drop off.
[45] Extracted from the WASTE MANAGEMENT SURVEY FORM done under "Implementing Sustainable Low and Non-Chemicals Development in Small-Island Developing States (GEF ISLANDS) in the Caribbean" Project Preparation Grant Phase.
[46] Extracted from the WASTE MANAGEMENT SURVEY FORM done under "Implementing Sustainable Low and Non-Chemicals Development in Small-Island Developing States (GEF ISLANDS) in the Caribbean" Project Preparation Grant Phase.
[47] Admirals initiative on WEEE – voluntary drop off.
[48] Draft baseline chapter on waste generation, implementing sustainable low and non-chemical development in small island developing states (islands), for the BCRC-Caribbean, R. Roach, 2020.
[49] Extracted from the WASTE MANAGEMENT SURVEY FORM done under "Implementing Sustainable Low and Non-Chemicals Development in Small-Island Developing States (GEF ISLANDS) in the Caribbean" Project Preparation Grant Phase.
[50] Baldé, C.P., Forti V., Gray, V., Kuehr, R., Stegmann,P. : The Global E-waste Monitor – 2017, United Nations University (UNU), International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Vienna.

From 2015 to 2018 there was an increase in the EEE imports. The 76% of the total tons imported is configured by SHA, E&ET, LHA and CE. The order changes when the value is analyzed, due to the characteristics of each category. In this case, the 73% of imports in value is configured by: IT&T, SHA, LHA and E&ET.

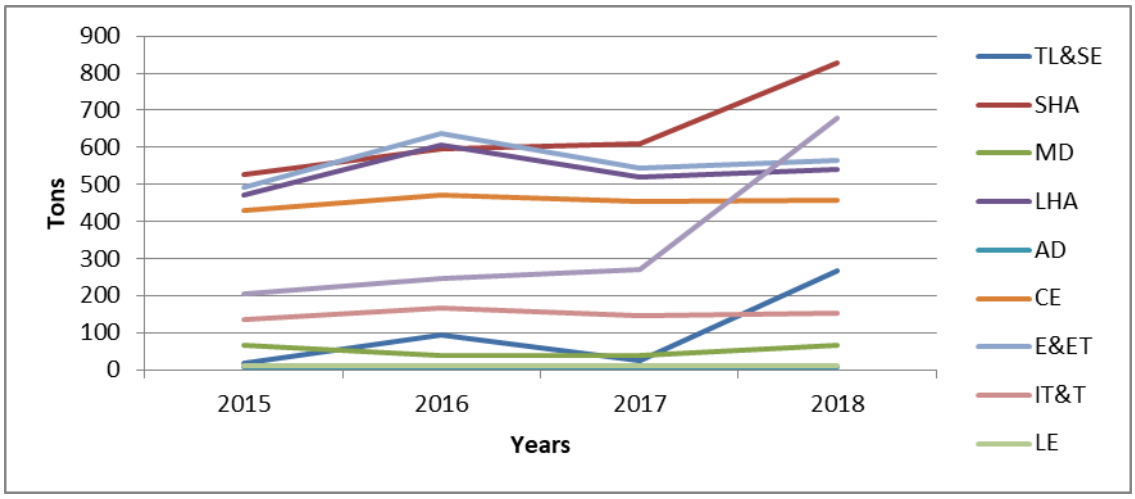
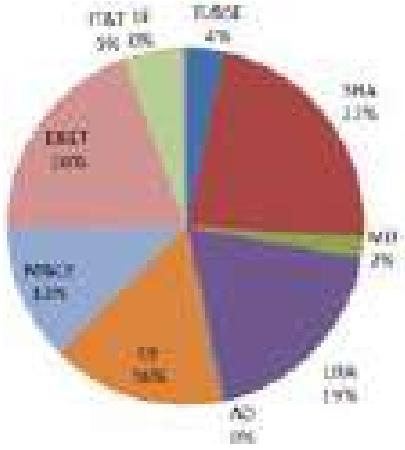


Figure 57: Saint Kitts and Nevis EEE imports in tons per category over the period 2015-2018



EEE category	Average tons	Accumulated percentage
SHA	641	22%
E&ET	560	42%
LHA	534	61%
CE	453	76%
M&CE	351	89%
IT&T	150	94%
TL&SE	102	97%
MD	53	99%
LE	12	100%
AD	8	100%
TOTAL	**2.865**	**100%**

Figure 58: Average Saint Kitts and Nevis imports of EEE in tons per category over the period 2015-2018

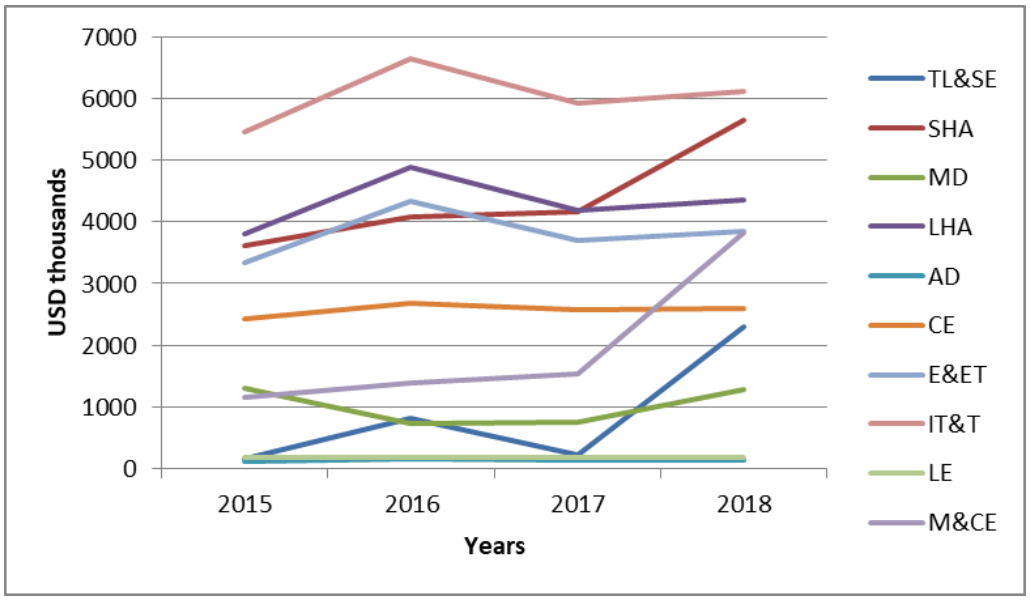
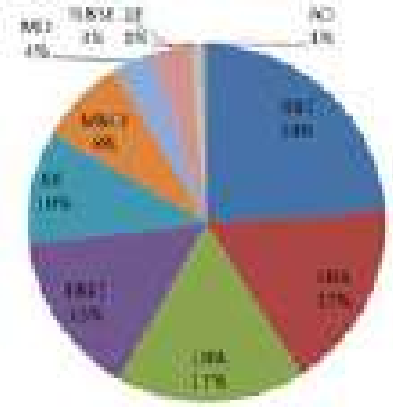


Figure 59: Saint Kitts and Nevis EEE imports in USD thousands per category over the period 2015-2018



EEE category	Average USD thousands	Accumulated percentage
IT&T	6.030	24%
SHA	4.371	41%
LHA	4.312	58%
E&ET	3.803	73%
CE	2.577	83%
M&CE	1.982	91%
MD	1.017	95%
TL&SE	875	99%
LE	188	99%
AD	137	100%
TOTAL	**25.293**	**100%**

Figure 60: Average Saint Kitts and Nevis imports of EEE in USD thousands per category over the period 2015-2018

WEEE GENERATION

Saint Kitts and Nevis WEEE generation represents 1% of total WEEE generation at Project countries. Figure 61 displays the expected (not projected) generation of WEEE based on the corresponding EEE imported at Saint Kitts and Nevis over the period 2015 to 2018, taking into account a 10% of exports, the annual growth rate of 5.2% in EEE consumption and the estimated lifespan of EEE for each category.

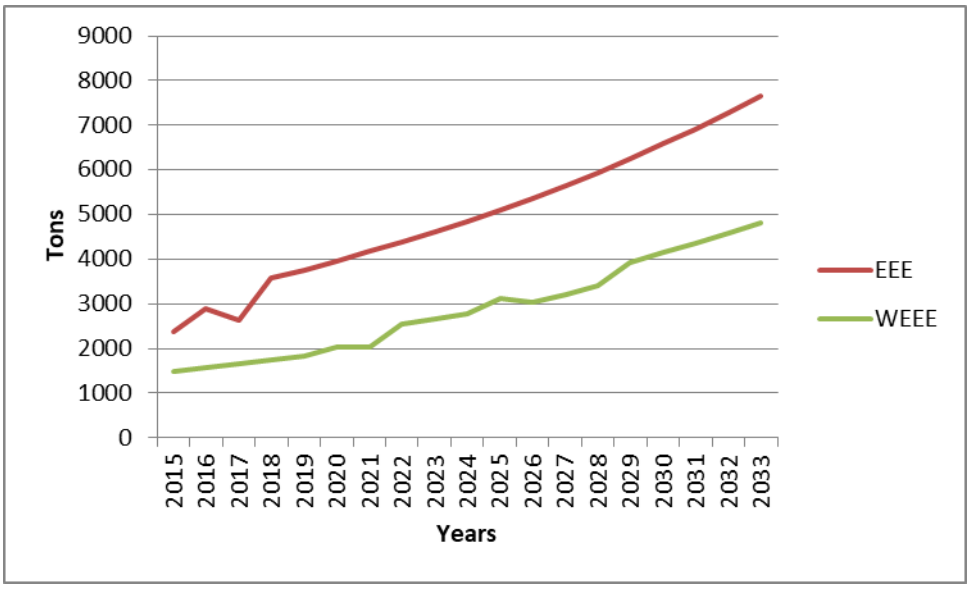


Figure 61: Saint Kitts and Nevis total imports of EEE vs total WEEE generated in tons over the period 2015-2033

WEEE´s 74% generation is distributed among the following categories: SHA, ET&T, LHA and CE. This differs in the categories and order that configure the most generation at the Project Countries Level. A further assessment should be done to understand the causes of this difference.

EEE category	Average WEEE generation (tons)	Accumulated percentage
SHA	803	28%
E&ET	463	44%
LHA	443	59%
CE	442	74%
M&CE	293	85%
TL&SE	215	92%
IT&T	160	97%
MD	53	99%
LE	14	100%
AD	6	100%
TOTAL	**2.891**	**100%**

Figure 62: Average of Saint Kitts and Nevis WEEE generation in tons per category over the period 2015-2033

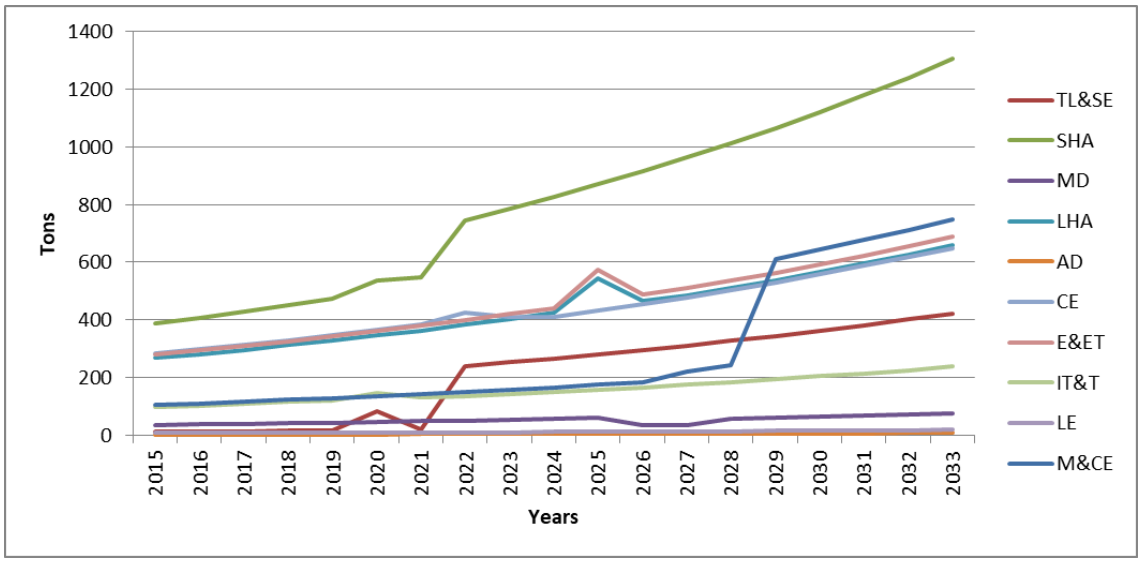


Figure 63: Saint Kitts and Nevis WEEE generation in tons per category over the period 2015-2033

In terms of WEEE with potential to contain POPs or Mercury, the quantities are as follows:

- Waste with potential to contain POPs (CE + IT&T): 21% of total WEEE, in average over the period 2015-2033, equivalent to 602 tons per year.
- Waste with potential to contain Mercury (MD + LE): 2% of total WEEE, in average over the period 2015-2033, equivalent to 67 tons per year.

SAINT LUCIA

Amount of e-waste generated 2018: 14.95 kg/habitant/year

Separate collection of e-waste: partial collection by private entities[51]

Frequency of collection: some ad-hoc collection. The rest WEEE is collected altogether with household waste.

Destination of e-waste: landfill[52]

Recycling of e-waste: No[53]

Annual growth rate in consumption of EEE[54]: 13%

EEE IMPORTS

Saint Lucia imports represent the 2% of total imports in tons and 2% of total imports in value with respect to total imports at Project Countries.

Following are the figures that represent the EEE imports over the period 2015-2018 at Saint Lucia.

Imports EEE	2015	2016	2017	2018
SMALL ISLANDS PROJECT COUNTRIES TONS	212752	212752	212752	212752
SMALL ISLANDS PROJECT COUNTRIES USD thousand	2277760	2277760	2277760	2277760
Country´s imports (tons)	5062	5830	5750	3899
Country´s imports (USD thousand)	48438	56438	55639	36556

Figure 64: Saint Lucia EEE imports over the period 2015-2018

[51] Extracted from the WASTE MANAGEMENT SURVEY FORM done under "Implementing Sustainable Low and Non-Chemicals Development in Small-Island Developing States (GEF ISLANDS) in the Caribbean" Project Preparation Grant Phase.

[52] Extracted from the WASTE MANAGEMENT SURVEY FORM done under "Implementing Sustainable Low and Non-Chemicals Development in Small-Island Developing States (GEF ISLANDS) in the Caribbean" Project Preparation Grant Phase.

[53] Extracted from the WASTE MANAGEMENT SURVEY FORM done under "Implementing Sustainable Low and Non-Chemicals Development in Small-Island Developing States (GEF ISLANDS) in the Caribbean" Project Preparation Grant Phase.

[54] Baldé, C.P., Forti V., Gray, V., Kuehr, R., Stegmann,P. : The Global E-waste Monitor – 2017, United Nations University (UNU), International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Vienna.

By 2018 there was a decrease in the EEE imports. The 76% of the total tons imported is configured by CE, LHA and E&ET. The order changes when the value is analyzed, due to the characteristics of each category. In this case, the 79% of imports in value is configured by: IT&T, LHA and CE.

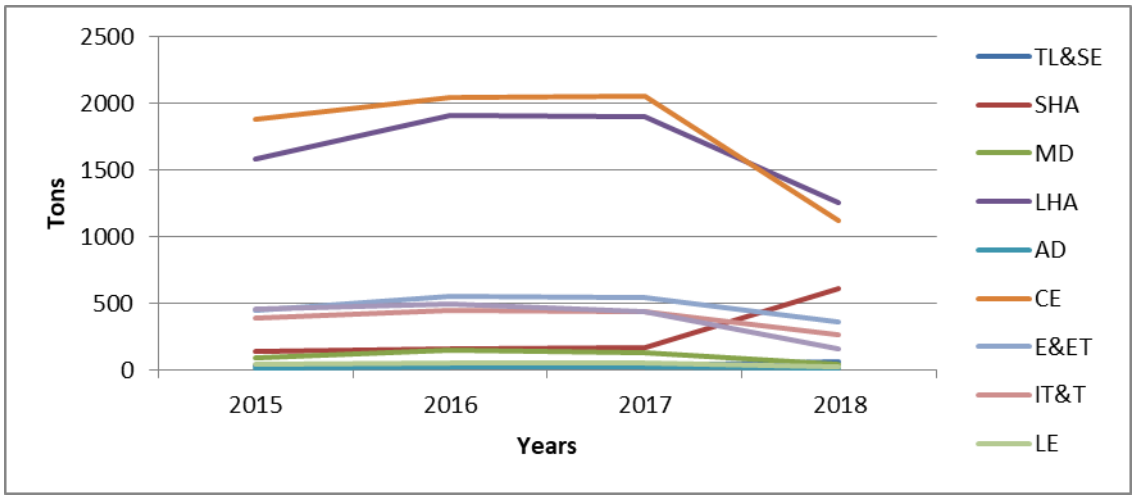
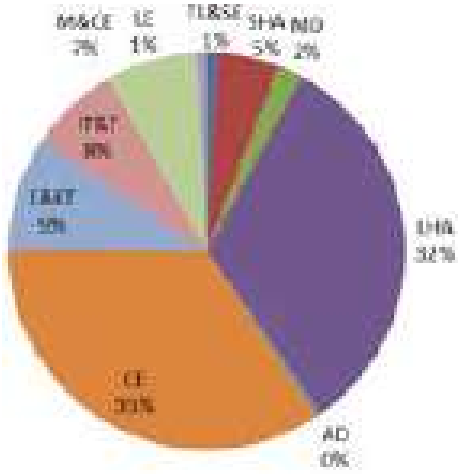


Figure 65: Saint Lucia EEE imports in tons per category over the period 2015-2018



EEE category	Average tons	Accumulated percentage
CE	1.770	34%
LHA	1.659	67%
E&ET	475	76%
IT&T	383	83%
M&CE	381	91%
SHA	265	96%
MD	102	98%
LE	43	99%
TL&SE	39	100%
AD	17	100%
TOTAL	**5.135**	**100%**

Figure 66: Average of Saint Lucia imports of EEE in tons per category over the period 2015-2018

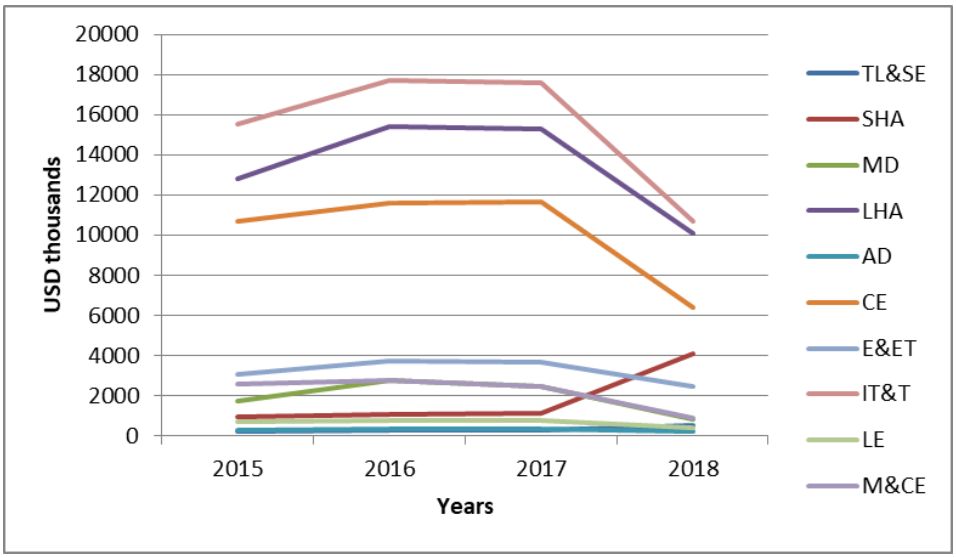
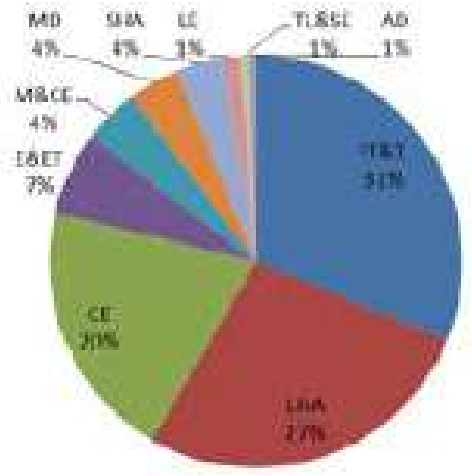


Figure 67: Saint Lucia EEE imports in USD thousands per category over the period 2015-2018



EEE category	Average USD thousands	Accumulated percentage
IT&T	15.373	31%
LHA	13.391	58%
CE	10.069	79%
E&ET	3.228	85%
M&CE	2.152	90%
MD	1.954	94%
SHA	1.808	97%
LE	671	99%
TL&SE	337	99%
AD	284	100%
TOTAL	**49.268**	**100%**

Figure 68: Average of Saint Lucia imports of EEE in USD thousands per category over the period 2015-2018

WEEE GENERATION

Saint Lucia WEEE generation represents 2% of total WEEE generation at Project countries. Figure 69 displays the expected (not projected) generation of WEEE based on the corresponding EEE imported at Saint Lucia over the period 2015 to 2018, taking into account a 10% of exports, the annual growth rate of 13% in EEE consumption and the estimated lifespan of EEE for each category.

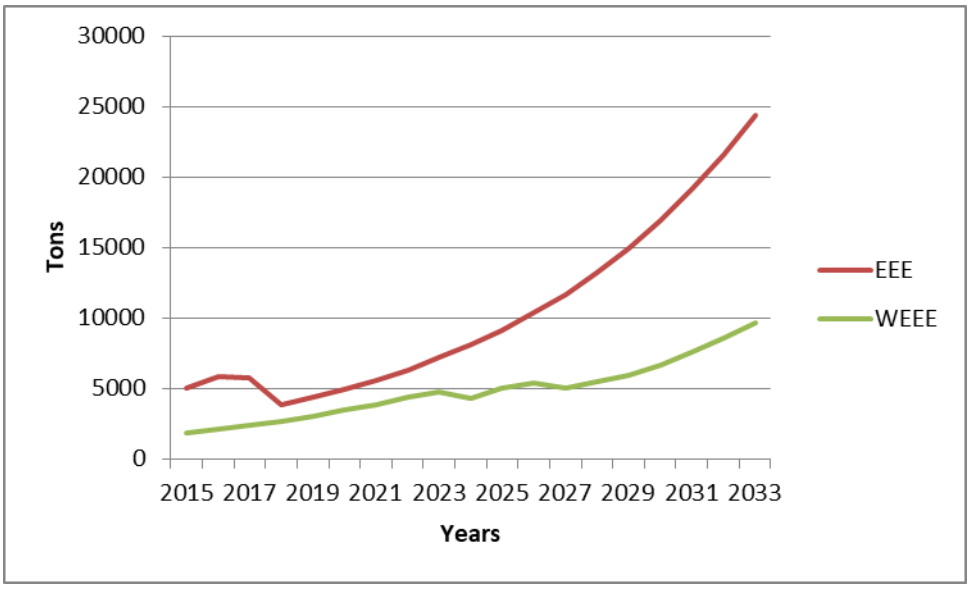
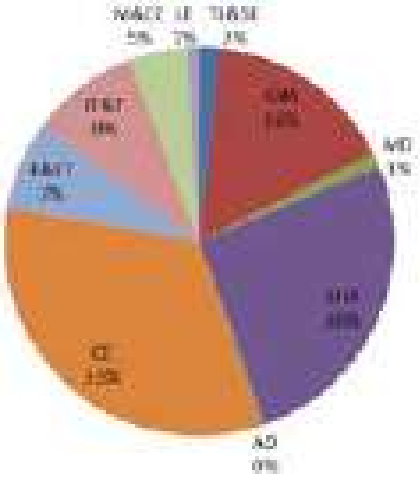


Figure 69: Saint Lucia total imports of EEE vs total WEEE generated in tons over the period 2015-2033

WEEE´s 75% generation is distributed among the following categories: CE, LHA and SHA. These include two of the three top ranked categories that configure most WEEE generation at the Project Countries level (CE, LHA, IT&T), thought SHA appears instead of IT&T ranked 3rd.



EEE category	Average WEEE generation (tons)	Accumulated percentage
CE	1.615	33%
LHA	1.256	59%
SHA	775	75%
IT&T	438	84%
E&ET	361	91%
M&CE	234	96%
TL&SE	80	98%
MD	58	99%
LE	49	100%
AD	11	100%
TOTAL	**4.878**	**100%**

Figure 70: Average of Saint Lucia WEEE generation in tons per category over the period 2015-2033

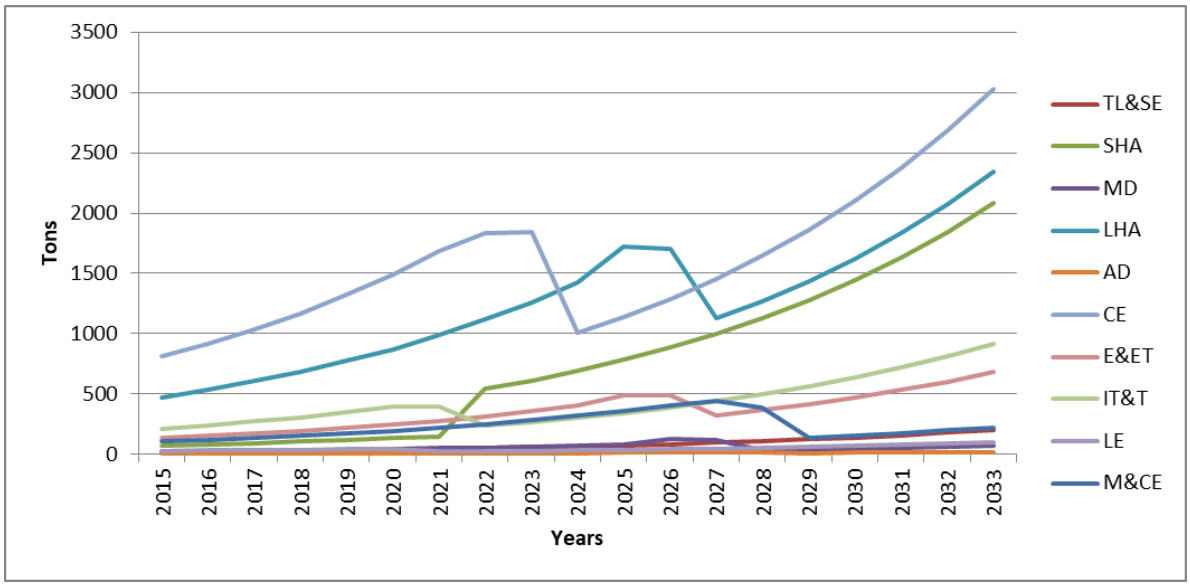


Figure 71: Saint Lucia WEEE generation in tons per category over the period 2015-2033

In terms of WEEE with potential to contain POPs or Mercury, the quantities are as follows:

- Waste with potential to contain POPs (CE + IT&T): 42% of total WEEE, in average over the period 2015-2033, equivalent to 2,053 tons per year.
- Waste with potential to contain Mercury (MD + LE): 2% of total WEEE, in average over the period 2015-2033, equivalent to 107 tons per year.

SURINAME

Amount of e-waste generated 2018: 3.12 kg/habitant/year

Separate collection of e-waste: No[55]

Frequency of collection: Twice a week, collected altogether with household waste

Destination of e-waste: landfill, and occasionally, illegal dumpsites[56]

Recycling of e-waste: very small-scale to none[57]

Annual growth rate in consumption of EEE[58]: 23%

EEE IMPORTS

Suriname imports represent the 2% of total imports in tons and 2% of total imports in value with respect to total imports at Project Countries.

Following are the figures that represent the EEE imports over the period 2015-2018 at Suriname.

Imports EEE	2015	2016	2017	2018
SMALL ISLANDS PROJECT COUNTRIES TONS	212752	212752	212752	212752
SMALL ISLANDS PROJECT COUNTRIES USD thousand	2277760	2277760	2277760	2277760
Country´s imports (tons)	4384	2698	3303	4982
Country´s imports (USD thousand)	54894	36105	43364	67063

Figure 72: Suriname EEE imports over the period 2015-2018

[55] Once a year or every 2 years bulky waste is collected separately including e-waste, that usually is also dumped at the Ornamibo dumpsite. Assessment of Waste Electrical and Electronic Equipment for Suriname, BCRC-Caribbean, 2016.

[56] Assessment of Waste Electrical and Electronic Equipment for Suriname, BCRC-Caribbean, 2016.

[57] Waste pickers (informal) at the Ornamibo landfill collect mostly metals and they sell it at the recycling companies. One or two companies in Suriname recycle e-waste. A small amount is exported. For 2018, a total of 11.5 Metric tons of computer parts have been exported. Assessment of Waste Electrical and Electronic Equipment for Suriname, BCRC-Caribbean, 2016.

[58] Baldé, C.P., Forti V., Gray, V., Kuehr, R., Stegmann,P. : The Global E-waste Monitor – 2017, United Nations University (UNU), International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Vienna.

From 2015 to 2018 there was an increase in the EEE imports. The 76% of the total tons imported is configured by LHA, E&ET, CE and MD. The order changes when the value is analyzed, due to the characteristics of each category. In this case, the 75% of imports in value is configured by: LHA, IT&T, MD and CE.

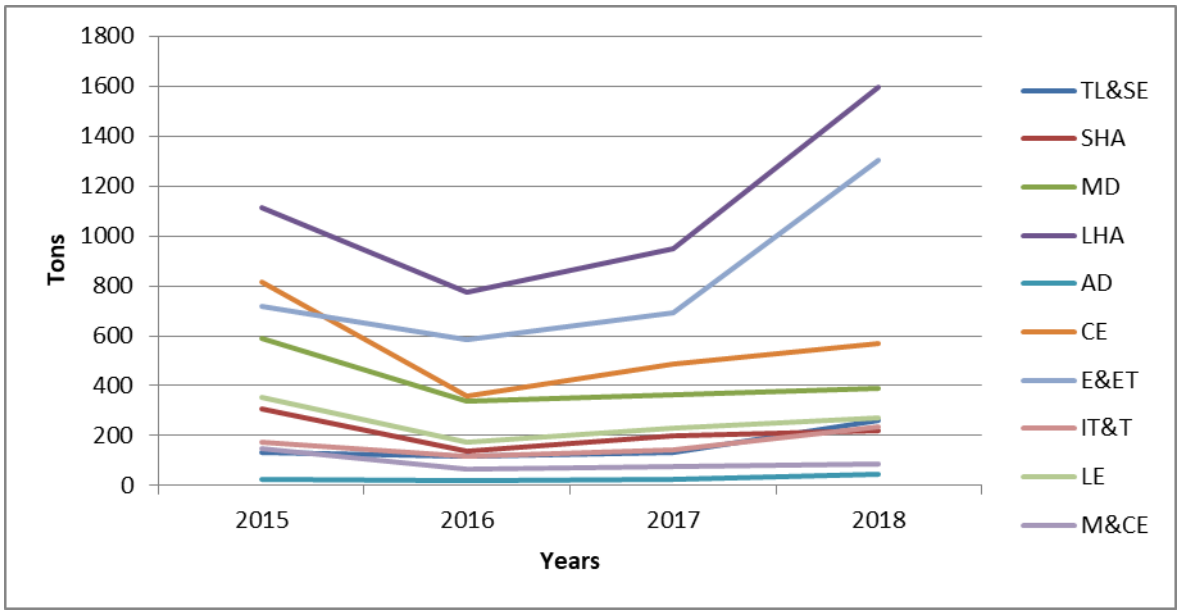
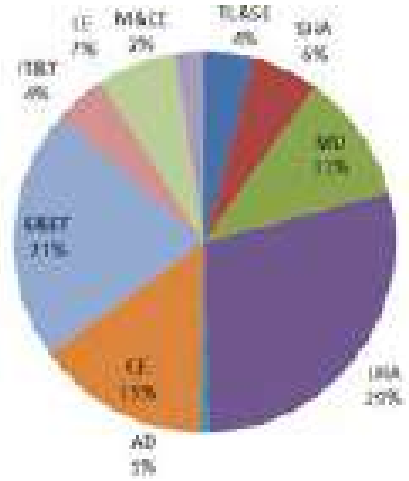


Figure 73: Suriname EEE imports in tons per category over the period 2015-2018



EEE category	Average tons	Accumulated percentage
LHA	1.109	29%
E&ET	825	50%
CE	558	65%
MD	421	76%
LE	257	82%
SHA	217	88%
IT&T	169	93%
TL&SE	161	97%
M&CE	95	99%
AD	30	100%
TOTAL	**3.842**	**100%**

Figure 74: Average of Suriname imports of EEE in tons per category over the period 2015-2018

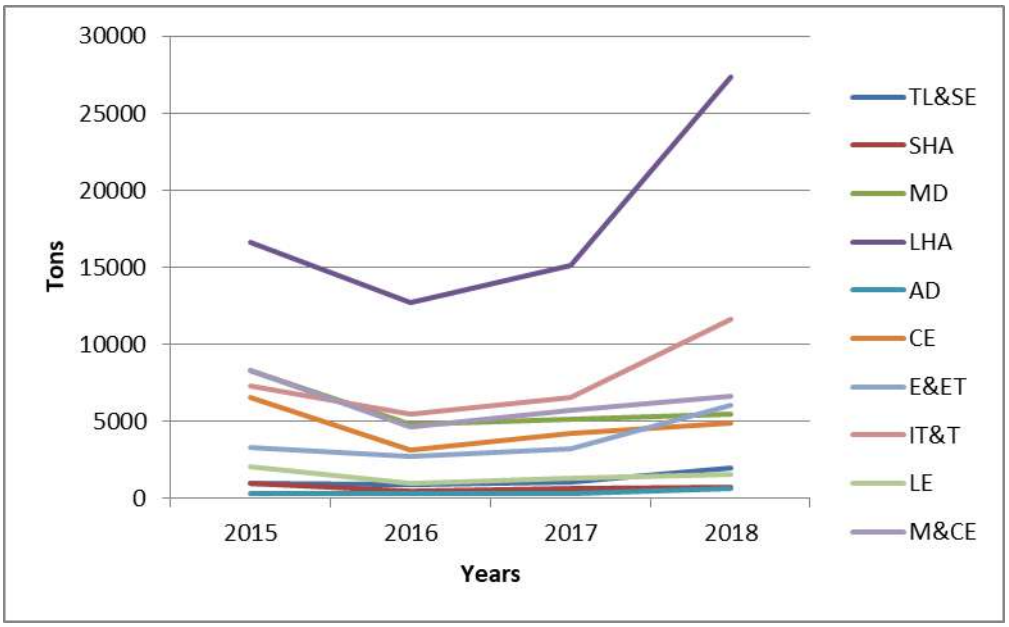
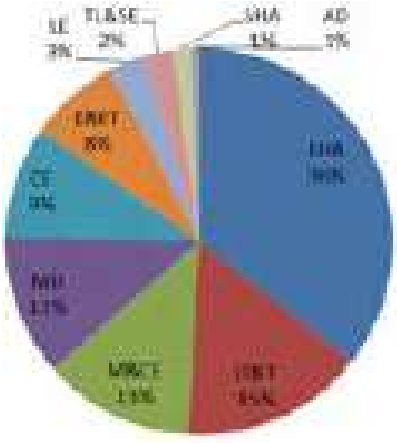


Figure 75: Suriname EEE imports in USD thousands per category over the period 2015-2018



EEE category	Average USD thousands	Accumulated percentage
LHA	17.942	36%
IT&T	7.733	51%
M&CE	6.340	64%
MD	5.941	75%
CE	4.706	85%
E&ET	3.837	92%
LE	1.499	95%
TL&SE	1.245	98%
SHA	720	99%
AD	393	100%
TOTAL	**50.356**	**100%**

Figure 76: Average of Suriname imports of EEE in USD thousands per category over the period 2015-2018

WEEE GENERATION

Suriname WEEE generation represents 3% of total WEEE generation at Project countries. Figure 77 displays the expected (not projected) generation of WEEE based on the corresponding EEE imported at Suriname over the period 2015 to 2018, taking into account a 10% of exports, the annual growth rate of 23% in EEE consumption and the estimated lifespan of EEE for each category.

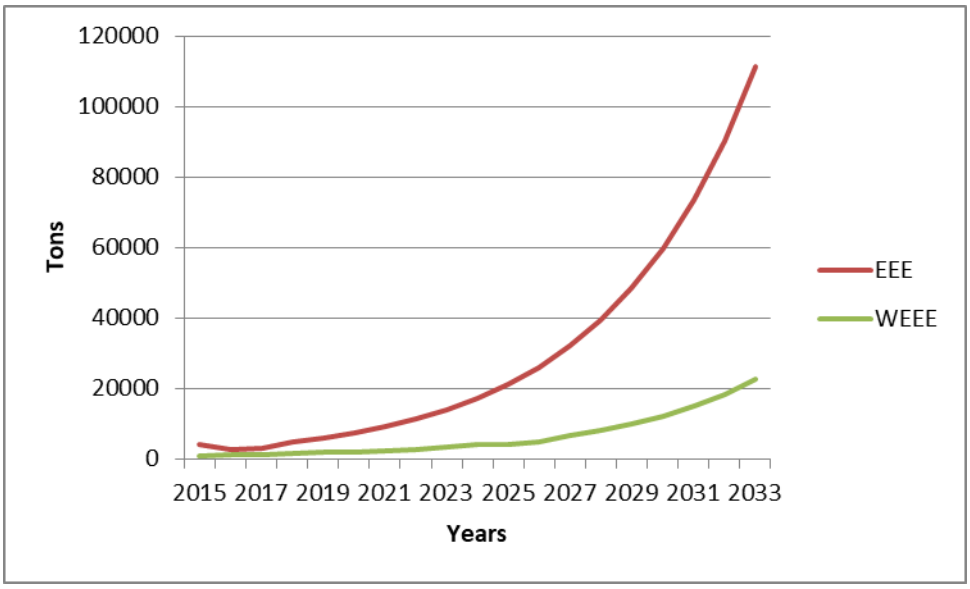
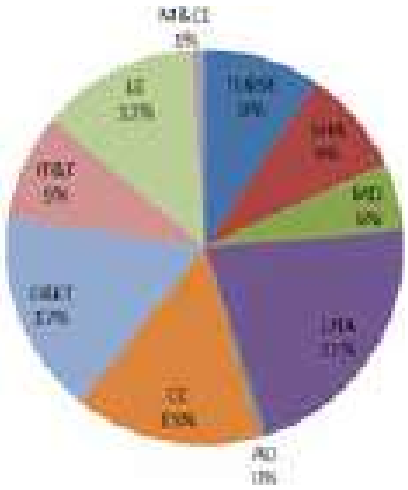


Figure 77: Suriname total imports of EEE vs total WEEE generated in tons over the period 2015-2033

WEEE´s 76% generation is distributed among the following categories: LHA, ET&T, CE, LE and TL&SE. This differs in the categories and order that configure the most generation at the Project Countries Level, showing a much wider distribution among the categories. A further assessment should be done to understand the causes of this difference.



EEE category	Average WEEE generation (tons)	Accumulated percentage
LHA	1.400	21%
E&ET	1.095	38%
CE	1.010	53%
LE	837	66%
TL&SE	620	76%
IT&T	578	84%
SHA	566	93%
MD	366	98%
M&CE	73	100%
AD	26	100%
TOTAL	**6.572**	**100%**

Figure 78: Average of Suriname WEEE generation in tons per category over the period 2015-2033

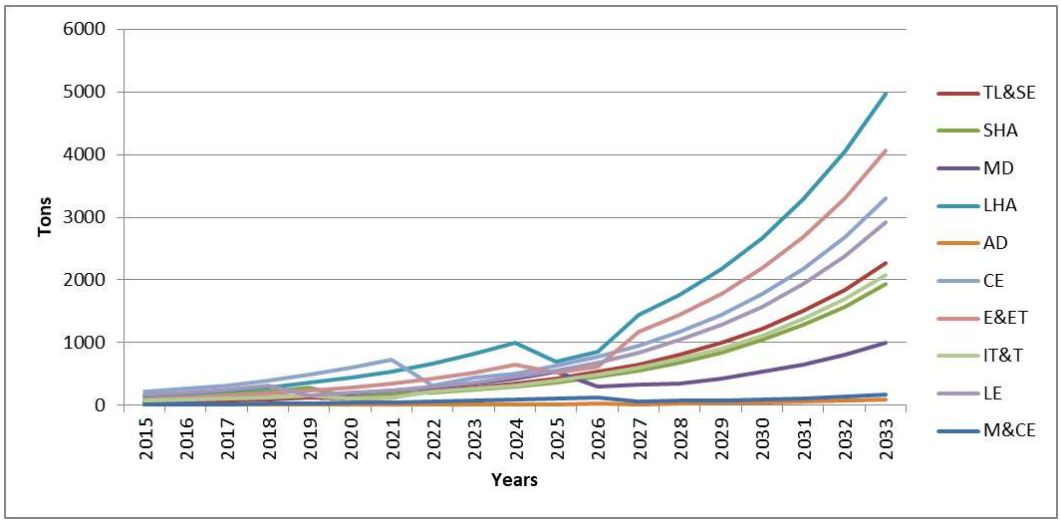


Figure 79: Suriname WEEE generation in tons per category over the period 2015-2033

In terms of WEEE with potential to contain POPs or Mercury, the quantities are as follows:

- Waste with potential to contain POPs (CE + IT&T): 24% of total WEEE, in average over the period 2015-2033, equivalent to 1,588 tons per year.
- Waste with potential to contain Mercury (MD + LE): 18% of total WEEE, in average over the period 2015-2033, equivalent to 1,203 tons per year.

TRINIDAD AND TOBAGO

Amount of e-waste generated 2018: 32,65 kg/habitant/year[59]

Separate collection of e-waste: In general, no[60]. Municipalities sometimes organise e-waste collection drives for bulkier wastes, computers, refrigerators, tvs, etc. These are taken to storage facility.

Frequency of collection: Daily, smaller WEEE collected altogether with household waste[61], though bulk WEEE is not allowed in the landfill.

Destination of e-waste: landfill

Recycling of e-waste: some[62]

Annual growth rate in consumption of EEE[63]: 5,2%

EEE IMPORTS

Trinidad and Tobago imports represent the 23% of total imports in tons and 22% of total imports in value with respect to total imports at Project Countries.

Following are the figures that represent the EEE imports over the period 2015-2018 at Trinidad and Tobago.

Imports EEE	2015	2016	2017	2018
SMALL ISLANDS PROJECT COUNTRIES TONS	212752	212752	212752	212752
SMALL ISLANDS PROJECT COUNTRIES USD thousand	2277760	2277760	2277760	2277760
TRINIDAD AND TOBAGO TONS	64409	46579	44570	40619
TRINIDAD AND TOBAGO IMPORTS USD thousand	654776	481556	461621	406841

Figure 80: Trinidad and Tobago EEE imports over the period 2015-2018

[59] The high level of industrialization in this country would account for the above average waste per capita generation.

[60] Extracted from the WASTE MANAGEMENT SURVEY FORM done under "Implementing Sustainable Low and Non-Chemicals Development in Small-Island Developing States (GEF ISLANDS) in the Caribbean" Project Preparation Grant Phase.

[61] Extracted from the WASTE MANAGEMENT SURVEY FORM done under "Implementing Sustainable Low and Non-Chemicals Development in Small-Island Developing States (GEF ISLANDS) in the Caribbean" Project Preparation Grant Phase.

[62] Piranha International Limited; Greenchip Recycling Limited (formerly Caribbean Tech Disposals). Extracted from the WASTE MANAGEMENT SURVEY FORM done under "Implementing Sustainable Low and Non-Chemicals Development in Small-Island Developing States (GEF ISLANDS) in the Caribbean" Project Preparation Grant Phase.

[63] Baldé, C.P., Forti V., Gray, V., Kuehr, R., Stegmann,P. : The Global E-waste Monitor – 2017, United Nations University (UNU), International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Vienna.

From 2015 to 2018 there was a decrease in the EEE imports, probably related to economic aspects. The 82% of the total tons imported is configured by LHA, CE, M&CE and IT&T. The order changes when the value is analyzed, due to the characteristics of each category. In this case, the 85% of imports in value is configured by: IT&T, LHA, CE and M&CE.

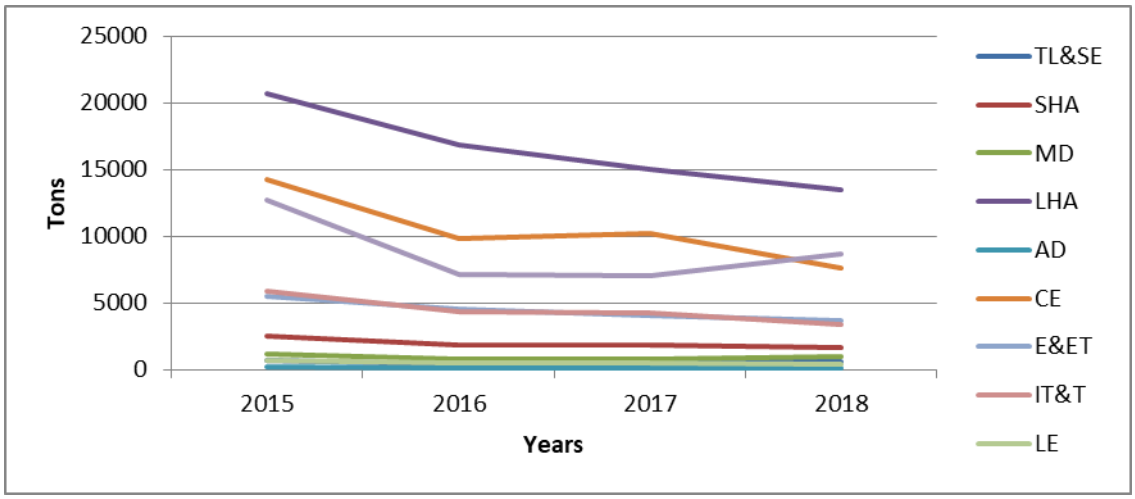
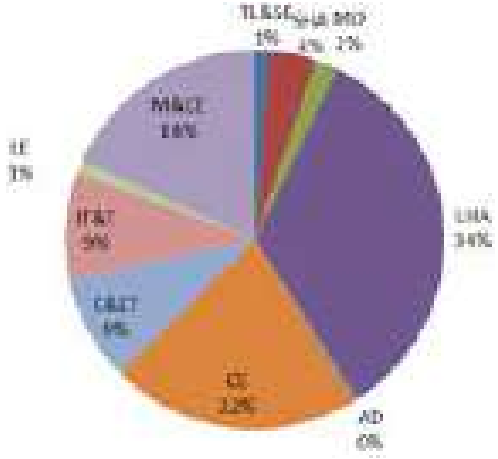


Figure 81: Trinidad and Tobago EEE imports in tons per category over the period 2015-2018



EEE category	Average tons	Accumulated percentage
LHA	16.498	34%
CE	10.504	55%
M&CE	8.906	73%
IT&T	4.498	82%
E&ET	4.438	91%
SHA	1.964	95%
MD	940	97%
TL&SE	622	99%
LE	516	100%
AD	158	100%
TOTAL	**49.044**	100%

Figure 82: Average of Trinidad and Tobago imports of EEE in tons per category over the period 2015-2018

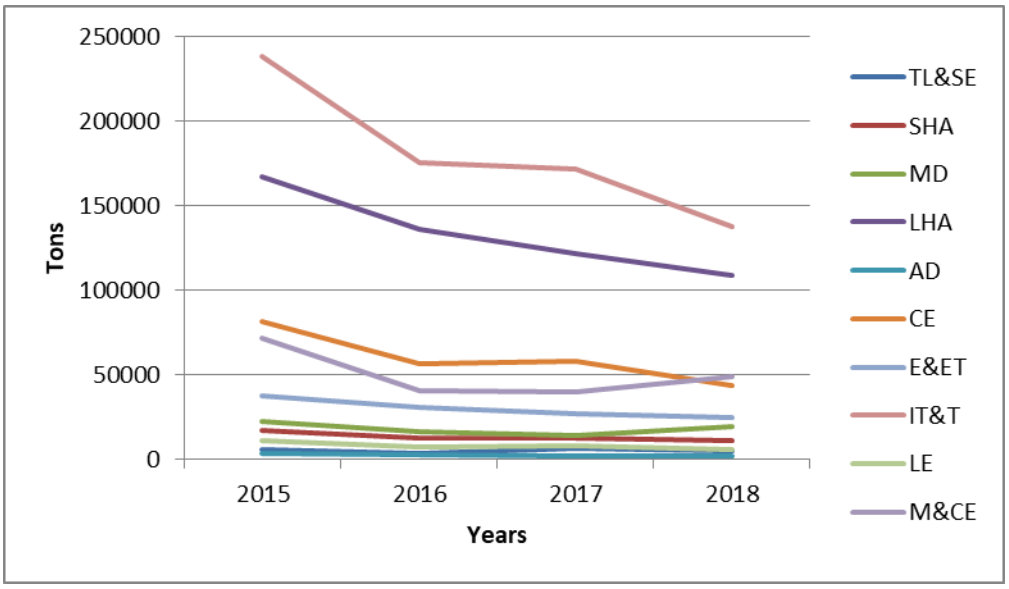
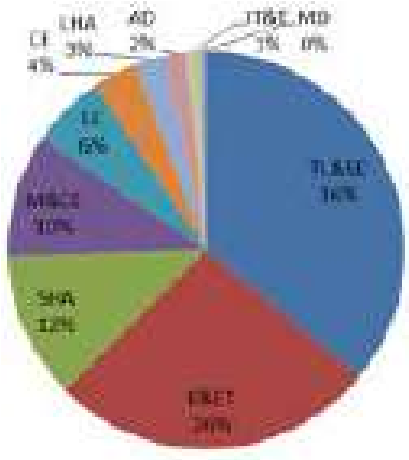


Figure 83: Trinidad and Tobago EEE imports in USD thousands per category over the period 2015-2018



EEE category	Average USD thousands	Accumulated percentage
IT&T	180.440	36%
LHA	133.173	63%
CE	59.757	74%
M&CE	50.266	85%
E&ET	30.141	91%
MD	18.059	94%
SHA	13.394	97%
LE	8.064	98%
TL&SE	5.320	99%
AD	2.584	100%
TOTAL	**501.199**	**100%**

Figure 84: Average of Trinidad and Tobago imports of EEE in USD thousands per category over the period 2015-2018

WEEE GENERATION

Trinidad and Tobago WEEE generation represents 20% of total WEEE generation at Project countries. Figure 85 displays the expected (not projected) generation of WEEE based on the corresponding EEE imported at Trinidad and Tobago over the period 2015 to 2018, taking into account a 10% of exports, the annual growth rate of 5.2% in EEE consumption and the estimated lifespan of EEE for each category.

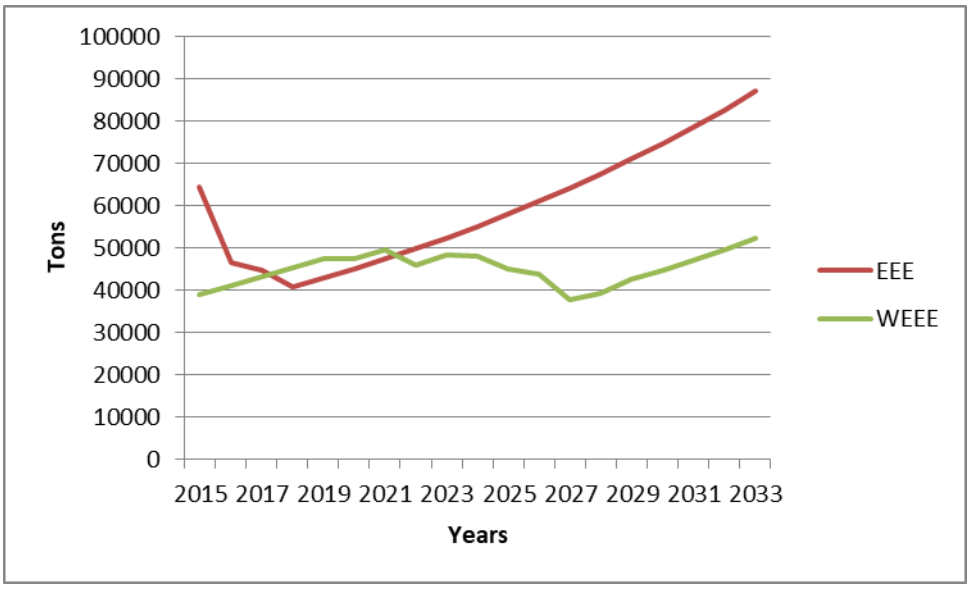
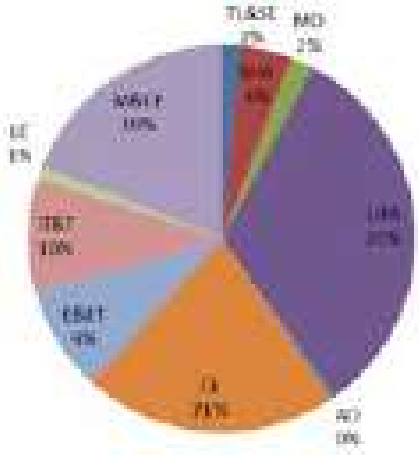


Figure 85: Trinidad and Tobago total imports of EEE vs total WEEE generated in tons over the period 2015-2033

WEEE´s 82% generation is distributed among the following categories: LHA, CE, M&CE and IT&T. This include the three top ranked categories that configure most WEEE generation at the Project Countries level (CE, LHA, IT&T), though M&CE comes in as a relevant waste stream.



EEE category	Average WEEE generation (tons)	Accumulated percentage
LHA	14.606	32%
CE	9.621	54%
M&CE	8.525	73%
IT&T	4.288	82%
E&ET	3.926	91%
SHA	1.967	95%
MD	876	97%
TL&SE	664	99%
LE	490	100%
AD	134	100%
TOTAL	**45.098**	**100%**

Figure 86: Average of Trinidad and Tobago WEEE generation in tons per category over the period 2015-2033

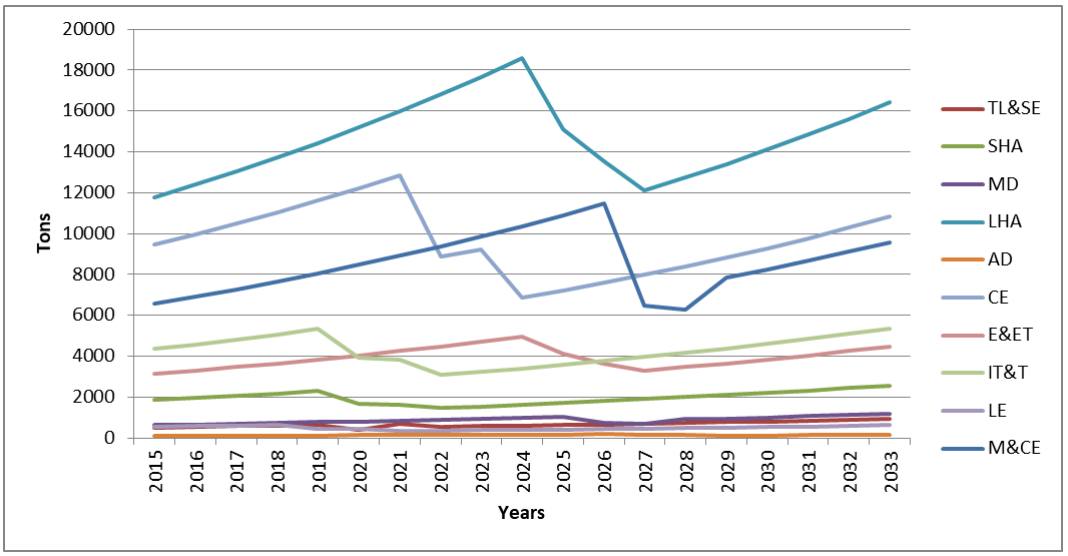


Figure 87: Trinidad and Tobago WEEE generation in tons per category over the period 2015-2033

In terms of WEEE with potential to contain POPs or Mercury, the quantities are as follows:

- Waste with potential to contain POPs (CE + IT&T): 31% of total WEEE, in average over the period 2015-2033, equivalent to 13,909 tons per year.
- Waste with potential to contain Mercury (MD + LE): 1% of total WEEE, in average over the period 2015-2033, equivalent to 1,365 tons per year.

ANNEXES

ANNEX A: SURVEY FOR NATIONAL STAKEHOLDERS

Follow the survey sent to National Stakeholders of the Project Countries

Information on electrical and electronic equipment imported/produced

1. **Please complete the chart below providing for each category the quantities per year imported or produced nationally.**

Company / Type of equipment	Company X (imported or nationally produced)	Company X (imported or nationally produced)	…	Company X (imported or nationally produced)
Temperature exchange devices[64]	XX quantity (units or tonnes)	XX quantity (units or tonnes)	…	XX quantity (units or tonnes)
Monitors[65]	XX quantity (units or tonnes)	XX quantity (units or tonnes)	…	XX quantity (units or tonnes)
Lamps[66]	XX quantity (units or tonnes)	XX quantity (units or tonnes)	…	XX quantity (units or tonnes)
Large appliances[67]	XX quantity (units or tonnes)	XX quantity (units or tonnes)	…	XX quantity (units or tonnes)
Small appliances[68]	XX quantity (units or tonnes)	XX quantity (units or tonnes)	…	XX quantity (units or tonnes)
Small computing and telecommunications devices (without any external dimension greater than 50 cm)[69]	XX quantity (units or tonnes)	XX quantity (units or tonnes)	…	XX quantity (units or tonnes)

[64] Refrigerators, freezers, appliances that automatically supply cold products, air conditioners, dehumidification equipment, heat pumps, oil radiators and other temperature exchange devices that use fluids other than Water.

[65] Screens, and devices with screens larger than 100 cm. Screens, televisions, digital photo frames with LCD technology, monitors, laptops, including "notebook" type.

[66] Straight fluorescent lamps, compact fluorescent lamps, fluorescent lamps, high intensity discharge lamps, including sodium pressure lamps and metal halide lamps, low pressure sodium lamps and LED lamps.

[67] Washers, dryers, dishwashers, cookers, electric cookers and ovens, electric stoves, electric heat plates, luminaires; sound or image reproduction apparatus, music equipment (except pipe organs installed in churches), knitting and knitting machines, large computers, large printers, copiers, large slot machines, large medical devices, large instruments surveillance and control, large devices that supply products and money automatically, photovoltaic panels.

[68] Vacuum cleaners, sewing machines, luminaires, microwave ovens, ventilation devices, irons, toasters, electric knives, electric kettles, clocks, electric razors, scales, hair and body care devices, calculators , radio devices, camcorders, video recording devices, hi-fi chains, musical instruments, sound or image reproduction devices, electric and electronic toys, sporting goods, computers for cycling, diving, racing, rowing, etc. , smoke detectors, heating regulators, thermostats, small electrical and electronic tools, small sanitary products, small monitoring and control instruments, small devices that supply products automatically, small devices with integrated photovoltaic panels.

[69] Mobile phones, GPS, pocket calculators, routers, personal computers, printers, telephones.

*If your country does not use this categorization for types of electrical and electronic equipment, or information up to this level of desegregation is not available, please provide information as detailed as possible.
** If information disaggregated to companies' level is not available, please provide general data.
*** If possible, please provide contact of main companies (importers or producers).

2. Please choose the most suitable option (A or B) to describe the trade flow of electrical and electronic equipment in your country:

Related to electrical and electronic equipment national production:

A. Large scale production of electrical and electronic equipment
B. Small scale production of electrical and electronic equipment

Answer (A or B):_____

A. Few producers of electrical and electronic equipment
B. Lot of producers of electrical and electronic equipment

Answer (A or B):_____

Related to imports of electrical and electronic equipment:

A. Few large – quantity importers
B. Lot of small quantity importers

Answer (A or B):_____

A. Imports mainly consist of new equipment
B. Lot of used electrical and electronic equipment are imported

Answer (A or B):_____

A. Electrical and electronic equipment is refurbished or repaired at national level prior it is sold to customers
B. Electrical and electronic equipment is directly sold to customers, without intermediate operations

Answer (A or B):_____

Related to electrical and electronic equipment selling points

A. Few high volume resellers
B. Lot of small volume resellers

Answer (A or B):_____

A. Lot of electrical and electronic equipment is bought through e-retailers (Amazon, ebay, others)
B. Not much electrical and electronic equipment is bought through e-retailers (Amazon, ebay, others)

Answer (A or B):_____

Generation of e-waste

1. **How many tones of e-waste are generated per year in your country**?

_____ tones/habitant/year

Please indicate source of information or method used in case of estimation: _____

2. **Please complete the chart below ordering the following e-waste streams according to the importance to address its sound management (where 1 is highest and 5 is lowest importance). Please indicate the criteria or rationale used for the ordering:**

Quantity: large or small amount generated
Size: they occupy a lot or very little space in the final disposal site
Hazardousness and environmental impact: High or low
Toxicity and Health affection: High or low
Other (specify)

E waste category	**Importance**	**Criteria or rationale**	**Observations**
Temperature exchange devices			
Monitors			
Lamps			
Large appliances			
Small appliances			
Small computing and telecommunications devices (without any external dimension greater than 50 cm)			

Collection

1. **Is e-waste from household collected separately or altogether with the rest of the municipal solid waste?**

   Separately
   Altogether

If separately, please provide as much information as possible (e.g. amount and distribution of collection points, collection points are publicly or privately managed, types and quantities of ewaste received, type of transport, destination of ewaste collected, etc.)

_____
_____
_____
_____

Recycling

1. **Is ewaste being recycled in your country?**

   Yes
   No

If yes, please provide as much information as possible (e.g. types of ewaste recycled, methods for collection, recycling treatment, quantities collected and recycled, recycling company's information)

_____
_____
_____
_____

2. **Is there informal sector involved in ewaste recycling in your country?**

   Yes
   No

If yes, please provide as much information as possible (e.g. how many people are involved, last census available, is there any sourcing or dismantling done by informal waste pickers, health related information, destination of e-waste collected)

_____
_____
_____
_____
_____

Final disposal

1. **Please indicate the main disposal treatments used for ewaste at your country. Indicate quantities per year if available.**

   Sanitary Landfill
   Open site disposal
   Incineration
   Open burning
   Other (Please indicate which) _____

2. **If your country exports ewaste please complete the chart below:**

Country of export / type of ewaste	Country X	Country X	…	Country X
Eg. Cell phones	XX quantity (units or tonnes)	XX quantity (units or tonnes)	…	XX quantity (units or tonnes)
Temperature exchange devices	XX quantity (units or tonnes)	XX quantity (units or tonnes)	…	XX quantity (units or tonnes)
Monitors	XX quantity (units or tonnes)	XX quantity (units or tonnes)	…	XX quantity (units or tonnes)
Lamps	XX quantity (units or tonnes)	XX quantity (units or tonnes)	…	XX quantity (units or tonnes)
Large appliances	XX quantity (units or tonnes)	XX quantity (units or tonnes)	…	XX quantity (units or tonnes)
Small appliances	XX quantity (units or tonnes)	XX quantity (units or tonnes)	…	XX quantity (units or tonnes)
Small computing and telecommunications devices (without any external dimension greater than 50 cm)	XX quantity (units or tonnes)	XX quantity (units or tonnes)	…	XX quantity (units or tonnes)

Legal Aspects

1. **Does your country have any specific regulation on ewaste?**

   Yes
   No

If yes, please provide as much information as possible (e.g. regulation ID number, scope, status of implementation, success of accomplishment)

_____
_____
_____

2. **Does your country allow imports of ewaste?**

   Yes
   No

If it is forbidden, please provide regulation ID number. If it is allowed, please provide as much information as possible (e.g. importer countries, quantities, treatments)

_____
_____
_____

3. **Has your country implemented any Extended Producer Responsibility (EPR) systems?**

   Yes
   No

If **yes**, please provide as much information as possible (e.g. products covered, such as beverages or others, regulation ID number, scope, logistics, status of implementation, success of accomplishment). If **no**, please describe the main challenges you identify to implement e-waste EPR systems at your country.

_____
_____
_____

Institutional and communicational aspects

1. **Does your country allocate specific resources at the governmental level for ewaste policy making / management?**

   Yes
   No

If yes, please provide as much information as possible (e.g. amount of personnel, budget and activities, projects with external financing, etc.)

_____
_____
_____
_____

2. **Has your country developed a communication campaign on ewaste?**

   Yes
   No

If yes, please describe activities developed under this communication campaign, target audiences and impact assessment.

_____
_____
_____
_____

ANNEX B: TABLES OF EEE AND HS CODES[70]

CATEGORY	HS-CODE	NAME
Automatic dispensers (AD)	8472	Office machines, e.g. hectograph or stencil duplicating machines, addressing machines, automatic banknote dispensers, coin-sorting machines, coin-counting or coin-wrapping machines, pencil-sharpening machines, perforating or stapling machines, n.e.s.
	8476	Automatic goods-vending machines, e.g. postage stamp, cigarette, food or beverage machines, incl. money-changing machines; parts thereof

CATEGORY	HS-CODE	NAME
Consumer electronics (CE)	9201	Pianos, incl. automatic; harpsichords and other keyboard stringed instruments
	9202	String musical instruments, e.g. guitars, violins, and harps (excluding with keyboard)
	9207	Musical instruments, the sound of which is produced, or must be amplified, electrically, e.g. organs, guitars, accordions
	8518	Microphones and stands therefor (excluding cordless microphones with built-in transmitter); loudspeakers, whether or not mounted in their enclosures; headphones and earphones, whether or not combined with a microphone, and sets consisting of a microphone and one or more loudspeakers (excluding telephone sets, hearing aids and helmets with built-in headphones, whether or not incorporating a microphone); audio-frequency electric amplifiers; electric sound amplifier sets; parts thereof
	8519	Sound recording or sound reproducing apparatus
	8521	Video recording or reproducing apparatus, whether or not incorporating a video tuner (excluding video camera recorders)
	8522	Parts and accessories suitable for use solely or principally with sound reproducing and recording apparatus and with video equipment for recording and reproducing pictures and sound
	8523	Discs, tapes, solid-state non-volatile storage devices, "smart cards" and other media for the recording of sound or of other phenomena, whether or not recorded, incl. matrices and masters for the production of discs (excluding products of chapter 37)
	8525	Transmission apparatus for radio-broadcasting or television, whether or not incorporating reception apparatus or sound recording or reproducing apparatus; television cameras, digital cameras and video camera recorders
	8526	Radar apparatus, radio navigational aid apparatus and radio remote control apparatus
	8527	Reception apparatus for radio-broadcasting, whether or not combined, in the same housing, with sound recording or reproducing apparatus or a clock
	8528	Monitors and projectors, not incorporating television reception apparatus; reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus
	8540	Thermionic, cold cathode or photo-cathode valves and tubes, e.g. vacuum or vapour or gas filled valves and tubes, mercury arc rectifying valves and tubes, cathode ray tubes and television camera tubes; parts thereof
	8541	Diodes, transistors and similar semiconductor devices; photosensitive semiconductor devices, incl. photovoltaic cells whether or not assembled in modules or made up into panels (excluding photovotaic generators); light emitting diodes; mounted piezoelectric crystals; parts thereof

CATEGORY	HS-CODE	NAME
Electrical and electronic tools (E&ET)	8424	Mechanical appliances, whether or not hand-operated, for projecting, dispersing or spraying liquids or powders, n.e.s.; fire extinguishers, charged or not (excluding fire-extinguishing bombs and grenades); spray guns and similar appliances (excluding electric machines and apparatus for hot spraying of metals or sintered metal carbides of heading 8515); steam or sand blasting machines and similar jet projecting machines; parts thereof, n.e.s
	8432	Agricultural, horticultural or forestry machinery for soil preparation or cultivation (excluding sprayers and dusters); lawn or sports-ground rollers; parts thereof
	8452	Sewing machines (other than book-sewing machines of heading 8440); furniture, bases and covers specially designed for sewing machines; sewing machine needles; parts thereof
	8455	Metal-rolling mills and rolls therefor; parts of metal-rolling mills
	8458	8458 Lathes, incl. turning centres, for removing metal
	8459	Machine tools, incl. way-type unit head machines, for drilling, boring, milling, threading or tapping (excluding lathes and turning centres of heading 8458, gear cutting machines of heading 8461 and hand-operated machines)
	8461	Machine tools for planing, shaping, slotting, broaching, gear cutting, gear grinding or gear finishing, sawing, cutting-off and other machine tools working by removing metal, sintered metal carbides or cermets, n.e.s
	8462	Machine tools, incl. presses, for working metal by forging, hammering or die-stamping; machine tools, incl. presses, for working metal by bending, folding, straightening, flattening, shearing, punching or notching; presses for working metal or metal carbides (excluding machines of chapters 8456 to 8461)
	8463	Machine tools for working metal, sintered metal carbides or cermets, without removing material (excluding forging, bending, folding, straightening and flattening presses, shearing machines, punching or notching machines, presses and machines for working in the hand)
	8464	Machine tools for working stone, ceramics, concrete, asbestos-cement or like mineral materials or for cold-working glass (excluding machines for working in the hand)
	8465	Machine tools, incl. machines for nailing, stapling, glueing or otherwise assembling, for working wood, cork, bone, hard rubber, hard plastics or similar hard materials (excluding machines for working in the hand)
	8466	Parts and accessories suitable for use solely or principally with the machine tools of heading 8456 to 8465, incl. work or tool holders, self-opening dieheads, dividing heads and other special attachments for machine tools, n.e.s.; tool holders for any type of tool for working in the hand
	8467	Tools for working in the hand, pneumatic, hydraulic or with self-contained electric or non-electric motor; parts thereof
	8468	Machinery and apparatus for soldering, brazing or welding, whether or not capable of cutting (other than those of heading 8515); gas-operated surface tempering machines and appliances; parts thereof

[70] Assessments of Waste Electrical and Electronic Equipment for the Republic of Trinidad and Tobago and Suriname, BCRC-Caribbean, 2014 and 2016

CATEGORY	HS-CODE	NAME
IT and telecommunications equipment (IT&T)	8443	Printing machinery used for printing by means of plates, cylinders and other printing components of heading 8442 (excluding hectograph or stencil duplicating machines, addressing machines and other office printing machines of heading 8469 to 8472); other printers, copying machines and facsimile machines, whether or not combined; parts thereof
	8469	Typewriters and word-processing machines (excluding automatic data-processing machines and units thereof of heading 8443 and laser, thermal and electrosensitive printers)
	8470	Calculating machines and pocket-size "dimensions <= 170 mm x 100 mm x 45 mm" data recording, reproducing and displaying machines with calculating functions; accounting machines, postage-franking machines, ticket-issuing machines and similar machines, incorporating a calculating device; cash registers (excluding data-processing machines of heading 8471 and automatic goods-vending machines)
	8471	Automatic data-processing machines and units thereof; magnetic or optical readers, machines for transcribing data onto data media in coded form and machines for processing such data, n.e.s.
	8517	Telephone sets, incl. telephones for cellular networks or for other wireless networks; other apparatus for the transmission or reception of voice, images or other data, incl. apparatus for communication in a wired or wireless network [such as a local or wide area network]; parts thereof (excluding than transmission or reception apparatus of heading 8443, 8525, 8527 or 8528)

CATEGORY	HS-CODE	NAME
Lighting equipment (LE)	9006	Photographic cameras, photographic flashlight apparatus and flashbulbs (excluding discharge lamps of heading 8539)
	8512	Electrical lighting or signalling equipment (excluding lamps of heading 8539), windscreen wipers, defrosters and demisters, of a kind used for cycles or motor vehicles; parts thereof
	8513	Portable electric lamps designed to function by their own source of energy, e.g. dry batteries, accumulators and magnetos; parts thereof (excluding lighting equipment of heading 8512)
	8539	Electric filament or discharge lamps, incl. sealed beam lamp units and ultraviolet or infra-red lamps; arc lamps; parts thereof

CATEGORY	HS-CODE	NAME
Large household appliances (LHA)	8415	Air conditioning machines comprising a motor-driven fan and elements for changing the temperature and humidity, incl. those machines in which the humidity cannot be separately regulated; parts thereof
	8418	Refrigerators, freezers and other refrigerating or freezing equipment, electric or other; heat pumps; parts thereof (excluding air conditioning machines of heading 8415
	8421	Centrifuges, incl. centrifugal dryers (excluding those for isotope separation); filtering or purifying machinery and apparatus, for liquids or gases; parts thereof (excluding artificial kidneys)
	8422	Dishwashing machines; machinery for cleaning or drying bottles or other containers; machinery for filling, closing, sealing or labelling bottles, cans, boxes, bags or other containers; machinery for capsuling bottles, jars, tubes and similar containers; other packing or wrapping machinery, incl. heat-shrink wrapping machinery; machinery for aerating beverages; parts thereof
	8450	Household or laundry-type washing machines, incl. machines which both wash and dry; parts thereof
	8516	Electric instantaneous or storage water heaters and immersion heaters; electric space-heating apparatus and soil-heating apparatus; electro-thermic hairdressing apparatus, e.g. hairdryers, hair curlers and curling tong heaters, and hand dryers; electric smoothing irons; other electro-thermic appliances of a kind used for domestic purposes; electric heating resistors (other than those of heading 8545); parts thereof

CATEGORY	HS-CODE	NAME
Monitoring and control instruments (M&CE)	9016	Balances of a sensitivity of 50 mg or better, with or without weights
	9026	Instruments and apparatus for measuring or checking the flow, level, pressure or other variables of liquids or gases, e.g. flow meters, level gauges, manometers, heat meters (excluding instruments and apparatus of heading 9014, 9015, 9028 or 9032)
	9030	9030 Oscilloscopes, spectrum analysers and other instruments and apparatus for measuring or checking electrical quantities (excluding meters of heading 9028); instruments and apparatus for measuring or detecting alpha, beta, gamma, X-ray, cosmic or other ionising radiations
	9031	Measuring or checking instruments, appliances and machines not elsewhere specified in chapter 90; profile projectors
	9032	Regulating or controlling instruments and apparatus (excluding taps, cocks and valves of heading 8481)
	9033	Parts and accessories for machines, appliances, instruments or other apparatus in chapter 90, specified neither in this chapter nor elsewhere
	8531	Electric sound or visual signalling apparatus, e.g. bells, sirens, indicator panels, burglar or fire alarms (excluding those for cycles, motor vehicles and traffic signalling); parts thereof

CATEGORY	HS-CODE	NAME
Medical devices (MD)	9011	Optical microscopes, incl. those for photomicrography, cinephotomicrography or microprojection (excluding binocular microscopes for ophthalmology and instruments, appliances and machines of heading 9031)
	9012	Electron microscopes, proton microscopes and diffraction apparatus
	9018	Instruments and appliances used in medical, surgical, dental or veterinary sciences, incl. scintigraphic apparatus, other electro-medical apparatus and sight-testing instruments, n.e.s.
	9022	Apparatus based on the use of X-rays or of alpha, beta or gamma radiations, whether or not for medical, surgical, dental or veterinary uses, incl. radiography or radiotherapy apparatus, X-ray tubes and other X-ray generators, high tension generators, control panels and desks, screens, examination or treatment tables, chairs and the like

CATEGORY	HS-CODE	NAME
Small household appliances (SHA)	9101	Wrist-watches, pocket-watches and other watches, incl. stop-watches, with case of precious metal or of metal clad with precious metal (excluding with backs made of steel)
	9102	Wrist-watches, pocket-watches and other watches, incl. stop-watches (excluding of precious metal or of metal clad with precious metal)
	9103	Clocks with watch movements (excluding wrist-watches, pocket-watches and other watches of heading 9101 or 9102, and instrument panel clocks and the like of heading 9104)
	9105	Clocks (excluding wrist-watches, pocket-watches and other watches of heading 9101 or 9102, clocks with watch movements of heading 9103, and instrument panel clocks and the like of heading 9104)
	9106	Time of day recording apparatus and apparatus for measuring, recording or otherwise indicating intervals of time, with clock or watch movement or with synchronous motor, e.g. time-registers and time recorders (excluding clocks of heading 9101 to 9105)
	9107	Time switches with clock or watch movement or with synchronous motor
	9108	Watch movements, complete and assembled
	9109	Clock movements, complete and assembled (excluding watch movements)
	9110	Complete, unassembled or partly assembled watch or clock movements or movement sets; incomplete watch or clock movements, assembled; rough watch or clock movements
	9114	Clock or watch parts, n.e.s
	8508	Vacuum cleaners, incl. dry cleaners and wet vacuum cleaners
	8509	Electromechanical domestic appliances, with self-contained electric motor; parts thereof (excluding vacuum cleaners, dry and wet vacuum cleaners)
	8510	Electric shavers, hair clippers and hair-removing appliances, with self-contained electric motor; parts thereof

CATEGORY	HS-CODE	NAME
Toys, leisure and sports equipment (TL&SE)	9504	Video game consoles and machines, articles for funfair, table or parlour games, incl. pintables, billiards, special tables for casino games and automatic bowling alley equipment

ANNEX C: GUIDANCE ON A RANGE OF PRODUCTS THAT HAVE BEEN ASSESSED AS TO WHETHER THEY ARE IN SCOPE OF EACH EEE CATEGORY.

LARGE HOUSEHOLD APPLIANCES
Large cooling appliances
Refrigerators
Freezers
Other large appliances used for refrigeration, conservation and storage of food
Washing machines
Clothes dryers
Dish washing machines
Cooking
Electric stoves
Electric hot plates
Microwaves
Other large appliances used for cooking and other processing of food
Electric heating appliances
Electric radiators
Other large appliances for heating rooms, beds, seating furniture
Electric fans
Air conditioner appliances
Other fanning, exhaust ventilation and conditioning equipment

SMALL HOUSEHOLD APPLIANCES
Vacuum cleaners
Carpet sweepers
Other appliances for cleaning
Appliances used for sewing, knitting, weaving and other processing for textiles
Irons and other appliances for ironing, mangling and other care of clothing
Toasters
Fryers
Grinders, coffee machines and equipment for opening or sealing containers or packages
Electric knives
Appliances for hair-cutting, hair drying, tooth brushing, shaving, massage and other body care appliances
Clocks, watches and equipment for the purpose of measuring, indicating or registering time
Scales

IT AND TELECOMMUNICATIONS EQUIPMENT

Centralised data processing:
Mainframes
Minicomputers
Printer units
Personal computing:
Personal computers (CPU, mouse, screen and keyboard included)
Laptop computers (CPU, mouse, screen and keyboard included)
Notebook computers
Notepad computers
Printers
Copying equipment
Electrical and electronic typewriters
Pocket and desk calculators
Other products and equipment for the collection, storage, processing, presentation or communication of information by electronic means
User terminals and systems
Facsimile
Telex
Telephones
Pay telephones
Cordless telephones
Cellular telephones
Answering systems
Other products or equipment of transmitting sound, images or other information by telecommunications

CONSUMER EQUIPMENT

Radio sets
Television sets
Videocameras
Video recorders
Hi-fi recorders
Audio amplifiers
Musical instruments
Other products or equipment for the purpose of recording or reproducing sound or images, including signals or other technologies for the distribution of sound and image than by telecommunications

LIGHTINING EQUIPMENT
Luminaires for fluorescent lamps with the exception of luminaires in households
Straight fluorescent lamps
Compact fluorescent lamps
High intensity discharge lamps, including pressure sodium lamps and metal halide lamps
Low pressure sodium lamps
Other lighting or equipment for the purpose of spreading or controlling light with the exception of filament bulbs

ELECTRICAL AND ELECTRONIC TOOLS
Drills
Saws
Sewing machines
Equipment for turning, milling, sanding, grinding, sawing, cutting, shearing, drilling, making holes, punching, folding, bending or similar processing of wood, metal and other materials
Tools for riveting, nailing or screwing or removing rivets, nails, screws or similar uses
Tools for welding, soldering or similar use
Equipment for spraying, spreading, dispersing or other treatment of liquid or gaseous substances by other means
Tools for mowing or other gardening activities

TOYS, LEISURE AND SPORTS EQUIPMENT
Hand-held video game consoles
Video games
Coin slot machines

MEDICAL DEVICES
Radiotherapy equipment
Cardiology
Dialysis
Pulmonary ventilators
Nuclear medicine
Laboratory equipment for in-vitro diagnosis
Analysers
Freezers
Fertilization tests
Other appliances for detecting, preventing, monitoring, treating, alleviating illness, injury or disability

MONITORING AND CONTROL INSTRUMENTS

Smoke detector
Heating regulators
Thermostats
Measuring, weighing or adjusting appliances for household or laboratory equipment
Other monitoring and control instruments used in industrial installations (for example, in control panels)

AUTOMATIC DISPENSERS

Automatic dispensers for hot drinks
Automatic dispensers for hot or cold bottles or cans
Automatic dispensers for solid products
Automatic dispensers for money
All appliances which deliver automatically all kind of products

Appendix 11 – Technical project specific annexes: WEEE EPR Assessment

IMPLEMENTING SUSTAINABLE LOW AND NON-CHEMICAL DEVELOPMENT IN SMALL ISLAND DEVELOPING STATES (ISLANDS) PROJECT PREPARATION GRANT PHASE

Extended Producer Responsibility (EPR) ASSESSMENT

Final Report

EXECUTED BY:

BASEL CONVENTION REGIONAL CENTRE FOR TRAINING AND TECHNOLOGY TRANSFER FOR THE CARIBBEAN

PREPARED BY:

ALEJANDRA ACOSTA AND ANA CORALLO

Submitted 4th May 2020

Table of Contents

ACRONYMS

ADF	Advance Disposal Fees
ARF	Advanced Recycling Fee
DfE	Design for environment
E-waste	Waste of Electronic and electrical equipment
EEE	Electronic and electrical equipment
EOL	End-of-life
EPR	Extended Producer Responsibility
ESM	Environmental Sound Management
HSE	Health, Safety and Environmental
IRP	Individual Responsibility Producer
Kg/inh	Kilograms per inhabitant
Mt	Metric tons
MSW	Municipal Solid Waste
NSWMA	Antigua and Barbuda National Solid Waste Management Authority
OECD	Organization for Economic Co-operation and Development
PBDEs	Polybrominated diphenyl ethers
PCB	Polychlorinated biphenyl
PCDD	Polychlorinated dibenzo-p-dioxins
PCDF	Polychlorinated dibenzofurans
POP	Persistent Organic Pollutants
PPE	Personal Protection Equipment
PPP	Polluter Pays Principle
PRO	Producer Responsibility Organization
SSA	Sanitation Service Authority
SBRC	Sustainable Barbados Recycling Centre
SWOT	Strengths Weaknesses Opportunities Threats
UEEE	Used Electronic and electrical equipment
UNEP	United Nations Environment Programme
UNU	United Nations University
UPOPs	Unintentional Persistent Organic Pollutants
USD	United States dollars
WEEE	Waste of Electronic and electrical equipment

EXECUTIVE SUMMARY

EPR (Extended Producer Responsibility) instruments aim at making producers responsible for the impacts on health and the environment of their products throughout the products' life-cycle, from the product design to the post-consumer phase, when they become waste. In this sense, EPR policy seeks to shift the burden of managing certain wastes from governments and taxpayers to producers, in line with the polluter pays principle (PPP). This policy first appeared in the early 1990s in a few member States of the European Union, in particular for packaging waste, and since then, it has spread throughout many countries and many other types of waste, including e-waste.

EPR systems have helped to increase recycling and collection rates, as well as generating financial resources to pay for these activities. The most accepted classification of EPR instruments includes four categories: (i) take back systems (this category includes two subcategories: Individual Producer responsibility (IPR) and Producer Responsibility Organization (PRO); (ii) Economic and trade-based instruments (these include measures such as deposit-refund schemes, Advanced Disposal Fees (ADF), material taxes, among others); (iii) Regulations and performance standards such as minimum recycled content; (iv) Accompanying information-based instruments. At the same time, the different combinations of these instruments allow to identify four governance structures: (i) single PRO; (ii) competing PROs; (iii) tradable credits; and, (iv) government-run.

Under this complex scenario, governments may have to identify appropriate alternatives for e-waste management and to choose the best option based upon priorities, and the social, economic, legal and cultural background. In this context, the Programme ISLANDS – Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (SIDS) was approved by the GEF Council in June 2019 (GEF ID 10185) and seeks to address the sound management of chemicals and waste through strengthening the capacity of sub-national, national and regional institutions, strengthening the enabling policy and regulatory framework in the Project Countries[1] and unlocking resources to implement sound management of chemicals and waste. In this regard, the Basel Convention Regional Centre for Training and Technology Transfer in the Caribbean (BCRC-Caribbean), in its role as project executing agency, has endeavoured the development of this report.

This assessment report aims to:

(i) Suggest a methodological approach for designing an EPR system at the Project Countries;

(ii) identify and analyze appropriate mechanisms for e-waste management and assess best available technologies and best environmental practices (BAT/BEP) for e-waste management that could be implemented in the nine (9) project countries and the wider Latin American and Caribbean region to reduce releases of PBDEs

[1] Antigua and Barbuda, Barbados, Belize, Dominican Republic, Guyana, Saint Kitts and Nevis, Saint Lucia, Suriname and Trinidad and Tobago

and other POPs, mercury and other harmful chemicals, and minimize the generation of non-hazardous waste materials such as plastics based on international experiences;

(iii) identify relevant stakeholders to involve during the EPR system design, evaluate of the current legal status related to WEEE at Project Countries and identify WEEE related initiatives being undertaken;

(iv) Provide an assessment on the EPR policy principles, governance

(v) structures and their feasibility at the Project Countries through SWOT analyses, and social, economic, environmental, national/regional and sub-regional criteria; and,

(vi) Provide policy makers with a set of recommendations for designing an EPR system at the project countries.

1. CONTEXT

Electrical and electronic equipment (EEE) have become part of our daily life. They are necessary (and even essential) in areas such as mobility, medicine, security, communications, among other fields. At the same time, this exponential development has caused negative environmental impact because of the increasing tonnage of Waste Electrical and Electronic Equipment (WEEE) generated year after year in the world: computers, tablets, cell phones, televisions and household appliances of all types and sizes.

Electrical and Electronic Equipment (EEE), including all its parts, when discarded or disposed by its owner is known as Waste of Electrical and Electronic Equipment (WEEE), or e-waste.

The volume of WEEE being generated is growing rapidly due to the widespread use of electrical and electronic equipment in both developed and developing countries. The total amount of global WEEE generated in 2005 was estimated to be 40 million tons (StEP, 2009). The latest estimates indicate that in 2016 44.7 million metric tons of WEEE were generated globally (The Global E-waste Monitor 2017). The amount of WEEE is expected to grow to 52.2 Mt in 2021, with an annual growth rate of 3 to 4%.

Particularly, in the Project Countries, the annual growth rate in WEEE generation in the Project Countries is 7% and the average generation of WEEE per inhabitant in 2018 was of 10.31 kg/inh[2].

One of the primary concerns with respect to the growth of WEEE is that there is almost no in-country capacity to manage/treat and dispose of this waste stream properly. Of particular concern are the current practices that are being used to extract precious and strategic metals, resulting in the release of Unintentional Persistent Organic Pollutants (UPOPs), regulated by the Stockholm Convention on Persistent Organic Pollutants, such as Polychlorinated dibenzo-p-dioxins (PCDD) and dibenzofurans (PCDF); Polybrominated diphenyl ethers (PBDEs) contained as flame retardants in plastics of TV and computer casings; and, Polychlorinated Biphenyl (PCBs). It is estimated that brominated flame retardant-containing plastics make up approximately 20% of the total plastics contained in the WEEE stream. However currently there is not a precise quantification of the release of UPOPs as a result of WEEE recycling/recovery practices. As electronic goods also contain a wide variety of other hazardous substances (arsenic, cadmium, mercury, bromides, lead, phosphorus pentachloride; among others) these are also often released during unsafe dismantling, recovery and recycling practices. Informal sector involvement is in this context another issue of concern. In developing countries, waste pickers recover material without taking into account safety and health standards.

[2] Trade flow assessment of EEE and WEEE– Project ISLANDS - 2020

In addition, the WEEE stream also includes mercury-containing wastes, regulated by the Minamata Convention on Mercury, such as mercury-containing energy efficient lights and primary batteries. Unfortunately, capacity for the treatment and disposal of mercury containing products is very limited in the Caribbean Region.

Failure to handle equipment properly can have negative impacts and often entails disposal when parts are replaced and discarded. The lack of clarity in defining when used equipment is waste and when it is not has led to a number of situations where such equipment is mishandled, or exported to, in particular, developing countries ostensibly for reuse but where a large percentage of the exported equipment is in fact not suitable for further use or is not marketable and must be disposed of as waste in recipient countries. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal regulates the transboundary movements of hazardous wastes and other wastes and obliges its Parties to ensure that such wastes are managed and disposed of in an environmentally sound manner. Last December 2019 the Ban Amendment entered into force, forbidding the export of hazardous waste from developed countries (OECD, EU member states, Liechtenstein) to developing countries. This amendment is expected to reduce and mitigate negative impacts on health and the environment on developing countries.

On the other hand, WEEE often contains valuable materials that can be recovered for recycling, including iron, aluminum, copper, gold, silver, platinum, palladium, indium, gallium and rare earth metals, and thereby contribute to sustainable resource management, since the extraction of these metals from the Earth has significant environmental impacts. Under this scenario, environmental policies can be developed to attenuate the negative impacts that WEEE may cause. The recovery and use of such materials as raw materials after they have become waste can extend the lifespan of final disposal sites contributing to reduction of greenhouse gas emissions when adequate technologies and methods are applied.

Direct reuse of equipment or reuse after repair or refurbishment can contribute even more to sustainable development. By extending the life of equipment, reuse reduces the environmental footprint of the resource-intensive processes involved in producing the equipment. Reuse may also facilitate the availability of equipment to groups in society that otherwise would not have access to it, since the cost of used equipment is lower than that of new equipment.

For managing these types of wastes, developed countries have implemented management systems based on the principle of Extended Producer Responsibility (EPR). Within the EPR framework, the producer, importer, or seller is responsible for the appropriate handling of the equipment from its design to its final disposal. Due to the implementation of the EPR model as well as appropriate incentives, there have been annual increases in the rate of WEEE treated in formal systems following proper processes and practices. In countries with emerging and developing economies, regulations and public policies explicitly aimed at WEEE are a recent phenomenon. In the Caribbean region, only a few countries have implemented Extended

Producer Responsibility (EPR) systems, but none of them is applied to the WEEE stream. In general, there are no regulations for EEE and WEEE[3]. Some legal aspects to highlight are the lack of a legal definition of WEEE, as well as the need to strengthen compliance with Basel Convention procedures related to imports and exports of WEEE and materials obtained from its recycling.

The following initiatives, that would be useful to build from, are not yet in place at the project countries: mechanisms for cooperation and coordination among the key stakeholders, a generalized separate collection system, citizens' behavior favoring recycling initiatives, policies or incentives for the reuse or recycling, adequate treatment facilities for all waste streams. On the other hand, given the economic value of the recoverable materials in WEEE, there are some private initiatives that deal with small amounts that could be used as basis for implementation, by improving their capacity and processes, and providing them with more material to treat. A relevant aspect to take into consideration is that there is an informal sector involved in the collection of these materials as a means of subsistence, which has to be addressed when designing any EPR system.

Finally, some constraints commonly identified in SIDS (such as limited availability of suitable land for treatment and storage facilities, and landfills; dependency on viability of exporting recovered materials and hazardous wastes or low level of consumption rates to facilitate investments) could be addressed through implementing a regional approach where economies of scale would facilitate investments and space requirements would be reduced due to larger collection rates and more frequency of exports.

2. METHODOLOGY

The methodology applied to elaborate this assessment included a combination of quantitative and qualitative activities that would collate, analyze and synthesize data and information obtained via primary and secondary sources in order to understand the generation, flows and management of WEEE and EEE with the ultimate end-point of developing recommendations that would lead to the design and implementation of strategies to enhance the Environmental Sound Management (ESM) of WEEE in Project Countries[4].

In the data collection phase, a variety of methods were used to gather information for this study including: (i) a set of interviews designed for the different stakeholders[5] and conducted to stakeholders listed in Annex B; (ii) a benchmark of countries that have implemented EPR through web research; (iii) lessons learnt in the implementation of EPR systems taking into

[3] Legal and Institutional capacity Report – Project ISLANDS - 2020
[4] Antigua and Barbuda, Barbados, Belize, Dominican Republic, Guyana, Saint Kitts and Nevis, Saint Lucia, Suriname and Trinidad and Tobago.
[5] See Annex A for questionnaires designed

consideration: 'Practical Manuals on Promoting the Environmentally Sound Management of Wastes', PACE Guidance Document, 'Revised Draft Practical Manual on Extended Producer Responsibility'; and other material developed under the Basel Convention for e-waste management; and, (iv) background documents developed under ISLANDS project – PPG Phase.

Challenges faced when developing the report were the difficulty to coordinate the interviews[6] and the lack of statistical information on WEEE management.

3. SYSTEMIC APPROACH FOR THE DESIGN OF AN EPR SYSTEM

In order to provide guidance for the Project Execution Phase, the methodology proposed herein is primarily based on the critical systems methodology developed in depth at the *Practical guide for the systemic design of WEEE management policies in developing countries*[7] (from now on, referred to as *Practical Guide*). The aim of the methodology is to gain in-depth and detailed knowledge of the problem to tackle, and, simultaneously, to propose practical solutions to be implemented in the short, medium, and long terms.

When evaluating the complexity of problems that perpetuate the improper management of WEEE and the challenges still facing countries with emerging and developing economies, the existence of a national policy is of heightened significance. What is required is the design of solutions planned for the short, medium, and long terms. These solutions should be integrated to enable the harmonisation of contexts, regulations, actors, and dynamics of the systems, which can be promoted by means of a systemic approach.

Based on the suggested recommendation from the *Practical Guide*, the stages of a systemic-design approach for designing WEEE management policies are:

1. Preparation phase
2. Design of the problem situation
3. Identification of structural causes
4. Participatory strategy design
5. Design of action plan & monitoring plan
6. Final approval of the policy
7. Implementation, monitoring and adjustments

[6] Due to the sanitation crisis Covid19, mainly interviews to recycling companies were carried out. Interviews to National Focal Points, Retailers and NGOs had to be cancelled. The programmed, yet not conducted interviews are shown in Annex C.

[7] A practical guide for the systemic design of WEEE management policies in developing countries, SRI – Sustainable Recycling Industries, 2017.

In this report the PREPARATION PHASE will be developed. The findings of this stage will be used to feed the EPR design process that should be advanced during the project implementation phase (steps 2-7). For deeper understanding of the following stages please refer to the *Practical Guide.*

4. PREPARATION PHASE

The preparation phase for the design of an EPR process aims to provide an assessment on the EPR principles and mechanisms and its application at the Project Countries to feed the systemic-design.

To this end, identification and analysis of appropriate mechanisms for e-waste management and an assessment on best available technologies and best environmental practices (BAT/BEP) for e-waste management are conducted.

Also, this chapter presents the identification of the relevant actors to be included in the process for obtaining effective results. An evaluation of the current legal status and WEEE related initiatives being undertaken at the Project Countries is also presented.

Following, an assessment of the e-waste policy instruments, governance structures and management solutions are developed.

Finally, SWOT analyses of implementing an EPR system for WEEE management and of the EPR policy instruments are developed based on social, economic, environmental, national/regional, sub-regional criteria as they relate to e-waste management in the Caribbean.

4.1. INFORMATION GATHERING

The first step to the design of an EPR system is gathering the relevant information that will be used to analyze the different alternatives and their applicability at the Project Countries. This section includes a brief description of what constitutes an EPR and how it may be beneficial for the Project Countries, a benchmark of the most representative cases and an assessment on BAT/BEP for e-waste management.

4.1.1. AN EPR AT THE PROJECT COUNTRIES

Extended Producer Responsibility (EPR) is increasingly recognized worldwide as an efficient waste management policy to help improve recycling and reduce landfilling of products and

materials. The basic feature of EPR is that producers assume responsibility for managing the waste generated by their products put on the market. Since its first developments in the early 1990s, such schemes have contributed to significant increases in recycling rates and reductions of public spending on waste management in many countries. In addition, producers under an EPR scheme are incentivized to maximize the material benefits from their products throughout the value chain.

Organization for Economic Co-operation and Development (OECD) defines EPR as an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle[8]. An EPR policy is characterized by:

1. the shifting of responsibility (operational and/or financial responsibility; fully or partially) upstream toward the producer and away from municipalities; and,
2. the provision of incentives to producers to take into account environmental considerations when designing their products.

While other policy instruments tend to target a single point in the chain, EPR seeks to integrate signals related to the environmental characteristics of products and production processes throughout the product chain[9].

There are three primary characteristics/targets of the EPR principle:

- Manufacturers shall be incentivized to improve the environmental design of their products and the environmental performance of supplying those products.
- Products should achieve a high utilization rate.
- Materials should be preserved through effective and environmentally-sound collection, treatment, reuse, and recycling.

Experience has shown that there are plenty of advantages of implementing an EPR system for WEEE. In particular, taking into account the characteristics of the project countries, the following benefits can be distinguished:

- Protect health and environment from mismanagement of hazardous materials contained in WEEE, and lack of recycling & re-use politics;
- Make producers responsible for life cycle management of the products they put in the market (internalizing costs of waste management -and other externalities- into the price of a product and thus reducing the costs of waste management borne by municipalities and/or taxpayers);
- Ensure collection and appropriate processing and treatment of WEEE
- Ensure the removal of hazardous parts before recovery and final disposal;
- Ensure the best use for materials recovered;
- Reduce disposal in landfills or dumpsites;
- Raise awareness and increase waste prevention, the reuse of products and recycling of waste;

[8] http://www.oecd.org/environment/waste/extended-producer-responsibility.htm
[9] http://www.oecd.org/environment/waste/extended-producer-responsibility.htm

- Improve the performance of all actors/ operators involved in WEEE management, including informal sector;
- Address WEEEs containing mercury and POPs complying with Stockholm Convention and Minamata Convention on mercury;
- Ensure Basel Convention compliance for WEEE.

4.1.2. BENCHMARK

As it has been mentioned before, there are more than 400 EPR experiences implemented around the globe, and most of them in the developed countries. In order to understand which best practices could be replicated in the Project Countries the following benchmark is presented. Each international experience represents different aspects that could be taken into consideration in accordance with the section "RECOMMENDATIONS FOR DESIGNING AN EPR APPROACH AT THE PROJECT COUNTRIES" of this report.

Africa

Most African countries are currently developing various models of EPR schemes as part of their solution to the e-waste problem. In Nigeria and Kenya, the proposed EPR schemes require manufacturers and importers to formulate their EPR procedures and obtain approvals from the government, whereas the Ghana model is based on the payment of eco-fees from such manufacturers and importers to a fund to be managed by government and the industry, and used for managing e-waste. The draft e-waste specific EPR scheme for South Africa[10] also features elements that are similar to the Nigerian, Kenyan, and Ghana proposals/model. The EPR scheme has good prospects in Africa but may be problematic due to several factors, including the mistrust of the scheme by an apprehensive informal sector, the lack of recycling infrastructure and standards, socio-cultural difficulties with take-back schemes, choice of appropriate EPR models, difficulty with defining who is a 'producer' in the context of a lack of real manufacturers, and generally poor financial support for the scheme.

Americas

The situation in the Americas is very different across the continent. USA and Canada[11] still do not have national legislation in effect about the management of e-waste, and instead have regulations by states. In USA, the state of California passed The Electronic Waste Recycling Act of 2003, which had provision for assessment of a waste recycling fee on retail sale of electronic devices. In 2011, depending on the screen size, fees on televisions, computer monitors and laptops ranged from USD 6 to USD 10. Revenues collected from the fees are used to provide

[10] The South African experience has shown that voluntary industry initiatives for EPR can achieve the objective of successful recycling even without any legislative interference. Presently South Africa has three such initiatives where the industry has been working together to address its post-consumer responsibility by removing a 100%-recyclable product from the national waste stream, along with generating earning opportunities for the stakeholders.

[11] According The Global E-Waste Monitor 2017, 84% of the population in the USA is covered by legislation on e-waste. However, 15 states still don't have legislation in effect, including Alabama, Ohio, and Massachusetts. In Canada, most of the states have local regulation except the Yukon and Nunavut.

incentives to the authorized collectors and re-processors. The scheme has been now extended to cover a range of electronic wastes other than monitors.

In Latin America the main challenge with sustainable e-waste management is the acceleration of all legislation processes. Only 7 countries in Latin America have enforced national legislation on e-waste (Bolivia, Chile, Colombia, Costa Rica, Ecuador, Mexico, and Peru). Some other countries (Argentina, Brazil, Panama, and Uruguay) just recently started the process of promoting e-waste legislation. Ecuador adopted specific rules to regulate the take-back system for some e-waste categories.

In Brazil, after 21 years of deliberation in the National Congress, in 2010 Law no. 12,305 was enacted which established the National Policy of Solid Waste (PNRS), seeking to promote proper environmental management of solid wastes separately by the Federal Government, or in cooperation between states, the Federal District, municipalities or private entities (Brazil, 2013)[12]. The law requires producers, sellers, consumers and discharge actors of selected products to appropriately collect and treat waste products. In February 2020, Decree 10.240[13] was approved. It establishes rules for the implementation of a mandatory reverse logistics system for household electrical and electronic products and their components. The Decree uses a positive list included in the Annex I of the Decree; and make the following exemptions: (i) WEEE for non-domestic use, including products for corporate use and products used in production processes by professional users; (ii) WEEE used in health services, including products used in homes (home care); (iii) batteries, batteries or lamps that are not part of or removable from the physical structure of the electronic products listed in the Annex I of the Decree, which are the subject of their own reverse logistics systems; (iv) individualized electronic components and not fixed to the electronic products mentioned in this Decree; and (v) large quantities or volumes of electrical and electronic products from large solid waste generators.

The reverse logistics system is conformed by the following steps:

1) disposal, by consumers, of electronic products in collection points;
2) receipt and temporary storage of EEE discarded at collection points or at consolidation points;
3) transport of the EEE discarded from the receiving points to the consolidation points, if necessary; and,
4) environmentally appropriate final destination.

For the implementation of the system the Decree establishes two phases as it is shown in Figure 1: Phases established in the Brazilian Decree 10.240 for the WEEE Reverse logistics system.

[12] E-waste in Brazil and abroad: legal differences and the urgent need for a global standardization

[13] http://www.in.gov.br/web/dou/-/decreto-n-10.240-de-12-de-fevereiro-de-2020-243058096

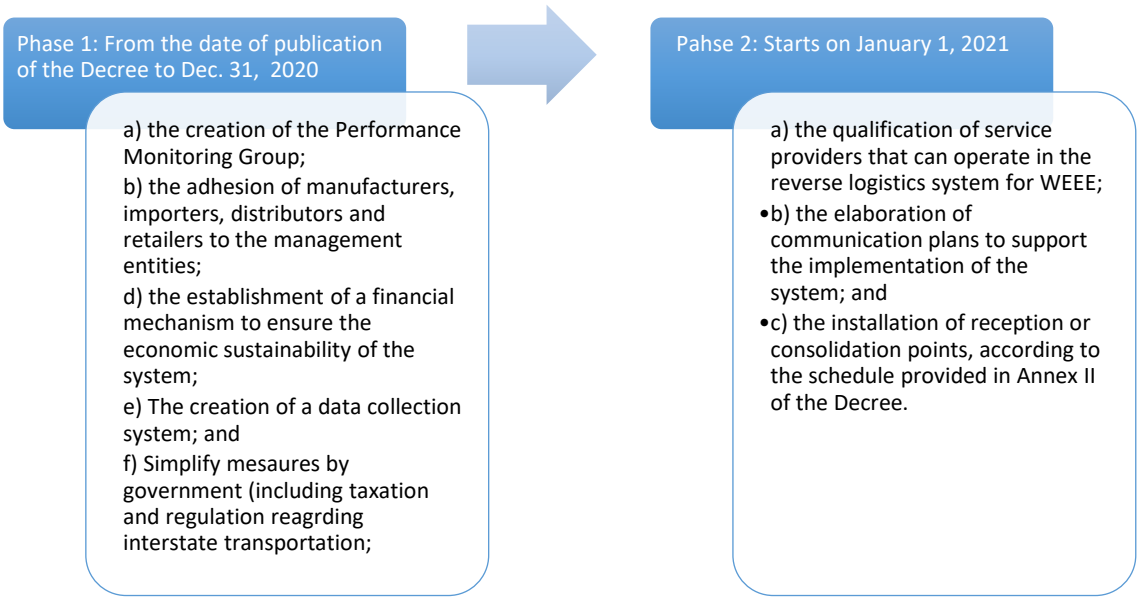


Figure 1: Phases established in the Brazilian Decree 10.240 for the WEEE Reverse logistics system

Currently in Brazil there are 420 collection points in place and is expected to have 5000 to handle 125 thousands of tonnes in 2025.

The Decree establishes targets as it is shown in Figure 2. The basis for calculating the target is established at the limit of the proportion of the weight of EEE placed on the domestic market for domestic use by manufacturers, importers, distributors and retailers of EEE for domestic use, members of collective or individual models.

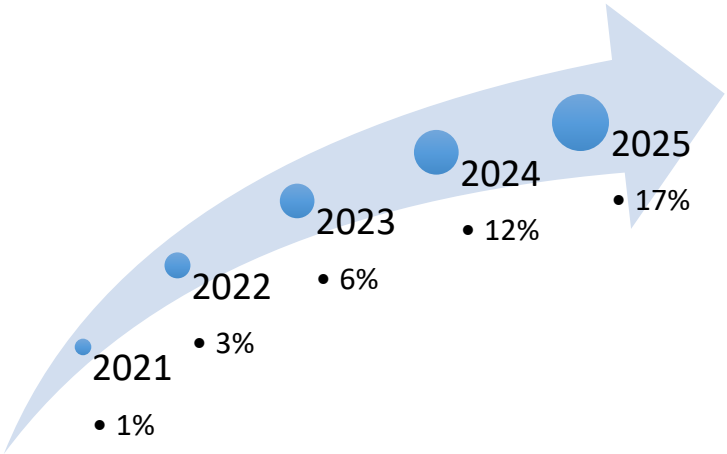


Figure 2: Implementation schedule to meet the percentage target to be collected and aimed at annual the Brazilian Decree 10.240 for the WEEE Reverse logistics system

In terms of financing, funding is achieved by importers, producers, distributors and retailers through a direct payment to the management entities (PRO) or through individual systems (IPR), in the proportion corresponding to their participation in the domestic use market. In case of PROs terms will be established in a private legal instrument signed between the parties.

Chile enacted Law 20.920 which regulates six products called priority products, the following being subject to the EPR's obligations: lubricating oils, WEEE; batteries, containers and packaging, tires and batteries.

In Jamaica, the National Solid Waste Management Authority (NSWMA) is to host public and private consultations soon on a draft of its electrical and electronic (e-waste) regulations. When signed into the law, the regulations will require traders of computers, printers, televisions, mobile phones and refrigerators to take them back at end of their useful life and dispose of them in an environmentally sound manner[14].

Asia

In Japan, most of the UNU categories are collected and recycled under the Act on Promotion of Recycling of Small Waste Electrical and Electronic Equipment. Japan was one of the first countries in the world to implement an EPR (Extended Producer Responsibility) based system for e-waste. Japan relies on strong legal framework, an advanced take-back system, and developed processing infrastructure.

In China, the 'Green Box' programme initiated in 2005, jointly by Nokia and Motorola and later joined by LG, Lenovo and NEC, can be considered as the first ever EPR effort for recycling e-waste in the country. The programme aimed at collecting obsolete cell phones and accessories from 40 cities across China. So far this has been the most influential take-back scheme in China. But these EPR efforts failed to achieve the desired result, mainly owing to a supply problem caused by a more efficient collection by the informal sector.

Taiwan has implemented the 4-in-1 recycling program promoted by the EPA since January 1997 is a system that uses recycling, clearance, and disposal fees collected from manufacturers and importers to establish a Recycling Fund, which is then used to subsidize the recycling disposal system and extend the responsibility of these enterprises. This system provides adequate economic incentives to encourage the development of recycling and reuse industries and to create output value and employment opportunities. This specially designed feedback mechanism makes local cleaning teams and the community even more involved in recycling.

14 http://jamaica-gleaner.com/article/news/20190214/nswma-host-consultation-e-waste-regulations

Figure 3: 4-in-1 recycling program in Taiwan, Environmental Protection Administration, Executive Yuan, R.O.C. https://recycle.epa.gov.tw/en/recycling_knowledge_01.html

Europe

To address e-waste problems two pieces of legislation have been put in place: The WEEE Directive and the Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS Directive). The first WEEE Directive (Directive 2002/96/EC, after revised by the new WEEE Directive 2012/19/EU), provided for the creation of collection schemes where consumers return their WEEE free of charge. EU legislation restricting the use of hazardous substances in electrical and electronic equipment (RoHS Directive 2002/95/EC, after revised by the new Directive 2011/65/EU), requires heavy metals such as lead, mercury, cadmium, and hexavalent chromium and flame retardants such as polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE) to be substituted by safer alternatives.

European countries have implemented different approaches of EPR. A few initiatives are presented below.

In Netherlands, the Management of White and Brown Goods Decree, passed in 1998, made the country the first one in Europe to introduce the EPR principle for a wide range of electronic and electrical equipment. Under this Decree it became mandatory for the retailers to take back old electronic and electrical goods in exchange for new ones, and manufacturers to

accept those products from retailers and arrange for transportation and recycling. The decree also required municipalities to take products back free of charge. Recovery and reuse targets, which varied across products, ranging from 75% for refrigerators to 45% for small appliances, were fixed. The recycling cost was to be covered by a visible up-front fee, to be charged on products. PROs were engaged for managing collection and recycling for the producers of household appliances, stereos, and televisions.

In 2017, Russia started an Extended Producer Responsibility (EPR) programme for electrical and electronic scrap. Manufacturers and importers must help collect and process obsolete electronics in line with Russian circular economy legislation.

Slovakia[15] has implemented the Recycling Fund, a non-governmental fund, established in order to support the creation of recovery facilities for waste. The Fund covers only the manufacturers' and importers' financial obligation. The manufacturers and importers of certain goods have to pay towards the Fund but recovery of those products is not ensured. The fees collected are used to enhance waste recovery facilities, but not for recovery of the products themselves (even though there are already enough recovery facilities). The fee obligation includes 10 categories of products: batteries, oils, tires, vehicles, EEE, plastic products, glass products, paper products and composites products, metal packaging, and all packaging made of aforementioned materials.

The parties are obliged to do as follows:

- to register with the National Register of Obliged Parties and Authorized Organizations administered by the Ministry of Environment (within 30 days of business' birth) and notify the Ministry of any changes (within 30 days following any change);
- keep records of the amount of packaging put on the market and retain it for a period of at least 5 years;
- send these records in the form of an annual report to the Ministry every end of February; and
- fulfil targets for recovery and recycling of packaging waste (if the amount of packaging put on the market exceeds 200 kg/year).

The obliged company can fulfil the obligation individually (separate contracts with collection and recycling companies and recycler has to declare recovery/recycling by written confirmation to the obliged party and evidence on collection and recovery has to be done separately) or collectively via an Authorized Organizations (PRO).

Oceania

Currently, there is only one law on the management of e-waste in Oceania. The National Television and Computer Recycling Scheme is one of the most significant producer responsibility schemes to be implemented in Australia under the Australian Government's Product Stewardship Act 2011. The television and computer industries are required to fund

[15] http://www.oecd.org/environment/waste/Slovakia%20final.pdf

collection and recycling of a proportion of the televisions and computers disposed of in Australia each year, with the aim to increase the rate of recycling of televisions and computers in Australia from an estimated 17% in 2010–11 to 80% by 2021–22. In New Zealand and the rest of Oceania, the official collection rate is 0%. Across the Pacific Island countries, e-waste management practices are predominantly informal.

In the Pacific Island, there is an experience of e-waste management for SIDS. Although the information available is limited, it has been included in this report due to the similar geographical characteristics with the project countries and for possible follow up during the implementation phase of the Project. The Pacific Island sub-region, consisting of 22 countries and territories (PICTs), faces unique challenges due to their geographical spread. To find a sustainable solution to the e-waste issues and other hazardous waste streams, the European Union funded a four-year project referred to as the PacWaste (Pacific Hazardous Waste), which is managed by the Secretariat of the Pacific Regional Environment Programme (SPREP) in Samoa. The initial aim of the project is to collect information about current e-waste management practices and stockpiles across five Pacific island countries in order to prioritize future actions that assist other Pacific islands countries to manage their e-waste stream. The current e-waste management practices in the sub-region are predominantly informal. Most e-waste is separated at the disposal sites by waste pickers and sold to recyclers. The quantities of e-waste stockpiles in government institutions and commercial establishments are relatively unknown.

In December 2010, Cook Islands implemented an “E-day” resulting in the collection and export of 5,154 items of e-waste (without dismantling) to New Zealand for safe recycling and disposal at a total cost of USD 78,987, not including the cost of significant local business sponsorship, and raffle prizes to encourage e-waste drop-offs (Leney 2013). The Cook Islands E-day proved to be an expensive exercise not likely to be replicable in other countries; however, it yielded data that could be used to inform the development of sustainable e-waste recycling programs and also helped to publicize the importance of the issue in the region.

General e-waste management is deemed a priority for Cook Islands, Fiji, Kiribati, Palau, Samoa, Solomon Islands, Tonga and New Caledonia, while addressing the management of mobile phones is a priority for the Solomon Islands and Vanuatu. Priorities for the development of sustainable e-waste management programs in the region include the introduction of extended producer responsibility schemes supported with an advance recycling fee that creates a value chain for e-waste and capacity development of the private waste recycling sector to execute safe and cost-effective e-waste recycling operations.

New Caledonia is the only place implementing an Extended Producer Responsibility (EPR) scheme for e-waste. New Caledonia’s EPR scheme is managed by a non-profit environmental organisation (TRECODEC) that collects e-waste through voluntary drop-off receptacles and from authorised dumps.

4.1.3. BAT/BEP FOR WEEE MANAGEMENT AT THE PROJECT COUNTRIES

The ESM WEEE management should ensure that the principles of the waste management hierarchy would be followed wherever possible, shown in Figure 4. However, the complex mixture of polymers sometimes makes them difficult to be recycled. When considering POP-PBDE-containing material management options, it is important to have in mind that the principles of the waste hierarchy are not always applicable.

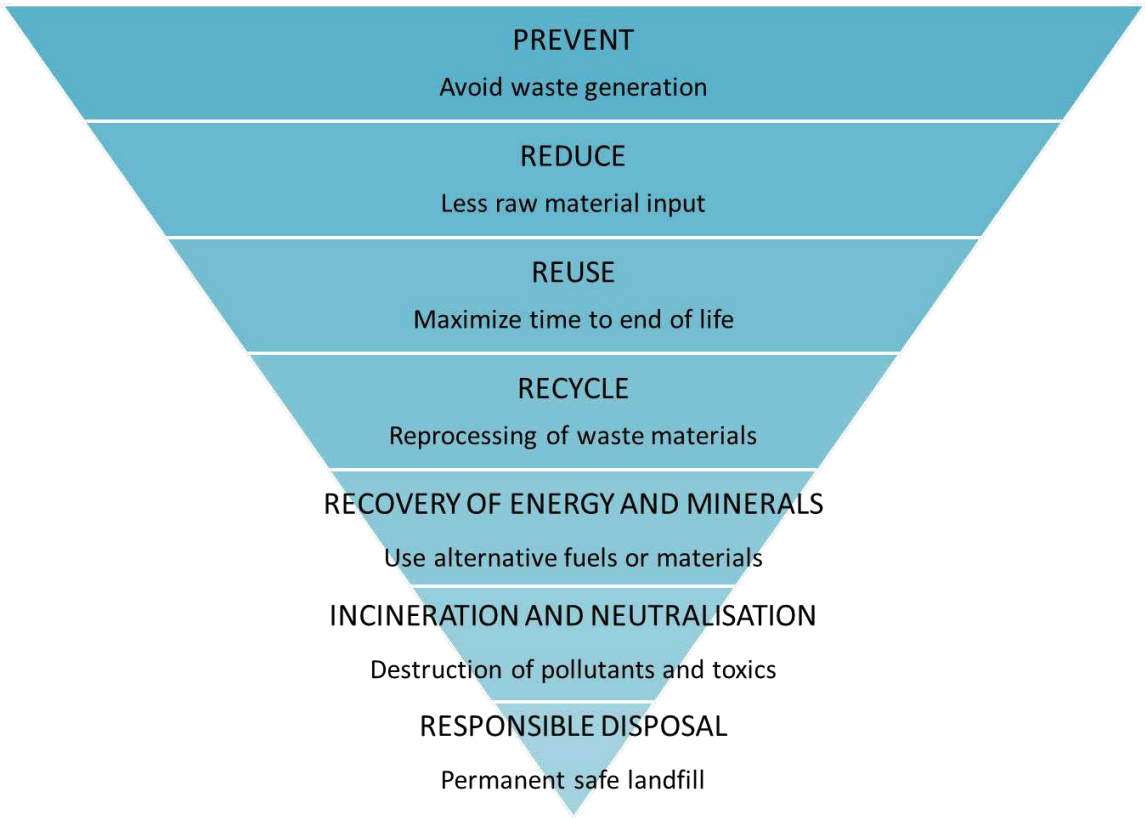


Figure 4: Waste management hierarchy. Source: UNEP, 2007a.

Electronic devices are composed of a complex mixture of different materials. Complex in the sense that some of these materials are valuable raw ones and deserve to be recovered, but other may contain dangerous elements or compounds which, even though they are not a matter of worry during their use, they become a danger when they are released into the environment.

Therefore, in order to prevent and reduce environmental impacts and damage to health, storage, treatment, recovery, recycling and final disposal of WEEE must be carried out in facilities that comply with all environmental regulations and have adequate certification schemes in place. In the same way, the transport of waste that is considered hazardous must be carried out in compliance with the adequate environmental and transport regulations.

The added value of this chapter is to go through the BAT (Best Available Technology) and BET (Best Environmental Practices) that present more utility and applicability for the countries of

the Caribbean Region. BAT, as the most effective and advanced stage in the development of activities and their methods of operation which indicate the practical suitability of particular techniques; while BEP describes the application of the most appropriate combination of environmental control measures and strategies.

Environmental Management System

These are techniques related to the continuous improvement of environmental performance. They provide the framework for ensuring the identification, adoption and adherence to BAT options that nevertheless remain important and can play a role in improving environmental performance at facilities. Indeed, these good housekeeping/management techniques/tools often prevent emissions. BAT/BEP in this respect include:

- Implementing and adhering to an Environmental Management System (EMS) that incorporates, as appropriate to individual circumstances, the following features:
    - definition of an environmental policy for the installation by top management (commitment of the top management is regarded as a precondition for a successful application of other features of the EMS)
    - planning and establishing the necessary procedures
    - implementation of the procedures
    - checking performance and taking corrective action
    - a commitment to continuously increase the energy efficiency of the installation
- have a noise and vibration management plan in place where needed
- Have a residue management plan as part of the EMS

Waste Management

In developing countries and small islands, the advances in WEEE management have their peculiarities. Formal recycling of electronic waste, which is mostly limited to disassembly, is a fairly new and unregulated activity. For example, in countries like Chile, Argentina, Peru, Colombia and Brazil, some waste management companies are taking their first steps in the WEEE recycling market. However, the amounts recycled are still at modest levels, since still the institutional framework and the logistical infrastructure need to be further developed. Most of these companies do not offer an integral service, since they are basically concentrated on valuable components such as printed circuit boards, neglecting the proper disposal of others components such as cathode ray tubes (CRTs) that are not economically valuable, but represent a risk for health and the environment. This is the reason why companies that handle WEEE are currently facing challenges in finding more adequate methods for the processing and recovery of materials in a world where new types of equipment and technology are continuously changing.

Numerous investigations have documented in several studies that the disassembly of WEEE in developing countries is mainly done by people of low economic resources or even by children, without any safety measures in place or training.

In this context, taking into consideration the most extended practices and technologies along the Project Countries, a summarized review of the main BET/BAP techniques throughout the elements and steps that compose the Flow of ESM management of UEEE/WEEE[16] is developed: (i) Waste Management System; (ii) Collection; (ii) Evaluation; (iv) Refurbishment or repair; (v) Dismantling; (vi) Separation; (vii) Storage; (viii)Transport; (ix) Recovery; (x) Export and Final disposal; and, (xi) Hazardous material and residues to disposal.

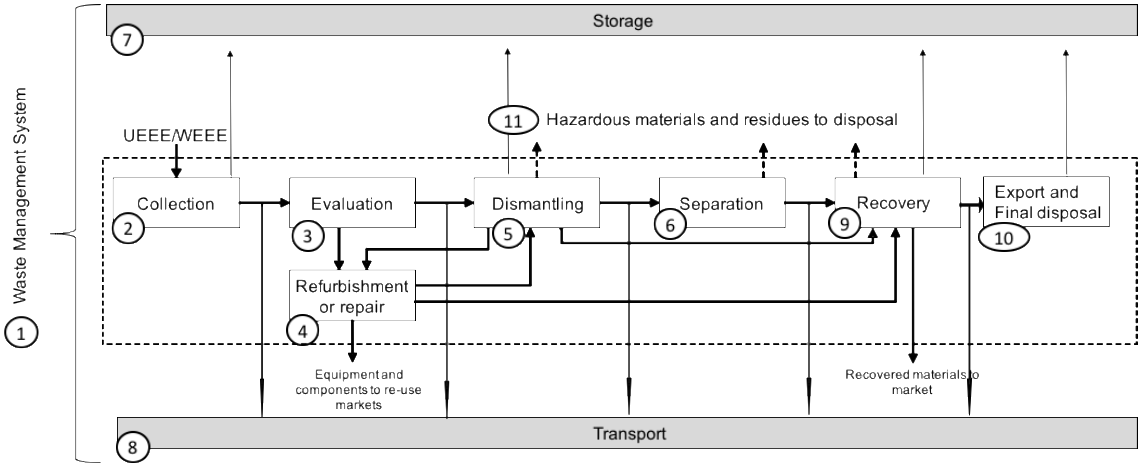


Figure 5: Flow Diagram of ESM of UEEE/WEEE. Source: consultant's adaptation from Basel Convention Guidance[17]

1. Waste management system

This is the first element to consider and its objective is to guarantee the traceability of materials and wastes treatment. It should address the following features:

- A procedure to document the use and treatments of materials and wastes by flow charts and mass balances.
- A procedure to carry out data traceability through several operational steps (e.g. pre-acceptance/acceptance/storage/treatment/dispatch). Records can be made and kept up-to-date on an ongoing basis to reflect deliveries, on-site treatment and dispatches. Records are typically held for a minimum of six months after the waste has been dispatched.
- A clear reference and recording system on waste characteristics and the source of the waste stream that it is available at all times.
- The tracking system for a material/waste inventory/stock control system should include the date of arrival on-site, waste producer details, an unique identifier code, pre-acceptance and acceptance analysis results, a description of package type and size, intended treatment/disposal routes, an accurate record of the nature and quantity of materials/wastes held on-site including all hazards details on where the material/waste is physically located in relation to a site plan, at which point in the designated treatment

[16] The elements included in this section have been based on the Information available in the document UNEP-CHW.13-INF-31-Rev.1

[17] UNEP/CHW.13/INF/31/Rev.1

route the material/waste is currently positioned. This may consist of a computer database or a series of database, which are regularly backed up.

- Drums and other mobile containers should be moved between different locations (or loaded for removal off site) only under instructions from the appropriate manager, ensuring that the waste tracking system is amended to record these changes.
- Have and apply mixing/blending rules oriented to restrict the types of wastes that can be mixed/blended together in order to avoid increasing pollution emission of down-stream waste treatments.
- Have an approach for improving waste treatment efficiency. This typically includes the finding of suitable indicators to report waste treatment efficiency and a monitoring program.
- Produce a structured accident management plan and have and properly use an incident diary.

2. Collection

This step can be challenging, but at the same time represents a critical phase of the system. WEEE that is discarded or UEEE that people accumulate at their homes, may never reach the next steps of the chain and may be lost for further beneficial use or may be mismanaged.

When an EPR system is in place, greater efforts and expenditure will be needed to collect UEEE/WEEE. Bearing in mind that at Project Countries informal waste pickers are actually involved in the collection of UEEE/WEEE, when designing an EPR system, particularly a take-back model, private sector and governments should consider opportunities to engage, employ, and empower the informal sector and help transition them into formal systems, consistent with applicable regulations and other requirements including provisions to protect the human health and the environment.

The collection system is usually designed through establishing pick-up or collections points. The following aspects should be considered:

- All installations should be covered with protection against environmental conditions.
- WEEE must be temporarily stored in containers (pallets, wood boxes). These containers have to facilitate loading in the transport to the storage point.
- The containers must be properly marked. It is important to guarantee proper classification of WEEE, considering categories or types of devices to facilitate their subsequent delivery to specialized companies.
- Control mechanisms to prevent theft have to be established.
- WEEE must not be disassembled or manipulated at the collection point.

3. Evaluation

Once collected, UEEE/WEEE should be evaluated to determine whether it is suitable for refurbishment or repair for reuse, or for material recovery. An initial evaluation of each device could be done at the pick-up or collection points or at the treatment facilities. Evaluation of individual components, on the other hand, will occur within refurbishment/repair and dismantling, to determine which components are suitable for further reuse or material

recovery. Continued use of EEE preserves the high value added in original manufacture, conserves resources and energy needed to manufacture new EEE and makes relatively inexpensive technology available to those who cannot afford to purchase new EEE. This task could be done by personnel with a moderate level of expertise basing decisions on model, age, condition and appearance.

To improve the knowledge of the incoming material and waste, the BAT/BEP should record accurate information about incoming material/wastes in respective facilities. Such knowledge needs to take into account the outgoing material/waste, the treatment to be carried out, the type of material/waste, the origin of the material/waste, and the recommended procedures and the risks involved.

Implement a pre-acceptance procedure containing at least the following items:

- tests for the incoming material/waste with respect to the planned treatment.
- making sure that all necessary information is received on the nature of the process(es) producing the material/waste, including the variability of the processes. The personnel having to deal with a possible pre-acceptance procedure need to be able due to his profession and/or experience to deal with all necessary relevant questions for the treatment of the materials/wastes in the facility.
- a system for providing and analyzing a representative sample(s) of the material/waste from the production process producing such material/waste from the current holder. If e.g. a WEEE recycling facility wants to send plastics for further recycling it could be required that they provide data on the POP-PBDE content. A methodology for sampling and analysis of POP-PBDE in WEEE plastic is described in the Guidance on analysis of new POPs in articles and in Wäger et al. (2010).
- a system to carefully verify, if not dealing directly with the waste producer, the information received at the pre-acceptance stage. This should include the contact details for the waste generator and an appropriate description of the material/waste regarding its composition and hazardousness.
- making sure that the classification during the pre-acceptance procedure is according to the national legislation.
- identifying the appropriate treatment for each waste to be received at the installation by identifying a suitable treatment method for each new material/waste enquiry and having a clear methodology in place to assess the treatment of waste. This should consider the physico-chemical properties of the individual material/waste and the specifications for the treated material/waste.

Implement an acceptance procedure containing at least the following items:

- a clear and specified system allowing the operator to accept material/wastes at the receiving plant only if a defined treatment method and disposal/recovery route for the output of the treatment is determined. Regarding the planning for the acceptance, it needs to be guaranteed that the necessary storage treatment capacity and dispatch conditions (e.g. acceptance criteria of the output by the other installation) are also respected.

- measures are in place to fully document and deal with acceptable material/wastes arriving at the site, such as a pre-booking system, to ensure e.g. that sufficient capacity is available.
- clear and unambiguous criteria for the rejection of wastes and the reporting of all conformance violations.
- a system in place for identifying the maximum capacity limit of material/waste that can be stored at the facility.
- visually inspect the incoming material/waste to make sure it complies with the description received during the pre-acceptance procedure.

Implement different sampling procedures for all different incoming material/wastes delivered in bulk and/or containers. These sample procedures may contain the following items:

- sampling procedures based on a risk approach. Some elements to consider are the type of materials/waste (e.g. hazardous or non-hazardous) and the knowledge of the customer (e.g. waste producer).
- check on the relevant physico-chemical parameters. The relevant parameters are related to the knowledge of the material/waste needed in each case to register of all waste/materials.
- have appropriate sampling procedures. The procedure should contain a system for recording the number of samples and degree of consolidation.
- sample prior to acceptance.
- a system for determining and recording.
- a system to ensure that the material/waste samples are analyzed if needed. POP-PBDE might be analyzed in case that the material is considered for further recycling and the material. The screening of bromine can be used as a surrogate parameter for further decisions.

Have a reception facility that meets at least the following criteria:

- A laboratory to analyze the samples at the speed required by BAT. Typically, this requires having a robust quality assurance system, quality control methods and maintaining suitable records for storing the analyses results. Particularly for hazardous wastes, this often means that the laboratory needs to be on-site. Since POP-PBDEs require a rather sophisticated analysis[18] such monitoring is normally not done on-site.
- have a dedicated quarantine waste storage area as well as written procedures to manage rejected waste. If the inspection or analysis indicates that the wastes fail to meet the acceptance criteria (including, e.g. damaged, corroded or unlabeled drums) then the material/wastes can be temporarily stored there safely. Such storage and procedures should be designed and managed to promote the rapid management (typically a matter of days or less) to find a solution for that material/waste.
- have a clear procedure dealing with wastes where inspection and/or analysis prove that they do not fulfil the acceptance criteria of the plant or do not fit with the material/waste description received during the pre-acceptance procedure. The procedure should include

[18] Draft guidance on sampling, screening and analysis of persistent organic pollutants in products and articles.

all measures as required by the permit or national/international legislation to inform competent authorities, to safely store the delivery for any transition period or to reject the material/waste and send it back to the waste generator or to any other authorized destination.

- move material/waste to the storage area only after acceptance.
- mark the inspection, unloading and sampling areas on a site plan.
- have a sealed drainage system if needed.
- a system to ensure that the installation personnel who are involved in the sampling, checking and analysis procedures are suitably qualified and adequately trained, and that the training is updated on a regular basis.
- the application of a waste tracking system unique identifier (label/code) to each container at this stage. The identifier will contain at least the date of arrival on-site and the waste code.

4. Refurbishment or repair

The reuse of EEE serves to extend life of electrical appliances and, unlike the recycling process for which it is essential to breakdown the equipment into parts, through this process the device and components is preserved. The processes carried out in the reconditioning and repair of EEE are generally limited to disassembly and cleaning of equipment, replacement of components and parts, and the assembly of repaired or reconditioned equipment.

In Project Countries, as well as in the wider Latin American region, EEE reuse and repair is an extended practice. Companies specialized in extending the life equipment represent an emerging economic sector. Their productivity will depend on their capacity to recover equipment's pieces or functional parts, as well as in their skills to repair equipment or its components and in their capacity to provide services to clients or to commercialize second-hand equipment.

This sector brings also a couple of social benefits. On the one hand, these activities offer the possibility to low-skilled people to learn a trade, as well as it allows low class families to access to assets that they could not afford in any other case.

Taking these aspects into account, the guidelines for the stages of storage and transport mentioned above apply as well. Depending on the type of component or part, those that cannot be repaired or reused should be sent to either ESM dismantling or recovery.

It is important to recognize that when an industrial sector begins to improve or raise their standards, higher operating costs may arise and sometimes this can become discouraging. However, experience shows that the adoption of good practices will be, in the medium and long term, compensated with higher productivity rates and sales. It is important to encourage this sector to adopt continuous improvement in their processes, their energy and resources usage and in their operating costs, so as to avoid loss of competitiveness or productivity.

5. Dismantling

Dismantling consists of separating the main components of the WEEE, or disassembly of the components in all its materials which will be classified in plastics, glass, ferrous metals, non-

ferrous metals (such as aluminum and copper) and hazardous components such as mercury and lead, among others.

Dismantling process should be initially performed manually if it is intended to keep a used or end-of-life EEE in working condition. WEEE often needs to be opened to evaluate if its components are still working and can still be used in EEE, or submitted to the material recovery processes.

It will be necessary to first manually remove components containing hazardous substances such as POPs, mercury, etc., so they are not processed together with the whole device in the mechanical dismantling or recycling steps so they are not released or mixed with other materials.

Decontamination is the separation of the dangerous components that may be present in some devices to prevent that they end in the fractions for recycling. It is highly recommended that there are standardized processes in place to disassemble the different equipment and components, which will allow the traceability of valuable compounds and separate hazardous waste for later proper treatment or disposal.

In general, the plastic housing or cover must first be disassembled by unscrewing it and then classified the materials found on the outer parts. In this way it is been separated: plastic covers of televisions, monitors that contain flame retardants, LCD that causes mercury emission, toner cartridges should also be removed unless recycling or shredding equipment has been specifically designed to handle environments where high dust concentrations in air might occur, plastics, cables, printed circuit boards, ferrous and non-ferrous metals, and glass.

As a second step, recyclable raw materials are extracted; among the usable materials are: electrical, electronic and electromechanical components, plastics, ferrous and non-ferrous metals such as copper and aluminum.

After the disassembly process, the extraction of valuable materials follows, such as gold (from the connectors), nickel, copper, iron, aluminum and permanent magnets, which are worth recovering as secondary resources. This stage of recycling requires specific and more advanced technology to be able to carry it out safely and environmentally sustainable, not available at the Project Countries since it also requires large investments.

Since WEEE is processed manually, significant demand for workforce is generated. These human resources should be trained in disassembly tasks; separation and recovery of components, pieces or parts; and, classification of metals, plastics or polymers by type and composition. The manual recycling processes include the disassembly and the decontamination processes.

Manual disassembly of many WEEEs is a viable and recommended alternative to develop in the Project Countries, since it is also a very good option for job creation, particularly for

unskilled work or disabled people, it facilitates obtaining components for reuse, less energy is consumed, and potentially dangerous substances are removed more effectively.

In all cases, protection of worker health and safety and the environment is necessary in such conditions, including engineered control systems, personal protective equipment such as gloves and eye protection, and more complex measures such as respiratory masks.

In addition, the infrastructure of the disassembly center must be designed to prevent all kinds of contamination and be able to react to any emergency situation. For these purposes, it is recommended:

- Ceiling for the conservation of WEEE. It should not be exposed to moisture or in direct sunlight or high temperatures, particularly when the equipment is to be reconditioned or reused.
- Extractors, for the evacuation of emissions.
- Concrete floor or industrial floor, to make cleaning dust or any other substance easier.
- Access ramps for loading and unloading of disused equipment and materials.
- Smoke detectors and fire extinguishers, to ensure the safety of operators, WEEE and the plant facilities, as well as preventing damage to the environment.
- Adequate weighing scales.
- Installations that use heat in their processes need to control atmospheric emissions.
- Enough space to correctly identify, handle and store the dangerous components that are extracted from some WEEE during disassembly.
- Evacuation routes and signaling of spaces.

Each company that specializes in WEEE management, whether for refurbishment, repair or recycling, must be familiar with the sector conditions and design an adequate *Business Plan*. Likewise, it must estimate both, expected sales and profits, such as expenses and operating costs of the process, internal and external barriers, competitors, regulatory framework and, above all, its capacity: how much can be processed per day / month / year, so as not to receive waste that is not later recycled or recovered.

6. Separation

Separation is the process of sorting materials into batches and consolidating them for specialized material recovery. Relatively high levels of worker and environmental protection are needed, depending on the separation process and the materials being processed. Some materials can be swiftly returned to markets (e.g., steel cases may readily be sold on the scrap steel market), while others may have to pass through several separation processes before they are adequately consolidated. At the end of separation, finding the appropriate ESM recovery facilities for separated waste streams is a critical part of ESM, as this final link will largely determine the ultimate material recovery achieved in the chain, as well as the magnitude of environmental impact.

In this step, it is crucial to separate, identify and properly store WEEE containing hazardous components.

7. Storage

This is also a critical step in the process. If UEEE/WEEE is improperly stored, it may be lost for further beneficial use or may be mismanaged. Storage facilities must consider the following:

- To guarantee weather protection, in order to prevent pollutants from leaching into the environment and to allow the subsequent reconditioning or reuse of the equipment.
- Floors must be waterproof to avoid infiltrations and soil contamination.
- Capacity must be adequate for the amount of WEEE to be stored.
- A control access must be implemented. WEEE should be stored in such a way that it is not allowed for unauthorized persons to enter to the facilities. This is basically to prevent equipment from being manipulated.
- Inventory records, both of entire disused equipment and of recovered parts, must be kept.
- All procedures carried out at the storage site should be documented.
- Personnel must be trained to comply with storage procedures.
- WEEE must be stored on pallets or in boxes facilitating its storage, loading and transport to subsequent processes.

As mentioned before, WEEEs have components that may contain hazardous substances. In this case it is recommended to disassemble this component, like batteries, and store them separately. They must be packaged, classified, labeled, and adequate transport, treatment and final disposal according to technology available and current legislation must be ensured.

In case of batteries Ni-Cd and Lithium Ion, technical guidelines establish that to prevent the risk of inflammation they should be packed separately (for example in plastic bags) prior to storage in containers to avoid contact between them.

Concerning CRT Monitors (Cathode Ray Tubes), they should be packed in a way that reduces and minimize the risk of fracture during normal shipping conditions. In addition, foreseeing a possible rupture during transport, packaging should be designed to reduce possible emissions of material to the environment.

BAT/BEP special waste storage should include the following techniques:

- Locating storage areas away from water courses and sensitive perimeters, and in such a way so as to eliminate or minimize the double handling of wastes within the installation.
- Ensuring that the storage area drainage infrastructure can contain all possible contaminated run-offs and that drainage from incompatible wastes cannot come into contact with each other.
- Using a dedicated area/store which is equipped with all necessary measures related to the specific risk of the wastes for sorting and repackaging laboratory smalls or similar waste. These wastes are sorted according to their hazard classification, with due consideration for any potential incompatibility problems and repackaged if needed. After that, they are moved to the appropriate storage area.

- Considerations are given to appropriate fire safety measures required for storage of plastic wastes.
- Storing organic waste liquid with a low flashpoint under a nitrogen atmosphere to keep it inert. Each storage tank is put in a waterproof retention area. Gas effluents are collected and treated.

The following techniques should be applied when handling waste:

- Having systems and procedures in place to ensure that wastes are transferred to the appropriate storage safely.
- Having in place a management system for the loading and unloading of materials/waste in the installation, which also takes into consideration any risks that these activities may incur.
- Ensuring that a qualified person attends the waste holder site to check the old original waste, waste from an unclear origin or undefined waste (especially if drummed), to classify the substances accordingly and to package into specific containers. In some cases, the individual packages may need to be protected from mechanical damage in the drum with fillers adapted to the packaged waste properties.
- Ensuring the use of PPEs for workers (such as gloves and eye protection, and more complex measures such as respiratory masks).
- Maximizing the use of re-usable packaging (drums, containers, IBCs, palettes, etc.).

8. Transport

The transport logistic depends on the type of WEEE being transported and the extent to which they may be disassembled or recycled. In some cases, it is possible to transport entire UEEE, and sometimes components and disassembled parts of WEEE can be transported.

In both cases, there are certain basic requirements that must be taken into account

- Transport must always guarantee weather protection.
- Unauthorized persons must not be allowed to access the load, in order to avoid the addition or loss of parts or pieces of equipment without supervision.
- The cargo must be properly packed, stowed, stacked secure and covered in such a way that it doesn't present danger to the people neither the environment.
- Depending on the size of the WEEE, if possible, it is recommended to use wood boxes, and if using pallets, they should be wrapped up with a plastic film.
- Guidelines state that it is not recommended to put more than three layers of WEEE on the pallets and to ensure that the load does exceed the box capacity.
- Fire extinguisher must be easily available, and it is suggested to have at least two of them (one in the cabin and another one near the load).

If whole WEEE are being transported to a storage or disassembly location they should be packed in a way that minimizes fracture during normal shipping conditions and that in case of breakdown packaging must be able to contain the material, avoiding emissions to the environment.

Special caution must be exercised when dealing with display equipment and equipment containing inks or liquids that they could spill during transport.

The transport of components resulting from the process of disassembling of WEEE, such as batteries, hard drives, printed circuit boards, displays, etc. should take into account the following considerations:

- Components of electronic equipment should generally be packaged in such a way that detachment of hazardous components to the environment is avoided.
- All components should preferably be placed in cardboard boxes, and these must be wrapped with plastic to attach them to the pallets.
- The load must not exceed the box.

9. Recovery

In general terms, the methods and technologies used for the recovery of components are not present at the Project Countries, thus this document report does not address in depth that aspect Flow of ESM management of UEEE/WEEE.

The most often used recycling technologies for WEEE are:

- Melting: Refers to the casting of ferrous metals.
- Thermal and chemical refining: refers to the recovery of non-ferrous metals contained in the cards printed circuit and other electrical and electronic waste, through thermal or chemical processes.
- Incineration: must be used for non-valuable waste or hazardous ones and must always be done always under high technical standards that allow the recovery of energy in the form of electrical energy and avoid pollution of the environment.

10. Exports and final disposal

As it has been mentioned before, recycling of WEEE components and adequate final disposal of hazardous materials are not currently viable technologies in the Project Countries. This implies that the following by-products and wastes of the process should be sent abroad for further processing:

- Recovered materials for recycling
- Hazardous materials for final disposal (or recycling if technologies are available).

When designing the EPR system, an in-depth evaluation on the possible destinations for these by-products and wastes should be undertaken, taking into consideration the requirements to comply with Basel Convention provisions, when applicable, as well technical, geographical and financial aspects in order to assure ESM management.

On the other hand, discarded materials that do not present hazardous components should be finally disposed locally at landfills.

To improve the knowledge and management on the outgoing waste/material BAT/BEP is to:

- Analyze and guarantee the quality and composition of the material/waste OUT according to the relevant parameters important for the receiving company/facility.
- Assess how and where wastes could be re-used, consistently with environmentally sound management, as feedstock for another industry.
- Assure that the materials and wastes are labelled according to the waste management catalogue and other labelling criteria of the country.
- Assure that contaminated materials are only delivered to companies with appropriate treatment capacity and management frames in place. For wastes the appropriateness of the treatment technologies is to be assured (e.g. landfill category, co-incineration in BAT cement kilns, BAT incinerators).

11. Hazardous materials management

If properly managed, as a result of the stages of Dismantling, Separation and Recycling, hazardous materials, or WEEE components that contain hazardous substances, are obtained and separated from the recovery of materials flow.

In this context, several studies, documents and guidelines have been developed as orientation tools for managers involved in the different stages of WEEE management, as well as for environmental authorities. The presence of Ozone depleting substances -ODS, Green House Gases -GHG-, heavy metals (including lead and mercury), new POPs and unintentionally produced POPs presents an opportunity to synergize all related implementation activities of the Conventions (Stockholm, Rotterdam and Basel Conventions, Minamata Convention, Montreal Protocol, and UN Climate Change Convention) by minimizing the various pollutants with different risks.

As it was stated at the Trade Flows of EEE and WEEE Report, it is worth to remark the categories of main concern in terms of their components and potential negative impacts to environment and health if mismanaged:

- Categories IT&T and CE may contain Persistent Organic Pollutants (POPs) regulated by the Stockholm Convention, such as Polychlorinated dibenzo-p-dioxins (PCDD) and dibenzofurans (PCDF)[19]; Polybrominated diphenyl ethers (PBDEs) contained as flame retardants in plastics of TV and computer casings, and PCBs[20]. Electronic goods also contain a wide variety of other hazardous substances (arsenic, cadmium, mercury, bromides, lead, and phosphorus pentachloride).

[19] From smoldering of cables or plastic metal mixes in order to obtain copper and precious metals as well as from burning of printed circuit boards and plastics in order to reduce the volume of unusable waste fractions

[20] Released from uncontrolled combustion of e-waste and during the dismantling of older electronic and household appliances

- LE and MD may include mercury components, regulated by the Minamata Convention on Mercury, such as mercury-containing energy efficient lights and primary batteries.

The need of reuse and recycling of articles containing POP-BDEs results in the need to define Best Available Technology (BAT) and Best Environmental Practices (BEP) to carry out the recycling and the final disposal in an environmentally sound manner (ESM), to ensure that releases of all these pollutants are minimized. For that end, a relevant document to be considered is "Guidelines on Best Available Techniques and Best Environmental Practice for the Recycling and Disposal of Articles containing Polybrominated Diphenyl Ethers (PBDEs) under the Stockholm Convention on Persistent Organic Pollutants"[21] and "General technical guidelines on the environmentally sound management of wastes consisting of, containing or contaminated with persistent organic pollutants"[22]

As it is known, most use of POP-BDE have largely stopped a decade ago, and thus, a large share of POP-BDE-containing materials have already entered the waste management and recycling flow. On the other hand, decaBDE has been recently listed on Stockholm Convention and might still be manufactured at some countries. Therefore, considerations of waste management options play a crucial role in the overall assessment.

The following figure presents the material flow for POP-PBDE-containing goods, according to recommendations of the Stockholm Convention related to their recycling and waste disposal. It can be seen that the appropriate technologies for achieving ESM involve energy or material recovery technologies (incineration, cement, metal industry) or emerging technologies (melting, pyrolysis, gasification and recovery of bromine). Also, a less prefers option would be a sanitary landfill designed to receive hazardous wastes. These are not available at the Project Countries. For these reasons, when obtained from the dismantling processes, POP-PBDE-containing materials should be exported for proper disposal.

[21] http://chm.pops.int/Implementation/NIPs/Guidance/GuidanceonBATBEPfortherecyclingofPBDEs/tabid/3172/Default.aspx

[22] http://www.basel.int/Portals/4/download.aspx?d=UNEP-CHW.14-7-Add.1-Rev.1.English.pdf

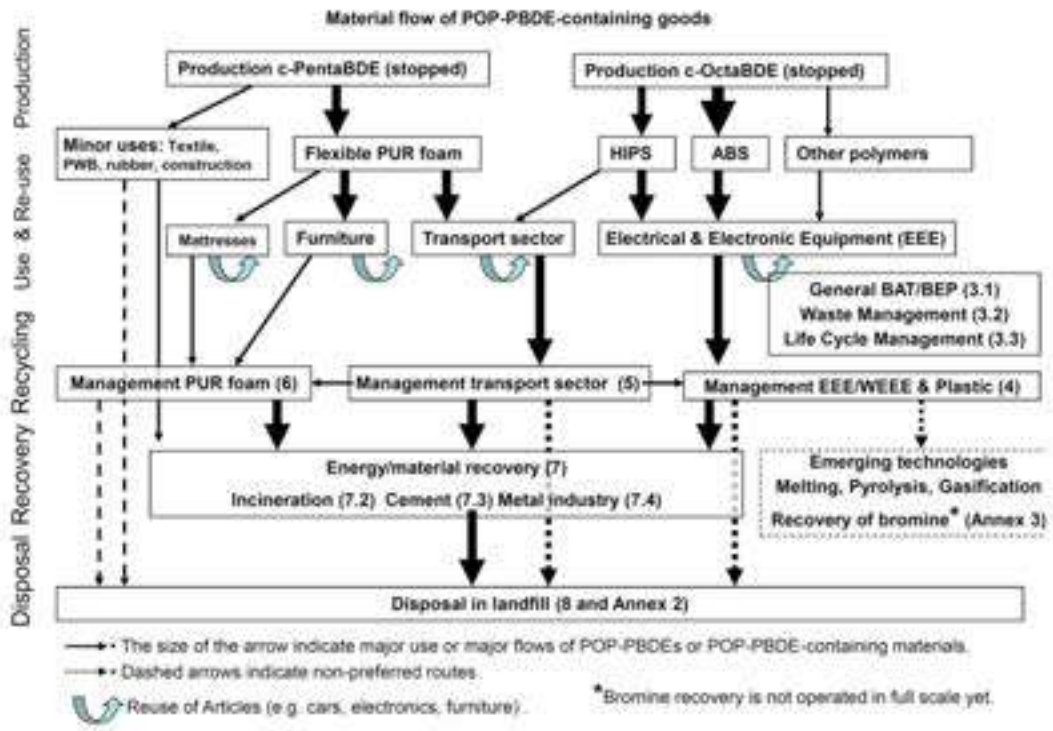


Figure 6: Structure of the guidance and mass flow for the relevant production and application of c-PentaBDE and c-OctaBDE and the reuse, recycling and disposal of wastes containing these substances[23]

4.2. IDENTIFICATION OF ACTORS

As mentioned before, the goal of EPR systems could be summarized as the extension of the producer physical and/or financial responsibility to the post-consumer state of a product's life cycle. Under this approach, producers internalise the end of life managing costs according to environmental standards. This also represents an incentive to producers to improve the design phase of the products that they will have the responsibility to manage at the moment they become waste. According to this definition, the producers' responsibility is in fact a shared responsibility among various stakeholders. In this sense, the identification and proper involvement of all stakeholders is central when designing management WEEE policies applying EPR principle.

The holistic design of public policies is essentially, a participative process, where stakeholders assume an active role, not only as legally bound parties but also as policy makers. In this sense, it is necessary to think about suitable and efficient participation and information schemes that allow actors to have a whole picture of the problem and get aware of its different dimensions: social, technical, environmental, economic, and legislative, among others. All stakeholders must be involved in a cooperative approach from the very beginning.

[23] http://chm.pops.int/Implementation/NIPs/Guidance/GuidanceonBATBEPfortherecyclingofPBDEs/tabid/3172/Default.aspx

Experience shows that there should be a dialogue and exchange of information between all stakeholders: public authorities, producers & retailers, waste management operators, NGOs, waste pickers, treatment operators among others. And despite of the fact that usually dialogue between these actors often takes place informally, a formal arena appears opportune, taking into consideration the responsibilities attained for each other. One important and related feature is the way the participation and dialogue is organised among different stakeholders.

Although the design of the linkage strategy for actors should be flexible, taking into consideration each country's reality, it is always essential that there is an actor to lead this process, and naturally this responsibility falls under the public authorities. Definitively national and local authorities could play a key role in coordinating stakeholders' involvement and design a tool that allows each actor to participate actively.

Taking into account that in each country there may be a different institutional conformation, the *Practical Guide* outlines the main considerations regarding each actor in the system presented in Figure 7.

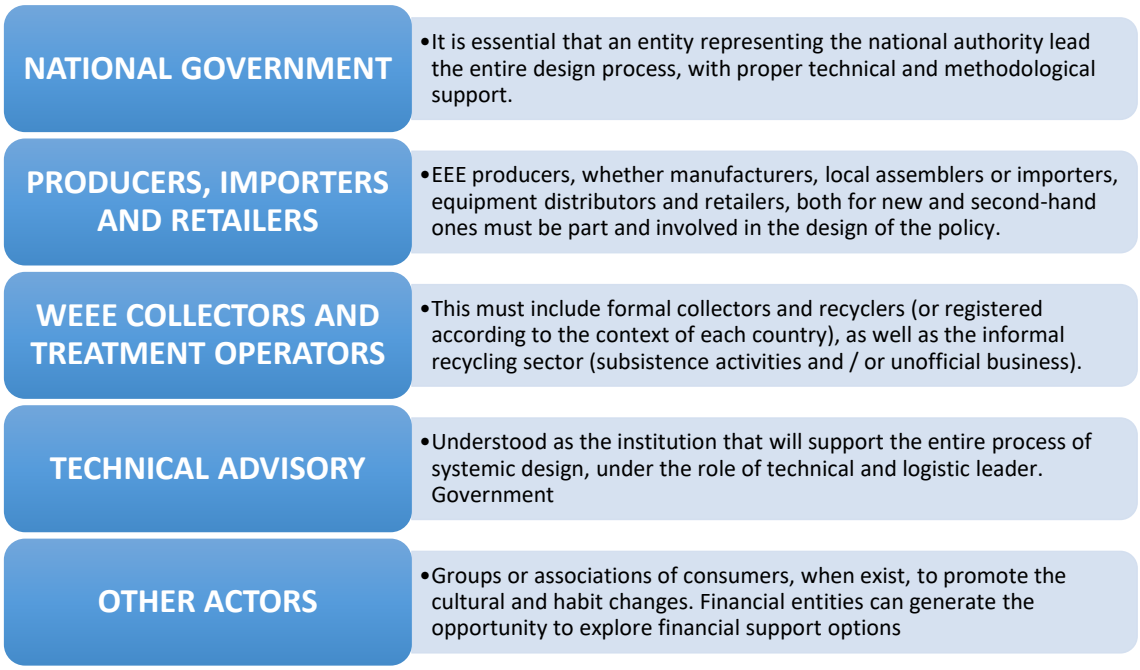


Figure 7: Main considerations regarding each actor in the EPR system. Source: Own elaboration based on "Practical guide for the systemic design of WEEE management policies in developing countries", Sustainable Recycling Industries, 2017.

Figure 8 presents a preliminary assessment on the main actors to be engaged in the process ant their level of involvement.

Type of actor	Actor	Involvement			
		Escencial		Ideal	
		High	Moderate	High	Moderate
National Government	Environmental authority	■			
	Industry / Trade / Commerce Authority	■			
	Customs	■			
	Finance / Economy / Taxing Authority	■			
	Health Authority		■		
	IT / Technology Authority	■			
	Education Authority			■	
	Communication Authority			■	
Producers and retailers	Associations and strategic alliances of EEE producers or direct representatives of OEM	■			
	Associations and strategic alliances of retailers or direct representatives of the supply chain/distrbution channels	■			
WEEE collection organisations and treatment operators	PRO	■			
	Actors carrying out unofficial business activities	■			
	Actors engaged in either subsistence or official business activities	■			
	Waste pickers	■			
Technical advisors	Technical advisers (national or international)		■		
	Academia			■	
Other actors	Consumer groups				■
	Finance companies				■
	Civil society			■	

Figure 8: Actors to engage in the systemic-design process. Source: adapted by consultants from "A practical guide for the systemic design of WEEE management policies in developing countries", Sustainable Recycling Industries, 2017.

4.3. WEEE ESTIMATION AND COMPOSITION

Following is an extract from the Trade Flows Report, related to WEEE generation and composition at the Project Countries. For specific information on EEE putted in market and on each Country´s profile, please refer to the Trade Flows Report.

The mass flow assessment (MFA) presented in Figure 9 illustrates the generalized flow of all EEE throughout the life cycle within the Project Countries. The main stages and processes within a product's lifecycle include:

- The stage of importation by distributers, retailers and consumers;
- The stage of consumption of these items until they lose their functional life, becoming ultimately WEEE. The stage of Used Electric and Electronic Equipment (UEEE) is not graphed since it is considered within the stage of EEE consumption;
- The stage of repair or refurbishment of EEE, which can fall under warranty of be done privately;

- The stage where repaired or refurnished EEE may go back to original owner or to retail;
- The stage where WEEE is generated and discarded from the process of repair or refurbishment;
- The stage where end-of-life stock of EEE becomes WEEE;
- The stage where WEEE is being collected altogether with Municipal Solid Waste (MSW), privately collected or directly by waste pickers;
- The stage where WEEE is sent to landfilling or open dumping sites;
- The stage where waste pickers may operate directly at landfills or open dumping sites, and discard WEEE back;
- The stage where recycling industries receive scrap materials from private collection systems or through waste pickers, and refurnish the UEEE for its reuse or dismantle the WEEE units and sell recovered materials to the international markets.

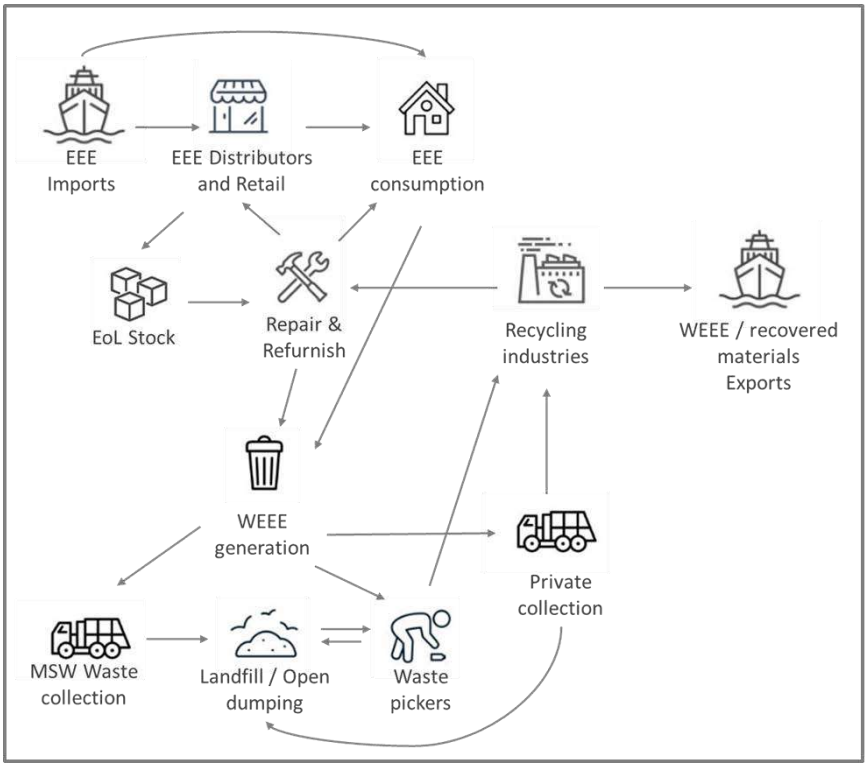


Figure 9: mass flow assessment showing the generalized flows of EEE and WEEE through the project countries. Source: prepared by the authors

Figure 10 displays the expected (not projected) generation of WEEE for the period 2015-2033, based on the EEE imports at the Project countries over the period 2015 to 2018, taking into account a 10% of exports, the annual growth rate in EEE consumption of 7% and the estimated lifespan of EEE for each category.

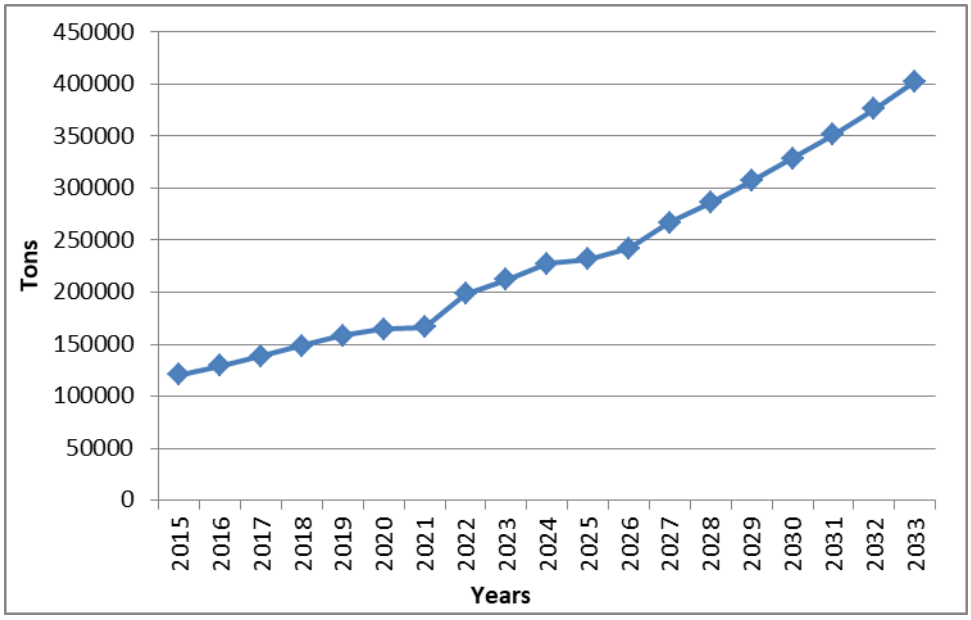


Figure 10: tons of WEEE generation expected at the Project Countries over the period 2015-2033

In order to make the assessment on estimated generation of waste, the following were considered based on the consultant's experience, and the information available from E-waste SurWEEE Project[24]:

1. Large household appliances (LHA): 8 years
2. Small household appliances (SHA): 3 years
3. IT and telecommunications equipment (IT&T): 3 years
4. Consumer equipment (CE): 5 years
5. Lighting equipment (LE): 2 years
6. Electrical and electronic tools (E&ET): 8 years
7. Toys, leisure and sports equipment (TL&SE): 3 years
8. Medical devices (MD): 9 years
9. Monitoring and control instruments (M&CE): 10 years
10. Automatic dispensers (AD): 10 years

Figure 11 and 12 show the estimation of WEEE generation in tons per category in average and per year during the period 2015-2033. The category of highest impact in terms of tons generated is by CE followed by LHA, IT&T and E&ET. These four categories together represent 82% of the total estimated tons of WEEE generated.

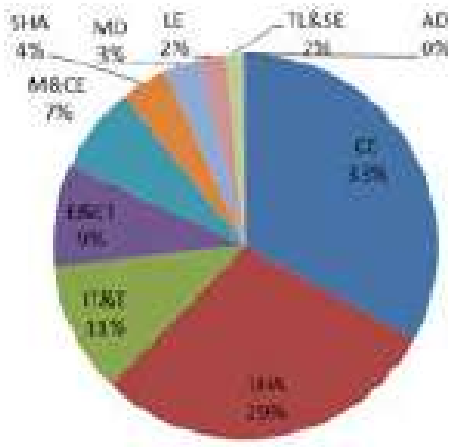
When comparing the highest impact categories of WEEE generation vs of EEE imports, the four categories are repeated, but order differs. In WEEE generation, CE becomes the category of highest impact; meanwhile LHA has the highest impact in EEE tons imported. This difference is due to the lifespan of products, where LHA has a longer lifespan that CE (8 vs 5 years).

[24] Assessments of Waste Electrical and Electronic Equipment for the Republic of Trinidad and Tobago and Suriname, BCRC-Caribbean, 2014 and 2016.

The third category in terms of impact of WEEE generation is IT&T, which is the highest impact category in terms of values imported (USD).

In conclusion, in terms of volume and money, efforts could be focused in managing the following three categories, in order to address the most representative (+80% of total WEEE generated):

1. Consumer equipment (CE)
2. Large household appliances (LHA)
3. IT and telecommunications equipment (IT&T)
4. Electric and Electronic Tools (E&ET).



EEE category	Average tons WEEE	Accumulated percentage
CE	76.629	33%
LHA	67.859	62%
IT&T	25.821	73%
E&ET	19.805	82%
M&CE	16.812	89%
SHA	9.113	93%
MD	7.400	96%
LE	4.687	98%
TL&SE	3.276	100%
AD	673	100%
TOTAL	**232.074**	**100%**

Figure 11: Average of Project Countries WEEE generation in tons per category over the period 2015-2033

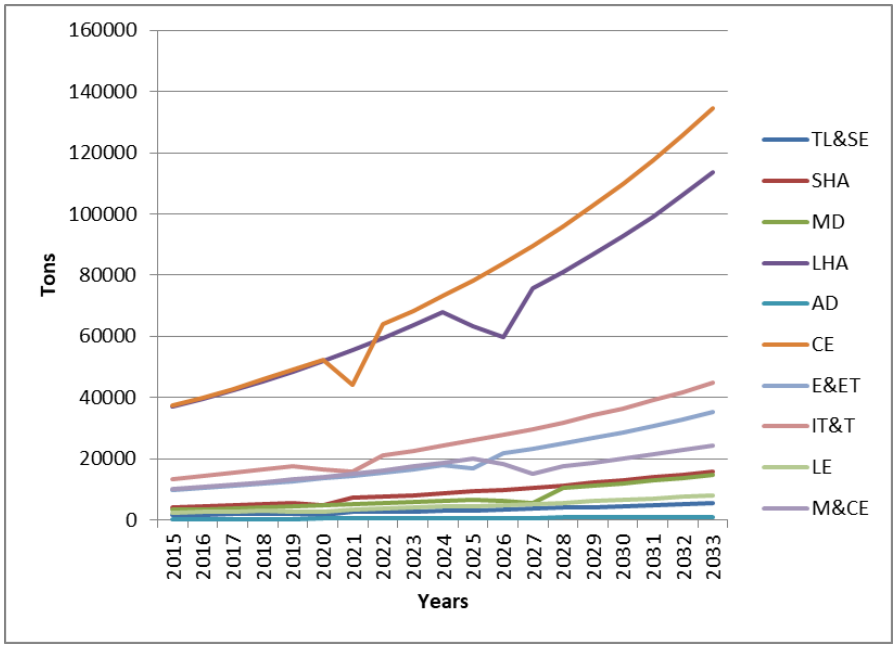


Figure 12: Project Countries' WEEE generation in tons per category over the period 2015-2033

As categories of main concern in terms of their components and potential negative impacts to environment and health if mismanaged, it is worth to remark that Persistent Organic Pollutants (POPs) regulated by the Stockholm Convention, such as Polychlorinated dibenzo-p-dioxins (PCDD) and dibenzofurans (PCDF); Polybrominated diphenyl ethers (PBDEs) contained as flame retardants in plastics of TV and computer casings, and PCBs, are present mainly in categories IT&T and CE.

In addition, categories LE and MD may include mercury components, regulated by the Minamata Convention on Mercury, such as mercury-containing energy efficient lights and primary batteries.

In terms of WEEE with potential to contain POPs or Mercury, the quantities are as follows:

- Waste with potential to contain POPs (CE + IT&T): 44% of total WEEE, in average over the period 2015-2033, equivalent to 102.450 tons per year.
- Waste with potential to contain Mercury (MD + LE): 5% of total WEEE, in average over the period 2015-2033, equivalent to 12.087 tons per year.

Figures 13 and 14 show that the amount of WEEE generated at Dominican Republic represents more than 50% of total WEEE generation, at all categories. If added together with Trinidad and Tobago´s and Guyana´s WEEE generation, 74% of total WEEE generated is covered.

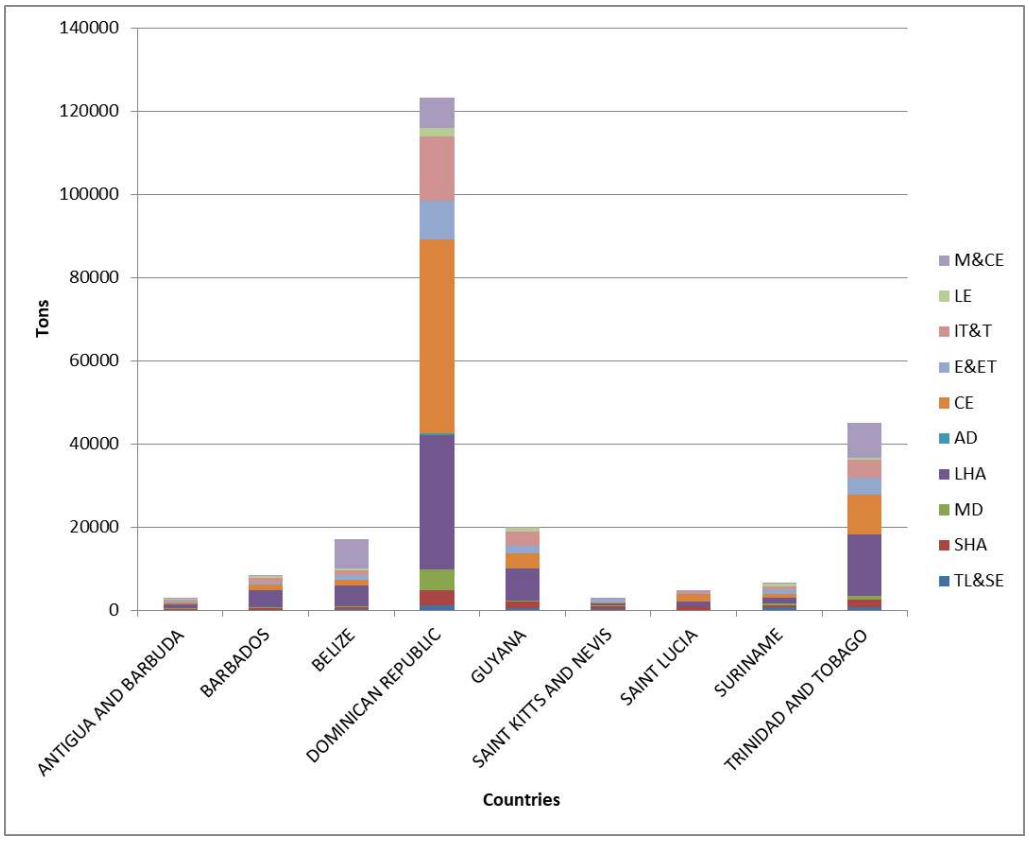


Figure 13: Annual average of WEEE generation in tons per country over the period 2015-2033 per category

Country	Percentage over total WEEE generation in tons at Project Countries
DOMINICAN REPUBLIC	54%
TRINIDAD AND TOBAGO	20%
GUYANA	9%
BELIZE	7%
BARBADOS	4%
SURINAME	3%
SAINT LUCIA	2%
ANTIGUA AND BARBUDA	1%
SAINT KITTS AND NEVIS	1%

Figure 14: Percentage of WEEE generation in tons per country vs total WEEE generation over the period 2015-2033

4.4. STATUS OF RELATED LEGISLATION

According the Legal and Institutional Capacity Report of the ISLAND Project (Preparation phase), all target countries are part of CARICOM and are party to the Revised Treaty of Chaguaramas 2001 (RTC), and the CARICOM EU Economic Partnership Agreement 2008 (EPA). Additionally, the target countries subscribe to the CARICOM Regional Organisation for Standards and Quality (CROSQ), which is the regional centre for promoting efficiency and competitive production in goods and services, through the process of standardization and the verification of quality. Although all the project countries have ratified international conventions, some of them need to ensure that all of the Conventions are transformed into domestic law. In particular, Barbados, Belize and Trinidad and Tobago have not yet ratified Minamata Convention. According the aforementioned report, it is generally found that the legislation does not adequately cover the global requirements.

The target countries in general suffer from most of the issues with regard to proper updated and comprehensive environmental laws, as well as a lack of concise and clearly outlined institutional frameworks.

In terms of Legislations related EPR schemes, some countries have implemented this policy not to e-waste but to beverages containers. Saint Kitts and Nevis has legislation in relation to EPR. Under the Trade (Bottle and Can Deposit Levy) Act No. 1 of 2002, Saint Kitts and Nevis imposes a deposit levy of EC $0.30 per container of imported beer, stout, malt, ale, and aerated drinks in non-returnable bottles

The Guyana Revenue Authority levies an environmental tax of GY$10 on every unit of nonreturnable metal, plastic, glass or cardboard container of any alcoholic or non-alcoholic beverage imported into Guyana. It was said that this levy was not primarily a revenue collection initiative but a measure to encourage recycling of plastics and to reduce its use.

Belize has legislation in relation to EPR, also known as the Returnable Containers Act No 12 of 2009 Cap 328:01. There is the obligation to institute deposit-refund or take-back scheme for empty beverage containers. Upon proof of purchase, the customer can return the beverage

container to the dealer, for a few. This is then returned to the distributor, as outlined in section 4 of the Act.

The case of Barbados is quite interesting. Since 1996, through the Environmental Levy Act there shall be charged, levied and collected on every good imported into Barbados an amount to be known as an environmental levy (the scope of this norm includes: refrigerators, stoves, and ranges under tariff heading number 7321.101 and 8516.601). Although this legislation could be considered a milestone in EPR on WEEE, this fee would not be used to afford the sound management of WEEE.

Regarding WEEE, none of the Project Countries have specific legislation, according the Legal and Institutional Capacity Report, only Belize have developed an E Waste white paper, and would have been brought to Cabinet around 2 years ago. Dominican Republic has recently endorsed a Draft Act on Solid Waste Management pending of approval (it was approved by the chamber of Deputies in December 2019 but it has not yet been approved by the Chamber of Senators). The Draft Act addresses the extended responsibility of the producer and importer to promote a special waste management regime under which producers and importers are responsible for the organization and financing of the product throughout its life cycle, including the post-consumer phase. The Draft Act lists eight prioritized products and it includes WEEE and batteries.

Also, there is no legal definition of EEE, UEEE and WEEE. This entails two main problems: on one hand, there is no certainty about whether an object is an UEEE or a WEEE, which leads to uncertainty about the owner´s responsibilities regarding its management; on the other, if considered a WEEE, when should it be categorized as hazardous waste.

The lack of clearness regarding the scope of what should be considered WEEE has a direct impact on the compliance of the Basel Convention for the Transboundary Movements of Hazardous Wastes and their Disposal. According article 6 "*The State of export shall notify, or shall require the generator or exporter to notify, in writing, through the channel of the competent authority of the State of export, the competent authority of the States concerned of any proposed Transboundary movement of hazardous wastes or other wastes*".

Currently, in the Caribbean Region, WEEE are stored, dismantled and then exported to different countries (Thailand, Japan and USA, among others). Since there is no national clear definition of what is the legal classification of these exported materials, the compliance of Basel Convention procedures could be vulnerable.

In terms of a regional approach harmonisation is the key. Although every country will develop its own policies and legislation, consultations should be done to ensure the applicability of the whole system. The design of MOUs, or similar collaboration mechanisms, should be explored in order to coordinate activities among the project countries on a WEEE specific regulation and an EPR system approach.

5. PROJECT COUNTRIES WEEE PROFILES

Following, a profile for each of the Project Countries is presented based on the findings of the Trade Flow Assessment Report, the interviews conducted and literature available, such as the Current waste management activities and institutional capacity report conducted as well as for the ISLANDS project - preparation grant phase.

ANTIGUA & BARBUDA

RELATED TO WASTE IN GENERAL

MSW collection: Household waste: 40% collection by Antigua and Barbuda National Solid Waste Management Authority (NSWMA) own collection vehicles and staff and 60% collected by private collectors through engagement by NSWMA in Antigua (although private collectors currently do not have contract with NSWMA and work on a week to week extension on old contracts). Barbuda has 100% private sector collection by private contractor engaged under a 10-year-contract with Barbuda Council.

Separate collection of any waste stream: For commercial and industrial waste, there are private haulers that collect and transport waste to the landfill site. Institutional waste largely collected by NSWMA or their contracted collectors. Collected waste is mainly landfilled. Disposal financed in part by a gate fee charged to commercial waste haulers on a per weight basis according to material type and net weight registered on Cooks Landfill weight bridge (no charge in Barbuda).

Waste oils and some medical waste are collected separately. Waste oils to the local recycler. Medical Waste deep buried at the site.

Destination of SW: Very limited recycling (including some materials recovered by waste pickers from landfill), majority of household waste disposed to Landfill. Antigua: Cooks Landfill; Barbuda: Plantation Landfill. There are currently no designated functional hazardous waste storage facilities.

Specific legislation applied for waste management: NSWMA was established under the Solid Waste Management Act of 1995 (revised in 2005). The NSWMA charges a small tipping fee for the disposal of some wastes in particular cruise ship wastes, and industrial wastes. The Litter Control and Prevention Act No. 3 of 2019[25] requires all business including taxi operators to manage the litter coming from their operations. It also has definitions for hazardous waste, industrial waste and liquid waste. The Act however does not specifically address the management of chemicals or the burning of household or other wastes.

Party to Basel Convention: Yes.

EPR legislation for any waste stream: No.

[25] http://laws.gov.ag/wp-content/uploads/2019/05/No.-3-of-2019-LITTER-CONTROL-AND-PREVENTION-ACT-2019-No.-3-of-2019.pdf

Informal sector involvement: Yes (less than 20 informal waste collectors). Evidence of open burning of WEEE around Cooks landfill and reported occurrences around Plantation landfill were observed. This is conducted by waste pickers looking to extract copper and other high value metals without the plastic bulk.

RELATED TO WEEE

Annual growth rate in consumption of EEE: 5.2%.

Amount of e-waste generated 2018: 15.51 kg/habitant/year.

Percentage that EEE imports represent in value and tons of total imports at Project Countries: 1% of total imports in tons and 2% of total imports in value with respect to total imports at Project Countries.

Percentage that WEEE generation represent in tons of total WEEE generation at Project Countries: 1%.

WEEE´s 85% generation is distributed among categories: LHA, CE, E&ET, MD and IT&T.

Waste with potential to contain POPs (CE + IT&T): 25% of total WEEE, in average over the period 2015-2033, equivalent to 714 tons per year.

Waste with potential to contain Mercury (MD + LE): 17% of total WEEE, in average over the period 2015-2033, equivalent to 491 tons per year.

Separate collection of e-waste: Very limited to none. Mostly WEEE is comingled with normal wastes.

Main destination of e-waste: landfill or open dumpsites.

WEEE specific legislation: No.

Recycling of e-waste: Not at the governmental level. Some private initiatives are in place.

PRIVATE INITATIVES RELATED TO RECYCLING

Recycling facilities: Wills Recycling[26].

Recycling of e-waste: Not in present. Circuit board exported: 2014: 5.59 tons; 2016: 7.28 tons, 2019: 16.84 tons

Types of WEEE accepted: car batteries, electrical motors, compressors.

Methods for collection of WEEE: Materials are collected from landfill, individuals, commerce. Also, owners can take their WEEE to the facility.

Government support: There are no incentives received from government.

Fee paid by generators for the treatment: Wills Recycling charges for the services. In case of individuals that bring their recyclables, they pay per weight to incentivize them.

Technologies/Processes applied: dismantling and then are sold to a Broker to be export them.

Destination of by-products generated: WEEE is exported through a Broker and the recycling company is not aware of the destination.

Basel convention related aspects: The Broker would be in charge of complying with Basel Procedures.

BET/BAP/certifications in place: not informed.

[26] The Antigua & Barbuda E-waste Management Center (a non-profit organization) was identified, but it not currently functioning.

Key challenges raised: Will´s Recycling used to recycle WEEE. They did not find clients that would acquire the whole unit from them, thus, the challenge is to dismantle them and the high cost this represents (40 USD a day)[27] makes it non-viable. When dealing with WEEE they would pay for the circuit boards only. The consequence was that waste pickers would remove the circuit boards and dispose the rest of the equipment under irregular conditions, causing an environmental/health problem.

Antigua & Barbuda is currently facing a challenge in terms of SWM of final disposal. A replacement site for the Cooks Estate Disposal Facility needs to be replaced. Implementing an EPR system could reduce the WEEE to be disposed.

According the recycling company interviewed, WEEE is one of the top 3 streams at landfill. Implementing an EPR system could contribute to solve final disposal problem of the country.

Storage is also a challenge in terms of WEEE recycling. (e.g. to export circuit boards Wills recycling would need two years to reach the minimum amount for export of 8 tons).

Key opportunities raised: Strengthening the capacity of Will´s recycling and reopen the Antigua & Barbuda E-waste Management Center could have potentiality to receive e-waste and work on raising awareness activities as well.

BARBADOS

RELATED TO WASTE IN GENERAL

MW collection: Comingled waste collected by or on behalf of Sanitation Service Authority (SSA), transported to Sustainable Barbados Recycling Centre (SBRC) who transfer the waste into transfer trailers for removal to adjacent Mangrove Pond Landfill.

Separate collection of any waste stream:

For Industrial, Commercial and Institutional Waste collection mainly conducted by private collection companies.

Beverage bottles have deposit refund system and generally recovered at source. Other packaging separately collected by private haulers from commercial and industrial facilities for recycling, some taken separately though mostly commingled with MSW and ICI waste to SBRC. SBRC separate out pre-selected recyclables at MRF/transfer facility mainly from commercial and industrial waste producers.

Destination of SW: Waste taken to SBRC for sorting, recovery of recyclables and transfer to SSA operated landfill. There is currently no designated functional hazardous waste storage facility in Barbados.

Specific legislation applied for waste management: The Integrated Solid Waste Management Plan (ISWMP) has facilitated the efficient and effective management of all the solid waste

[27] Extracted from the interviews to the recycling companies of the country.

streams being generated within Barbados; Beverage container deposit-refund legislation and; the Environmental levy act (1996), through this act there shall be charged, levied and collected on every good imported into Barbados an amount to be known as an environmental levy (the scope of this norm includes: refrigerators, stoves, and ranges under tariff heading number 7321.101 and 8516.601).

Party to Basel Convention: Yes.

EPR legislation for any waste stream: Through the Returnable Containers Act 1986 CAP 395A, distributors and dealers of beverages in containers have to comply with the system of recycling of beverage containers.

Informal sector involvement: Unsure of the number of informal collectors. Persons may collect old appliances and take to one of several scrap metal collectors who may then ship the material overseas**.**

RELATED TO WEEE

Annual growth rate in consumption of EEE: Annual growth rate in consumption of EEE: 5.2%.

Amount of e-waste generated 2018: 26.05 kg/habitant/year.

Percentage that EEE imports represent in value and tons of total imports at Project Countries: 4% of total imports in tons and 7% of total imports in value with respect to total imports at Project Countries.

Percentage that WEEE generation represent in tons of total WEEE generation at Project Countries: 4% of total WEEE generation at Project countries.

WEEE´s 78% generation is distributed among categories: LHA, CE, and IT&T.

Waste with potential to contain POPs (CE + IT&T): 29% of total WEEE, in average over the period 2015-2033, equivalent to 2389 tons per year.

Waste with potential to contain Mercury (MD + LE): 8% of total WEEE, in average over the period 2015-2033, equivalent to 621 tons per year.

Separate collection of e-waste: SSA collect WEEE commingled with household and some institutional, and private haulers collect from private sector. Comingled with municipal wastes processed by SBRC, separated where possible or disposed with comingled waste at the landfill. Private entities carry out their own collection and shipping for recycling.

Main destination of e-waste: Not accepted at Pond landfill, but some end up at the landfill still. Some quantities (approx. 0.31 tons per day) processed by SBRC and some collected by private local collectors.

WEEE specific legislation: No specific legislation (except the Environmental levy act mentioned before that established a charge on every good imported into Barbados an amount to be known as an environmental levy including refrigerators, stoves, among others).

Recycling of e-waste: Not at the governmental level. Some private initiatives are in place.

PRIVATE INITATIVES RELATED TO RECYCLING

Recycling company: Caribbean E-waste Management Inc.

Recycling of e-waste: Yes, 48 to 60 tons per year are received and up to 40 are exported. They used to receive more, but other recyclers came into business that pay for the waste, so they lost clients.

Types of WEEE accepted: An ad-hoc assessment is made to decide if WEEE is accepted. In general, they don’t accept LHA, MD and LE.

Methods for collection of WEEE: WEEE is collected from private sector, some government offices and some households. No hazardous waste transport is used. Caribbean e-waste hires a fright company to do the collection. They can also receive WEEE at their facility.
Government support: No, but Government may refer clients to the recycling companies.
Fee paid by generators for the treatment: Private sector pays a fee for WEEE recycling (information fee not available). In some cases, they do not charge, e.g. for small quantities.
Technologies/Processes applied: E-waste is dismantled to a second degree and then exported to USA. They have one buyer: SIMS recycling solutions.
Destination of by-products generated: recovered materials are exported to USA, except for metals that are sold locally within Barbados to B´s recycling. They also do some refurbishment and sell products to low income consumers. Plastics are sent to landfill.
Basel convention related aspects: Basel procedures are not applied because the government office told them that they don't have to apply them when exporting to USA.
In some cases, they have received WEEE from Jamaica, Trinidad, Dominica and Saint Lucia for data destruction, and posterior material recovery. In these cases, Basel provisions were not applied.
BET/BAP/certifications in place: No.

Recycling company: B's Recycling[28].
Recycling of e-waste: B´s Recycling has a contract with three companies of beverage manufacturers through the Returnable Containers Act. Last year was the last time that they exported WEEE (2 tones).
Types of WEEE accepted: TVs, computers, laptops, keyboards, car batteries and lights.
Methods for collection of WEEE: Individuals and private sector drop off WEEE in the facility.
Government support: No.
Fee paid by generators for the treatment: Private sector pays a fee for WEEE recycling (information fee not available). In some cases, they do not charge, e.g. for small quantities.
Technologies/Processes applied: E-waste was dismantled and then exported through a Broker to Japan and Thailand. The company has 80 employees and about 4 to 5 were in charge of E-waste dismantling.
Destination of by-products generated: No by-products generated were informed by the recycling company.
Basel convention related aspects: The Company claimed to follow with Basel Convention procedures.
BET/BAP/certifications in place: Not informed.

Key challenges raised: Recycling facilities in Barbados would do dismantling faster if they had better equipment. Since they need to accumulate WEEE, and rental for storage is very expensive, they face challenges in terms of cash flow. The country does not allocate specific

[28] B´s recycling is not currently recycling WEEE but last shipment was in 2019.

resources at the governmental level for WEEE policy making / management and have not developed a communication campaign on WEEE.

Key opportunities raised: Barbados has experiences on EPR systems regarding beverages. In this sense, recycling companies have signed contracts with producers and reverse logistics have been already implemented. The environmental levy act also represents an opportunity to strengthen the correct applicability of funds and analyze the possibility to include other EEE. There is also an opportunity to recycle plastics coming from WEEE that is not being attained currently. Caribbean E-Waste and B´s Recycling could be strengthened to maximize their current operations in terms of WEEE recycling.

BELIZE

RELATED TO WASTE IN GENERAL

MSW collection: Waste management is coordinated in Barbados through the Project Management Coordination Unit (PMCU). a) The Sanitation Service Authority (SSA) is responsible for the collection and disposal of nonhazardous solid waste from homes island´s wide and government agencies around the island. The SSA also has a commercial arm which offers services to the private sector. Using its own fleet, collection services are provided once weekly in most areas, however in densely populated areas, this service is offered two days a week. In the capital city, Bridgetown, waste is collected 13 times a week because of the commercial activity there. Generators of commercial and bulky waste can call the SSA to remove this waste at a cost. Alternatively, they have the option of utilizing a private commercial service to remove their waste as well.

Separate collection of any waste stream: There is no separate collection. It is undertaken by the informal sector, and is based on commodities with higher pricing, in particular paper and board from commercial sources, plastics and metals, and glass bottles. Other solid waste categories / streams which are currently recovered / recycled on a notable scale include: Waste remaining from sugar cane processing (bagasse), waste remaining from citrus fruit processing which is used to produce compost and animal feed; End-of-life vehicles (ELVs); E-Waste; Dry cell batteries; and Lead acid batteries.

Destination of SW: engineered sanitary landfills.

Specific legislation applied for waste management, e.g. private sector pays for its waste management: National Solid Waste Strategy and Action Plan· An e-waste white paper was done but there was no access to that document.

Party to Basel Convention: Yes.

EPR legislation for any waste stream: No.

Informal sector involvement: No.

RELATED TO WEEE

Annual growth rate in consumption of EEE: 13%.

Amount of e-waste generated 2018: 15.63 kg/habitant/year.

Percentage that EEE imports represent in value and tons of total imports at Project Countries: 5% of total imports in tons and 4% of total imports in value with respect to total imports at Project Countries.
Percentage that WEEE generation represent in tons of total WEEE generation at Project Countries: 7% of total WEEE generation at Project countries.
WEEE´s 85% generation is distributed among categories: LHA, CE, ET&T and IT&T.
Waste with potential to contain POPs (CE + IT&T): 23% of total WEEE, in average over the period 2015-2033, equivalent to 2302 tons per year.
Waste with potential to contain Mercury (MD + LE): 7% of total WEEE, in average over the period 2015-2033, equivalent to 683 tons per year.
Separate collection of e-waste: None.
Main destination of e-waste: Engineered sanitary landfills.
WEEE specific legislation: No specific legislation.
Recycling of e-waste: Not at the governmental level. Some private initiatives are in place.

PRIVATE INITATIVES RELATED TO RECYCLING

Recycling facilities: One of the main companies involved in recycling is Mile 8 Recycling Company (formerly Belize Recycling Company). The company is involved in the recycling of paper and cardboard, plastics and e-waste. No interview was conducted so no further data is available at the time.

DOMINICAN REPUBLICAN

RELATED TO WASTE IN GENERAL

MSW collection: Waste is collected and managed at the municipal level, further analysis should be done.
Separate collection of any waste stream: Not at the national level. Waste is collected and managed at the municipal level, further analysis should be done.
Destination of SW: Waste is collected and managed at the municipal level, further analysis should be done
Specific legislation applied for waste management: There is a Draft Act on Solid Waste Management pending of approval. It may include a chapter of EPR for 8 products (one of them is WEEE[29]).
Party to Basel Convention: Yes.
EPR legislation for any waste stream: There is a Draft Act on Solid Waste Management pending of approval. It may include a chapter of EPR for 8 products (one of them is WEEE[30]).
Informal sector involvement: Information not available.

[29] Information based on interview to EcoRed.
[30] Information based on interview to EcoRed.

RELATED TO WEEE

Annual growth rate in consumption of EEE: 5.2%.

Amount of e-waste generated 2018 per capita: 6.21 kg/habitant/year.

Percentage that EEE imports represent in value and tons of total imports at Project Countries: 56% of total imports in tons and 55% of total imports in value with respect to total imports at Project Countries.

Percentage that WEEE generation represent in tons of total WEEE generation at Project Countries: 54% of total WEEE generation at Project countries.

WEEE´s 77% generation is distributed among categories: CE, LHA and IT&T.

Waste with potential to contain POPs (CE + IT&T): 50% of total WEEE, in average over the period 2015-2033, equivalent to 61,965 tons per year.

Waste with potential to contain Mercury (MD + LE): 6% of total WEEE, in average over the period 2015-2033, equivalent to 7,338 tons per year.

Separate collection of e-waste: no data available at the time.

Main destination of e-waste: no data available at the time.

WEEE specific legislation: There is a Draft Act on Solid Waste Management pending of approval. It may include a chapter of EPR for 8 products (one of them is WEEE[31]).

Recycling of e-waste: no data available at the time.

PRIVATE INITATIVES RELATED TO RECYCLING

No data available at the time.

GUYANA

RELATED TO WASTE IN GENERAL

MSW collection: Responsibility under Local Authorities (Municipalities and Neighbourhood Democratic Councils (NDCs)) under the Ministry of Communities. However, this activity is contracted to private waste collection services.

Separate collection of any waste stream: No separate collection. Recycling in Guyana is done under very limited basis and is limited to glass, PET plastics, some metals and some E-waste.

Destination of SW: Open burning and controlled dumping are the main methods of waste disposal. The largest waste disposal site is the Haags Bosch Sanitary Landfill located in Eccles which services the capital city, Georgetown.

Specific legislation applied for waste management: There is hazardous waste legislation and a draft bill on solid waste management.

Party to Basel Convention: Yes.

EPR legislation for any waste stream: In January 2017, Section 7A (1) of the Customs Act Chapter 82:01 was amended to incorporate an environmental levy of $10, which is applied to all non-returnable bottles of alcoholic and non- alcoholic beverages or water imported into Guyana. It took effect from February 1, 2017.

Informal sector involvement: Yes (20 waste pickers approx.).

[31] Information based on interview to EcoRed.

RELATED TO WEEE

Annual growth rate in consumption of EEE: 23%.
Amount of e-waste generated 2018 per capita: 9.04 kg/habitant/year.
Percentage that EEE imports represent in value and tons of total imports at Project Countries: 6% of total imports in tons and 6% of total imports in value with respect to total imports at Project Countries.
Percentage that WEEE generation represent in tons of total WEEE generation at Project Countries: 9% of total WEEE generation at Project countries.
WEEE´s 75% generation is distributed among categories: LHA, CE and IT&T.
Waste with potential to contain POPs (CE + IT&T): 36% of total WEEE, in average over the period 2015-2033, equivalent to 7,005 tons per year.
Waste with potential to contain Mercury (MD + LE): 5% of total WEEE, in average over the period 2015-2033, equivalent to 1,070 tons per year. Separate collection of e-waste: in general no, sometimes by private collectors.
Main destination of e-waste: Open dumpsites.
WEEE specific legislation: No.
Recycling of e-waste: Not at the governmental level. Some private initiatives are in place.

PRIVATE INITATIVES RELATED TO RECYCLING

Recycling companies: Eternity Investment. No interview was conducted so no further data available at the time.
Recycling of e-waste: Yes, 24 tones/year by Eternity Investment.
Types of WEEE accepted: Currently only motherboards are shipped. These are packed in 40 foot containers and also exported to South Korea for processing.
Government support: No.

Key opportunities raised: Guyana has implemented and ADF for beverages. This could be taken into account for the design of an EPR system on WEEE. The EPA of Guayana via its communication program disseminates information on E-waste to the general public via posters, brochures and information booklets. This channel could be used for the implementation of an EPR.

SAINT KITTS AND NEVIS

RELATED TO WASTE IN GENERAL

MSW collection: Done by respective solid waste management authorities (SWMC and SWMA).
Separate collection of any waste stream: Industrial, commercial and institutional waste is collected at Saint Kitts by private waste companies and at Nevis by solid waste management authority through own vehicles and private haulers. At Saint Kitts: Fee for collection service and gate fee charged at landfill (EC$54/ton). At Nevis: solid waste management authority and gate fee charged at landfill on monthly account basis

Destination of SW: The island of Saint Kitts is served by a single Sanitary Landfill Site, Conaree Landfill Site located on the East of the island. There is also a single landfill site that services the island of Nevis, the Low Ground Landfill, situated at Long Point. Hazardous waste storage facility not available at Conaree Landfill or at Mangrove Pond Land.

Specific legislation applied for waste management, e.g. private sector pays for its waste management: The financing for Solid Waste Management is through an environmental levy paid by each visitor to Saint Kitts and Nevis, as well as a waste management fee included on the residents' electricity bills. The levy and the waste management fee go to the consolidated fund and central government redistributes in accordance with the priority areas of the country.

Party to Basel Convention: Yes.

EPR legislation for any waste stream: Under the Trade (Bottle and Can Deposit Levy) Act No. 1 of 2002, Saint Kitts and Nevis imposes a deposit levy of EC$0.30 per container of imported beer, stout, malt, ale, and aerated drinks in non-returnable bottles.

Informal sector involvement: Yes (less than 10 waste pickers). Waste pickers being reported as daily accessing the landfill at Conaree Landfill and Mangrove Pond Landfill.

RELATED TO WEEE

Annual growth rate in consumption of EEE: 5.2%.

Amount of e-waste generated 2018 per capita: 33.12 kg/habitant/year.

Percentage that EEE imports represent in value and tons of total imports at Project Countries: 1% of total imports in tons and 1% of total imports in value with respect to total imports at Project Countries.

Percentage that WEEE generation represent in tons of total WEEE generation at Project Countries: 1% of total WEEE generation at Project countries.

WEEE´s 74% generation is distributed among categories: SHA, ET&T, LHA and CE.

Waste with potential to contain POPs (CE + IT&T): 21% of total WEEE, in average over the period 2015-2033, equivalent to 602 tons per year.

Waste with potential to contain Mercury (MD + LE): 2% of total WEEE, in average over the period 2015-2033, equivalent to 67 tons per year.

Separate collection of e-waste: None specific, comingled with Municipal waste in both Saint Kitts and Nevis. Some private initiatives collect small amounts of WEEE.

Main destination of e-waste: what is not recycled by private initiatives ends up at landfills. Saint Kitts: Fee for collection service and gate fee charged at landfill (EC$5/item for white goods and $54/ton of industrial waste (including that containing WEEE, TV/computers, and wire)). Nevis: SWMA and gate fee charged at landfill.

WEEE specific legislation: No specific legislation.

Recycling of e-waste: Not at the governmental level. Some private initiatives are in place.

PRIVATE INITATIVES RELATED TO RECYCLING

Recycling companies: Enclave Resources.

Recycling of e-waste: No.

Types of WEEE accepted: Scarp metal, cars and Refrigerators. Approximately 3,240 tons per year.

Methods for collection of WEEE: Collected by the company.
Government support: Enclave Resources has been hired for the administration Saint Kitts and Nevis**,** and has an exclusive arrangement for collecting scrap on the island (4000 tons of scarp for 2019). In Nevis fuel is subsidized by the government.
Fee paid by generators for the treatment: No
Technologies/Processes applied: Disarmed, compacted and exported. Car Batteries are exported to USA.
Destination of by-products generated: Not informed.
Basel convention related aspects: The recycling company interviewed was not aware of the Basel Convention procedures.
BET/BAP/certifications in place: Information not available.

Recycling companies: Admirals (private recycler) collects WEEE from population in Saint Kitts; dismantling performed on own site and copper/aluminum melting furnace built on site. Exports are done through regional broker. No interview was conducted so no further data was available at the time.

Key challenges raised: The small populations of Saint Kitts and Nevis could represent a challenge in terms of cost effective recycling. This could be addressed in case of a regional approach.

Key opportunities raised: Saint Kitts and Nevis has implemented and ADF for beverages. This could be taken into account for the design of an EPR system on WEEE. According interview in case of implemented EPR system the following WEEE stream should be prioritized: Cell phones, Laptops, Ipads, Flat screen and tvs. Collected points would not represent a challenge due to the fact that most representative points of generation are easily identified. There were raised limited amount of players. Imports are concentered in 5 to 6 companies that represent the 90% of EEE volume. Collect a fee in the front end at customs would be the best alternative to move forward.

SAINT LUCIA

RELATED TO WASTE IN GENERAL

MSW collection: Collection conducted on behalf of Saint Lucia´s Solid Waste Management Authority by contracted collection companies.
Separate collection of any waste stream: Although there is no government mandated system for Recycling, there are several private waste recyclers who are involved in collection and processing of a variety of materials including paper, plastics, scrap metals, e-wastes.

For Industrial and Commercial Waste including hotels, waste producers are responsible for ensuring their waste is collected and treated in accordance with the waste act. Most producers engage a licensed waste haulage company. Producer pays for collection.
Medical waste and Green waste are required to be collected separately. Medical Facilities pay for collection and disposal of medical waste in an autoclave located at Deglos Landfill.
For recyclable packaging, approximately 16 waste reclaimer companies are registered for collection and use/export of waste products.
Destination of SW: Vieux Fort Waste Management Facility (transfer station) and Deglos Sanitary Landfill. There is no hazardous waste storage facility in effect in Saint Lucia.
Specific legislation applied for waste management: The Waste Management Act 1996 (Cap. 6.05) and Regulations provide for waste management in Saint Lucia and establishes the Saint Lucia Solid Waste Management Authority under section 3 of the Act.
Party to Basel Convention: Yes.
EPR legislation for any waste stream: An Extended Producer Responsibility (EPR) beverage bottle scheme is in place and legislation to improve this is being discussed (Management of Containers Bill 2019)
Informal sector involvement: Yes (less than 20 waste pickers).

RELATED TO WEEE

Annual growth rate in consumption of EEE: 13%.
Amount of e-waste generated 2018 per capita: 14.95 kg/habitant/year.
Percentage that EEE imports represent in value and tons of total imports at Project Countries: 2% of total imports in tons and 2% of total imports in value with respect to total imports at Project Countries.
Percentage that WEEE generation represent in tons of total WEEE generation at Project Countries: 2% of total WEEE generation at Project Countries.
WEEE´s 75% generation is distributed among categories: CE, LHA and SHA.
Waste with potential to contain POPs (CE + IT&T): 42% of total WEEE, in average over the period 2015-2033, equivalent to 2,053 tons per year.
Waste with potential to contain Mercury (MD + LE): 2% of total WEEE, in average over the period 2015-2033, equivalent to 107 tons per year.
Separate collection of e-waste: Comingled with normal wastes and disposed at the landfill. Partial collection by private entities.
Main destination of e-waste: Landfill.
WEEE specific legislation: No specific legislation.
Recycling of e-waste: Not at the governmental level. Some private initiatives are in place.

PRIVATE INITATIVES RELATED TO RECYCLING

Recycling companies: Greening the Caribbean.
Recycling of e-waste: Yes, 600 tons exported between 2015-2019.
Types of WEEE accepted: All WEEE except refrigerators.
Methods for collection of WEEE: They collect all wastes from their clients.
Government support: No.

Fee paid by generators for the treatment: A fee is paid by generators, similar to the fee that private generators have to pay for sending their wastes to landfill.
Technologies/Processes applied: Dismantling.
Destination of by-products generated: materials recovered are exported. Discarded material is sent to landfill.
Basel convention related aspects: Not informed.
BET/BAP/certifications in place: Not informed.

Key challenges raised: There is no tipping Fee in Saint Lucia and thus, there is a big challenge in terms of making the system sustainable. Greening the Caribbean have risen this point, they need to have space for storage ant this increase costs. Another point raised was political will and government competency to ensure that EPR adopted will be effective and money will not be used in other priorities.

Key opportunities raised: Greening the Caribbean currently sets up systems of separation at source. Due to its geographical situation in case of a regional approach, the country could be considered as a potential recycling point in the hub system.

SURINAME

RELATED TO WASTE IN GENERAL

MSW collection: Twice a week household waste is collected altogether (in Greater Paramaribo).
Separate collection of any waste stream: Once a year or every 2 years, bulky waste is collected, separately including e-waste, that usually is also dumped at the Ornamibo dumpsite.
Destination of MSW: It is dumped at the Ornamibo site. Some districts have their own dumpsites and occasionally there are some illegal dump sites.
Specific legislation applied for waste management, e.g. private sector pays for its waste management: No.
Party to Basel Convention: Yes.
EPR legislation for any waste stream: No.
Informal sector involvement: They waste pickers (informal) at the Ornamibo landfill collect mostly metals and they sell it at the recycling companies. One or two companies in Suriname recycle e-waste. Thirty waste pickers approximately would be involved.

RELATED TO WEEE

Annual growth rate in consumption of EEE: 23%.
Amount of e-waste generated 2018 per capita: 3.12 kg/habitant/year.
Percentage that EEE imports represent in value and tons of total imports at Project Countries: 2% of total imports in tons and 2% of total imports in value with respect to total imports at Project Countries.
Percentage that WEEE generation represent in tons of total WEEE generation at Project Countries: 3% of total WEEE generation at Project countries.

WEEE´s 76% generation is distributed among categories: LHA, ET&T, CE, LE and TL&SE.
Waste with potential to contain POPs (CE + IT&T): 24% of total WEEE, in average over the period 2015-2033, equivalent to 1,588 tons per year.
Waste with potential to contain Mercury (MD + LE): 18% of total WEEE, in average over the period 2015-2033, equivalent to 1,203 tons per year.
Separate collection of e-waste: No.
Main destination of e-waste: Landfill, and occasionally, illegal dumpsites.
WEEE specific legislation: No specific legislation.
Recycling of e-waste: Not at the governmental level. Some private initiatives are in place.

PRIVATE INITATIVES RELATED TO RECYCLING

Recycling companies: the national focal point informed that one to two recycling companies are in place. No interview was conducted so no further data available at the time.
Methods for collection of WEEE: They waste pickers (informal) at the Ornamibo landfill collect mostly metals and they sell it at the recycling companies.
Government support: No government incentive was identified.

Key opportunities raised: In case of implemented an EPR system Temperature exchange devices, monitors, lamps and large appliances were identified as priority.

TRINIDAD & TOBAGO

RELATED TO WASTE IN GENERAL

MSW collection: Collected daily by. a) The Trinidad & Tobago Solid Waste Management Company Limited (SWMCOL) is responsible for the management, collection, treatment and disposal of all wastes, including solid, liquid, hazardous and special waste Trinidad and Tobago. Collection of waste is done on a routine and regular basis and is managed by the fourteen municipal corporations in Trinidad, and the Tobago House of Assembly in Tobago. Trinidad possesses a very extensive waste collection system that reaches 100% of the population with at least a twice-weekly service and in many areas four times weekly service.
Separate collection of any waste stream: Not at a governmental/general level. Currently, various private entities are involved in recycling of paper, plastics, glass and e-waste in Trinidad and Tobago and do separate collection.
Destination of SW: The country operates 5 Landfill Sites, at Forres Park, Beetham, Guanapo, Guapo (Trinidad) and Studley Park (Tobago). However, there are no Engineered Sanitary Landfill Sites in the country. The Government owned, Trinidad and Tobago Solid Waste Management Company is now is the planning stages of constructing a new Engineered Landfill Site at Forres Park. No Engineered Sanitary Landfills available.
Specific legislation applied for waste management: Litter Act No 27 of 1973 - The Act deals primarily with the control of littering in public places, however, it also confers powers on local authorities to cause litter on any premises to be cleaned up. Draft Management rules are currently under revision.

Party to Basel Convention: Yes.
EPR legislation for any waste stream: no.
Informal sector involvement: 400 waste pickers approximately would be involved.

RELATED TO WEEE

Annual growth rate in consumption of EEE: 5,2%.
Amount of e-waste generated 2018 per capita: 32,65 kg/habitant/year.
Percentage that EEE imports represent in value and tons of total imports at Project Countries: 23% of total imports in tons and 22% of total imports in value with respect to total imports at Project Countries.
Percentage that WEEE generation represent in tons of total WEEE generation at Project Countries: 20%.
WEEE´s 82% generation is distributed among categories: LHA, CE, M&CE and IT&T.
Waste with potential to contain POPs (CE + IT&T): 31% of total WEEE, in average over the period 2015-2033, equivalent to 13,909 tons per year.
Waste with potential to contain Mercury (MD + LE): 1% of total WEEE, in average over the period 2015-2033, equivalent to 1,365 tons per year.
Separate collection of e-waste: In general, no. Municipalities sometimes organize e-waste collection drives for bulkier wastes, computers, refrigerators, tvs, etc.
Main destination of e-waste: Landfill (except bulk WEEE is not allowed in the landfill).
WEEE specific legislation: No specific legislation.
Recycling of e-waste: Not at the governmental level. Some private initiatives are in place.

PRIVATE INITATIVES RELATED TO RECYCLING

Recycling Companies: Piranha.
Recycling of e-waste: Yes, 4 containers per year.
Types of WEEE accepted: Anything with a circuit board or a cord, mainly IT. 98% comes from the private sector and particularly by the Oil & Gas companies.
Methods for collection of WEEE: They are responsible for the transport. In some cases they receive WEEE directly at their facility.
Government support: No.
Fee paid by generators for the treatment: Yes.
Technologies/Processes applied: When items come to the facility, they are loaded in a manifest form. They are serialized and tested. If they do not pass certain tests, they are dismantled. Otherwise, they are refurbished and donated. Materials are exported (without a broker) to Singapore, Costa Rica, Canada, depending to waste streams and quantities.
Destination of by-products generated: 85% is repaired for donation.
Basel convention related aspects: The recycling company informed compliance with Basel Convention procedures.
BET/BAP/certifications in place: Technicians are A+ certified. Company certified in ISO 14000. Also, they are certified to install a Microsoft license on computers. They provide them a certificate that they properly managed the entire process.

Key challenges raised: In terms of quantities they need to store WEEE since Trinidad and Tobago cannot import waste. Every type of waste has to fall under a bilateral governmental agreement in order to be imported. This should be considered in case of a regional approach. Regarding WEEE recycling, it was raised that there is no authorization from government to develop this activity. Thus, there are challenges in doing recycling properly.

Key opportunities raised: The country has companied in oil and gas. Usually these companies are multinational and they have to comply with their HSE policies. This could be follow by smaller companies but legislation need to be established to make it sustainable. If an EPR is implemented, the recycling company interviewed would start with mobile phones because this would contribute to raising awareness that they contain hazardous materials, and valuable materials.

6. EPR APPROACH AT THE PROJECT COUNTRIES

One of several challenges for implementing ESM of WEEE is covering the sufficient financing needs. Investments in infrastructure and costs relating to the operation and maintenance of facilities require a sustainable flow of financing. One of the possible instruments governments may wish to implement in this context is EPR. In principle, it means that the producers of a product are held responsible for the collection and disposal of that product once it has become waste. Producers are free to include these costs in the pricing of their products.

EPR instruments aim at making producers responsible for the environmental impacts of their products throughout the products' life-cycle, from design to the waste phase. EPR policy seeks to shift the burden of managing certain wastes from municipalities and taxpayers to producers, in line with the polluter pays principle.

Following, a SWOT analysis for the implementation of an EPR approach for the management of WEEE at the project countries, applicable to the wider Caribbean region, is presented.

	Strengths	Weaknesses
INTERNAL	• Small number of importers, almost no production. • Common importers and retailers are found alongside targeted countries. • Changing allocation of cost for WEEE management • GEF/IDB projects to support design and implementation • Small-scale experiences in the region for WEEE recycling • Easy to access amount of EEE in market from customs offices, compared to the complexity of getting this information from retailers • Easy to avoid free riders since there is little to no EEE production	• Lack of experience in managing WEEE among stakeholders in general • No to low separate collection in place, particularly of WEEE • Experience in collecting environmental fees that are not destined to manage environmental aspects • Need of a law to implement EPR in most countries, and to design the specifics of the EEE EPR • Poor infrastructure for waste collection, treatment and disposal • Lack of legal definition of EEE/UEEE/WEEE • Informal waste pickers handle WEEE without proper training and equipment • Lack of formal inter-ministerial coordination and mechanisms for the exchange of information
	Opportunities	**Threats**
EXTERNAL	• An EPR could provide a long-term sustainable system for WEEE management • Changing consumer's behaviour by creating public awareness on sustainability aspects • Increased collection and recycling rates • Improve waste management and resource recovery • Increase lifespan of landfill, reduce the use of dumpsites • Minimise pose of risk to human health and environment, particularly due to hazardous components • Creation of labour and enterprises • Coordinate a regional understanding /definition of EEE/UEEE/WEEE and EPR System to allow a regional management approach • Improve compliance with Basel Convention at exports as well as with others MEAs on chemicals.	• Investments in infrastructure and costs relating to the operation and maintenance of facilities require a sustainable flow of financing • Low public awareness • Low willingness to pay from consumers and private sector • Competition with informal WEEE pickers and recyclers • No local market for recovered material, dependent on exports • Economies of scale are small, long time to collect the necessary amount to justify an export • Orphan WEEE and leakage • Online business / personal luggage imports are difficult to cover • Need of coordination at regional level to harmonize EPR models, different obligations to the same importers would have a negative impact • UEEE/WEEE contain HZ materials, dismantlers and operators need to be properly trained and equipped • NIMBY syndrome for a Regional Approach • Producers are probably unreachable, implementing DFE and Regulations such as minimum of recycled materials seem not viable

7. RECOMMENDATIONS FOR THE DESIGNING PHASE

There is no doubt that EPR systems have become one of the key approaches in e-waste management. However, governments still deal with a number of issues that affect their effective implementation. According to lessons learnt all over the world, there are some key aspects that should be considered during the design of EPRs. Based on the findings from interviews conducted and relevant documents assessed through web research, e.g. "Draft practical manuals on Extended Producer Responsibility and on financing systems for environmentally sound management[32]", this chapter reflects those elements under the analysis of Target Countries' context, providing recommendations on which systems are to be attempted or not.

7.1. Establishment of clear policy goals and programme objectives

Objectives for the EPR approach in the Project Countries may include, but are not limited to:

(a) Increasing waste prevention, the reuse of EEE and recycling of WEEE;
(b) Ensuring the removal of hazardous parts of the WEEE before its recovery and final disposal;
(c) Reducing final disposal of WEEE;
(d) Internalizing costs of waste management (and other externalities) into the price of EEE and thus reducing the costs of waste management borne by municipalities and/or taxpayers;
(e) Formalizing the informal sector, so as to ensure environmentally sound management (ESM) of WEEE.

7.2. Definitions, preferably based in international ones

In order to design an EPR system, a common and, preferably, legal understanding is needed in terms of its elements. It was already stated that there is a lack of a legal definition on what comprises a WEEE at the local context of the Project Countries. Considering the EEE life cycle, at a minimum, the following terms have to be defined preferably in coordination among the Project Countries and the wider Caribbean Region, in order to have common definitions at a regional level: EEE, UEEE, Hazardous WEEE, Producer, Importer, Recycler, Consumer, and Retailer.

[32] UNEP/CHW/OEWG.11/INF/7, Basel Convention Expert Working Group on Environmentally Sound Management, July 2018.

For the establishment of this definition, and others relevant to the EPR system, it is recommended to use already existing ones at the international level e.g. Basel Convention, OECD or European Union.

7.3. Producers and Importers

Clearly defining Stakeholders´ responsibility is one of the biggest challenges of the EPR implementation. In this context, a level playing field should be assured; the same requirements and obligations should apply to all importers and producers, irrespective of the selling technique used, including internet sales.

In the Project Countries there is no representative manufacture of EEE. Thus, importers will be the main responsible agent, since they are placing the products on the market. The EPR system to be defined should consider this aspect to understand what is feasible to be done by importers taking into consideration, among others, that they are not responsible for production processes or materials used and that they usually import several competing brands and products from various EEE streams.

In order to avoid free riders, all importers and producers should be identified, e.g. through a public registration system, so as to stop free- riders and permit enforcement and transparency.

7.4. Mandatory or voluntary EPR systems

EPR systems could be mandatory or voluntary. Voluntary systems are most commonly found in markets for durable commercial products and/or where products after becoming waste have value. Voluntary approaches are frequently used in pilot projects (with the objective of test certain kind of EPR elements: logistics, governance models, consumer behaviour, etc.) whereas it has been observed that another kind of approach is necessary when sustainability is sought. The lack of producers present in the Project Countries makes the voluntary approach less appealing, since they would not benefit directly from the recovery of their products and several intermediates would need to participate along the chain.

Also, experiences in the region have demonstrated that there is little appetite from importers to participate in voluntary approaches.

In this sense, considering also that the most effective EPR systems are mandatory rather than voluntary[33], the recommendation is to develop mandatory EPR systems.

7.5. EPR Instruments and scope of waste streams

EPR should result in internalising environmental externalities and provide an incentive for producers to take into account environmental considerations throughout a product's life, from

[33] UNEP/CHW/OEWG.11/INF/7, Basel Convention Expert Working Group on Environmentally Sound Management, July 2018.

the design to the waste phase. As such, EPR is considered a major instrument in support of the implementation of the waste management hierarchy, and therefore promotes prevention, minimization, reuse, recycling and other recovery including energy recovery, the reduction of final disposal of waste and the transition to a circular economy**.** According to the 'Revised Draft Practical Manual on Extended Producer Responsibility'[34] and existing literature, there are four broad categories of EPR instruments, which may be used stand-alone or can also be used in combination in an EPR system. It is essential to remark that some of these instruments are not relevant to the project countries due to their characteristics e.g. since EEE are mainly imported, instruments based on material composition are not applicable.
Following a brief explanation of each of the 4 main categories of EPR instruments is presented:

Instrument 1: Take-back

Take-back policies aim to collect the product at the post-consumer stage. This objective can be achieved through recycling and collection targets of the product or materials and through incentives for consumers to bring the used product back to the selling point. The responsibility may be assigned to producers to take care of the management of their products once they have become waste, to retailers to receive post-consumer products, or to governments to collect a fee and manage the whole system.

Under this alternative four main governance-models are identified:

(i) **IPR (Individual Producer Responsibility):** Each individual producer is financially and physically responsible for the collection and disposal of waste originated from their own products. In case a producer has established an IPR, the concerned producer should: (a) Contract operators for waste management; (b) Fulfil other obligations, as related to communication, education, research, development and innovation, among others; (c) Gather and report data to the authorities on collection and disposal, including compliance with targets and other obligations. Experience shows that IPR is more feasible in concentrated market situations.

(ii) **PRO (Producer Responsibility Organization):** Collective entity set up by producers or through legislation, which becomes financially and physically responsible for meeting the waste collection- and disposal obligations of the individual producers. The PRO is managed through the payment of membership fees or contributions by the participant Producers, usually accordingly to their market share.

In case producers have established a PRO, the PRO should: (a) Contract waste management operators. They also might sign agreements with municipalities on responsibilities that will be assumed by those municipalities; (b) Contracting should be by transparent tendering, to prevent distortion of competition. Tendering should encourage the development of rival waste management companies. A separate tendering process for collection and disposal can be

[34] UNEP/CHW/OEWG.11/INF/7, Basel Convention Expert Working Group on Environmentally Sound Management, July 2018

desirable. Contracting might be organized per area, contracting the collection and disposal for a period of time. Alternatively, tendering might result in general contracts, after which each of the contracted companies can participate in specific tenders for the collection and disposal of each lot of waste accumulated at a collection point; (c) Establish the fee for the implementation of EPR for each product, and each category and subcategory, where appropriate. They also should collect the fees from the participating producers, pay the waste management operators and manage the financial documentation; (d) Fulfil other obligations, as related to communication, education, research, development and innovation, among others; (e) Gather and report data to the authorities on producers participating in their organization, on collection and disposal, including compliance with targets and other obligations. Additionally, information on financial aspects (e.g. producer financing and fees, expenditure on waste management, revenues from resale, expenditure on information and awareness-raising campaigns, administration) including costs of municipalities in case they have an operational role.

EPR systems may be designed so that product markets may be served by individual or multiple PROs. This multiple PROs system implies the existence of several competing PROs, privately owned (by the obligated companies or other entities), among which the obligated companies are free to choose in order to fulfil their responsibility obligations.

(iii) **Government- run:** The State plays the leading role and producers are only financially responsible for the costs of waste collection and treatment. The government forms an organization responsible for waste management and for the decision about which waste collection to fund. This government body collects and distributes funds towards collection, recycling, disposal, and awareness campaigns. This EPR model, where the government assumes the leading role, even though they are mostly rejected by the industry, based on the idea that state agencies are less effective and efficient in addition to being branded as less transparent, they have the advantage of having total control over the execution of policy, especially if they face an industry that may not be mature enough to organise and manage a privatised system of governance.

(iv) **Tradable credits system:** In this scheme the producer responsibility at the end-of-life product is accomplished when they achieve a number of credits for collected and processed waste, equal to a target. Stakeholders –such as recycling companies-, produce an amount of credits when they collect and process or export a specific amount of relevant products. This system allows an exchange between the various actors that ends up reducing compliance costs. Thus, those who have greater knowledge and infrastructure to collect and recycle certain materials can sell credits to those who find this task more expensive.

Instrument 2: Economic and trade-based instruments

These instruments provide a financial incentive to implement EPR policy. They come in several forms, including:

- **Deposit-refund:** an initial payment (deposit) is made at purchase and is fully or partially refunded when the product is returned to a specified location. This type of instrument is usually used in beverages containers policies. Legislation in Saint Kitts and Nevis, Guyana and Belize are examples of this type of instrument (See the status of related legislation section).
- **Advanced Disposal Fees (ADF)**: fees levied on certain products at purchase based on the estimated costs of collection and treatment. The fees may be collected by public or private entities and used to finance post-consumer treatment of the designated products. Unused fees may be returned to consumers. The Environmental Levy Act in Barbados is an example of this instrument that charged, levied and collected on every good imported into Barbados including refrigerators, stoves, among others.
- **Material taxes:** involve taxing virgin materials (or materials that are difficult to recycle, contain toxic properties, etc.) so as to create incentives to use secondary (recycled) or less toxic materials. Ideally, the tax should be set at a level where the marginal costs of the tax equal the marginal treatment costs. The tax should be earmarked and used for the collection, sorting, and treatment of post-consumer products.
- **Upstream combination tax/subsidy (UCTS)**: a tax paid by producers subsequently used to subsidise waste treatment. It provides producers with incentives to alter their material inputs and product design and provides a financing mechanism to support recycling and treatment.

Instrument 3: Regulations and performance standards

These measures, such as minimum recycled content required for new EEE, can be mandatory or applied by industries themselves through voluntary programs. When used in combination with a tax, such standards can strengthen incentives for the redesign of products, as well as sustaining a market for recycled materials. In the project countries this type of instrument has not been identified, may be due to the fact that most of the EEE are imported and this kind of instrument is more feasible when local manufacture is in place.

Instrument 4: Information-based instruments

These policies aim to indirectly support EPR programs by raising public awareness. Measures can include imposing information requirements on producers such as reporting requirements, labelling of products and components, communicating to consumers about producer responsibility and waste separation, and informing recyclers about the materials used in products. This instrument is usually combined with others since it is very useful from the raising awareness point of view.

After this overall review of the 4 typical EPR systems it is needed to bear in mind, that the implementation of a sustainable EEE management policy must be tailored, considering the realities of the country / region. It is also important to highlight that the different types of EPR instruments can also be used in combination and that there is no “one-size-fits-all” solution. This means, EPR instruments are not mutually exclusive, e.g. producers may charge and

advance disposal fee to cover the costs of a take-back obligation. Policy makers should analyse and choose the best mix of instruments so as to provide the overall policy framework under EPR schemes. The strategy will be different from one country, region and industry to the other, based upon political priorities, as well as on the social, economic, legal and cultural context.

Following, a SWOT analysis of the categories of EPR instruments outlined as they relate to WEEE management in the Caribbean is presented. These are to be understood as complementary to the general EPR SWOT introduced previously.

TAKE BACK SYSTEM		
INTERNAL	**Strengths**	**Weaknesses**
	• Higher collection and recycling/refurnishing rates achieved • EEE consumers are involved in the system, encouraging a sustainable culture and behaviour • Few and common importers and retailers are found alongside targeted countries, facilitating coordination among them • This is the most commonly used EPR instrument (72% globally) • Reduce the costs of waste management borne by governments and/or taxpayers Experience on plastic bottles take-back systems implemented at some countries that could provide with lessons-learnt.	• Poor infrastructure for waste collection, treatment and disposal • Reduced availability of space for storage at retails and recycling facilities • Lack of dual collection system to build from • High monitoring and surveillance costs, dedicated structure needed • Purchasers of recovered materials are abroad. Small markets may require long-term storage until collecting an exportable quantity, and space and cash flow become a limitation. • Need to establish penalties in cases of non-compliance.
EXTERNAL	**Opportunities**	**Threats**
	• Support the implementation of the waste management hierarchy • Facilitate the transition to a circular economy • Include and improve existing recycling initiatives • Labour opportunities for stakeholders, including informal recyclers • Formalize labour of waste pickers in compliance with safety and health standards • Potential of developing economies of scale within the region. • CARICOM presents a possibility of coordination among project countries and others from the Caribbean • Ensure the removal of hazardous parts before recovery and final disposal • Mitigate health and environmental hazards from mismanagement of WEEE.	• Create a new infrastructure that competes with the existing one • It may not be applicable for all categories of WEEE, since it will depend on storage, transport, recycling and disposal capacities • Resistance from importers and retailers to participate • Government or Private sector needs to undertake a new role in order to put in place the management scheme • Private versus public sector: difficulty to establish a clear division of tasks and roles • Impact of corruption and fraudulent activities both in public and private sectors

ECONOMIC AND TRADE-BASED INSTRUMENTS		
INTERNAL	**Strengths**	**Weaknesses**
	• Facilitates an adequate geographical coverage both in the country and in the cities • Easily applied to all WEEE categories • Lack on national manufacture of EEE facilitates the control of Free-riders and leakage • Experience on deposit and refund systems on beverages containers at some countries	• Due to the lifespan of EEE and the characteristics of the Project Countries, where there is no local EEE production and markets are small in relation to the global market, the only Economic and trade-based instruments applicable is ADF. • High level of resistance from importers and consumers to taxes, opposition to the polluter pays principle • Experience of environmental collected fees that are not invested in environmental purposes • Lack of involvement of consumers in WEEE management • Does not address the problem of the informal sector • Difficulty to assess the real costs of life-cycle management of EEE, and thus charge accordingly
EXTERNAL	**Opportunities**	**Threats**
	• Reduce the costs of waste management borne by governments and/or taxpayers • Collect fees at customs, not at retail, to avoid lack of collection if informal sales take place	• Tax collection distribution among national and sub-national governments may require the involvement of different authorities. • Impact of corruption and fraudulent activities both in public and private sectors • Risk to be considered a technical barrier to commerce

REGULATIONS SUCH AS MINIMUM OF RECYCLED MATERIALS		
INTERNAL	**Strengths**	**Weaknesses**
	• Improve the prevention of waste • Facilitates materials recovery	• The lack of local EEE production and the size of the countries - small in relation to the global market- results in the difficulty to implement this regulations
EXTERNAL	**Opportunities**	**Threats**
	• Prevent the presence of hazardous compounds in new products as much as technically feasible	• Affecting commerce through lowering the interest of producers in the market or raising prices too much • Risk to be considered as a technical barrier to commerce

INFORMATION BASED INSTRUMENTS		
INTERNAL	**Strengths**	**Weaknesses**
	• Does not need great investments on infrastructure • Improves the prevention of waste	• It is an instrument that may complement the others but is not self sufficient • Requires enforcement mechanisms • Need to identify measures that could be implemented by importers, not by producers • Need to establish penalties in cases of non-compliance.
EXTERNAL	**Opportunities**	**Threats**
	• Changing consumer's behaviour (creating public awareness of EPR systems) • Providing recyclers and handlers with valuable information for achieving ESM management	• Free-riders and leakage (care should be taken to include all products and actors in the system)

Feasibility of the instruments at the Project Countries

From the SWOTs analysis it is concluded that there are several specific characteristics to the Projects Countries that make more or less feasible the implementation of particular instruments for the different waste streams. The present chapter builds from those less recommended to those more viable to be implemented at the Project Countries and the wider Caribbean Region. The feasibility analysis is based on social, national/regional, sub-regional criteria and on the characteristics of each waste stream. Given the diversity of products characteristics, one type of instrument may not be applicable to all products of a waste stream. For this analysis, the following aspects were considered:

- potential impact to environmental and health if mismanaged, e.g. if POPs or Hg are present;
- quantities generated and sizes (e.g. due to the impact in landfill);
- Potential for the recovery of materials (e.g. in Project Countries only primarily dismantling is considered viable) and its selling feasibility;

Figure 15 presents the main EPR policy instruments along the mass flow assessment for EEE and WEEE at the Project Countries.

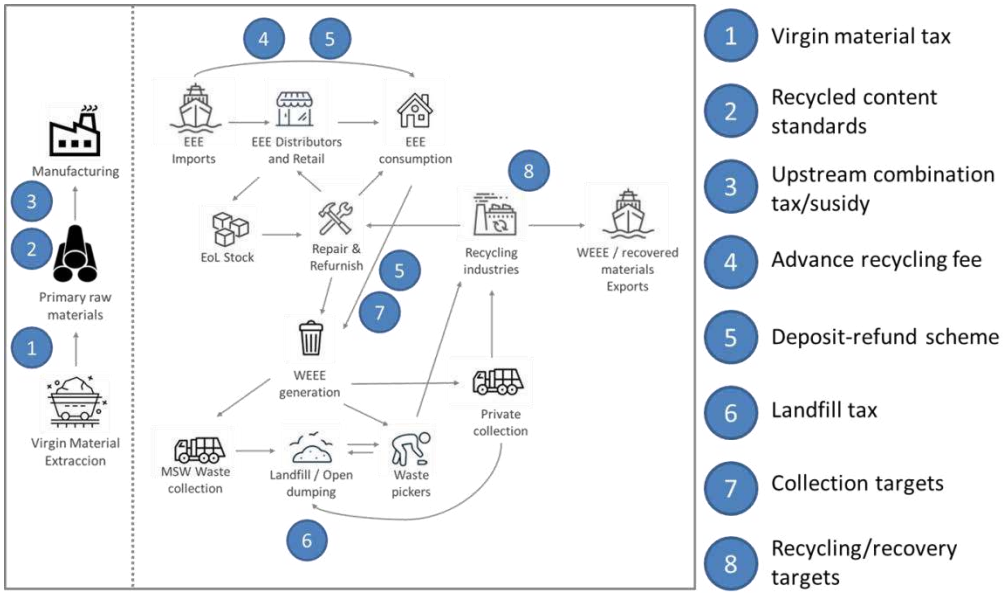


Figure 15: EPR policy tools along the mass flow assessment showing the generalized flows of EEE and WEEE through the project countries. Source: prepared by the authors

Recalling that there is no representative manufacture of EEE at the Project Countries, and retailers and consumers acquire their products from foreign suppliers, the following policy tools are not recommended for adoption because of the difficulty to influence foreign EEE production through local legislation:

1. Virgin material tax (*Economic and trade-based instruments*)
2. Recycled content standards (*Regulations and performance standard*s)
3. Upstream combination tax/subsidy (*Economic and trade-based instruments*)

Another *Economic and trade-based instrument* is Deposit-refund. Usually, deposit refund schemes are used for short lifespan products, such as bottles, where consumers buying a product pay a small amount of money which will be reimbursed when they bring the container to a collection point once they have finished using it. Under this scheme, if applied to WEEE, the retailer should charge an additional amount as deposit at the time of sale of the electronic or electrical equipment that should be returned along with interests to consumers when the EOL equipment is returned. Given the complexity of this system, due to the long time between sale and return, it is not recommended for its implementation at the Project Countries.
On the other hand, the concept of WEEE exchange is a variant to this model that could become feasible. This means that if consumers deposit EOL equipment at certain points, they will get a specific amount of money for the scrap. Usually, a price is paid accordingly to the weight of the WEEE, which could be adjusted to the category as well. This acts as an incentive that is very useful to accelerate behavioural change, but it should be economically assessed in order to assure its sustainability.

The case of Advanced Disposal Fees (ADF) – another variant of *Economic and trade-based instruments*- results in high applicability at the Project Countries, due to its simplicity for application, as presented in the SWOT analysis. Fees are levied on certain products at purchase based on the estimated costs of collection and treatment. The fees may be collected by public or private entities and used to finance post-consumer treatment of the designated products. Unused fees may be returned to consumers. At Project countries, EEEs would be easily levied since they are mainly imported, resulting in a low chance of free-riders and leakage. This instrument is particularly recommended for those products that: (a) present a high level of hazardousness, (b) contain low-value materials, (c) that are difficult to dismantle after becoming waste, or (d) recycling in areas where there are few subsequent purchasers of materials within a reasonable distance. A mechanism for assuring that fees collected by the authorities are utilized to finance their adequate collection, treatment and final disposal, either by exporting them or by installing regional landfills to receive hazardous wastes, is essential to address the threats and weaknesses of the instrument. In general, the waste streams that could be regulated under this instrument are:

- Lighting equipment (LE)
- Medical devices (MD)
- Automatic dispensers (AD)
- Monitoring and control instruments (M&CE)
- Large household appliances (LHA) – at a product level basis since some particular products, such as refrigerators, present low level of recyclability.

On the other hand, as presented at the SWOT analysis, *take back systems* result of high applicability for certain waste streams at the Project Countries. Considering that these types of systems are mostly justified for waste streams that (a) contain high-value materials, (b) that are easy to dismantle after becoming waste, or (c) present a high level of hazardousness that requires a special handling to avoid it being collected comingled with other wasted, and taking into account the results from the Trade Flow Assessment, it is recommended that the take-

back system covers at least the following four categories that represent up to +80% of WEEE generated:

- Consumer equipment (CE)
- Large household appliances (LHA) – at a product level basis
- IT and telecommunications equipment (IT&T)
- Electric and Electronic Tools (E&ET).

Bearing in mind that the aim is for customers to incorporate the action of returning EOL EEE to the Collection Points, and that usually if too many or complex conditions are stipulated for waste acceptance, this may act as a barrier for adhesion, in the sake of simplicity, the recommendation would be to also include the following categories:

- Small household appliances (SHA)
- Toys, leisure and sports equipment (TL&SE)

For the following waste streams, that may contain mercury, the need of a take back system may be used in order to avoid mismanagement and release of mercury if collected comingled with other wastes:

- Lighting equipment (LE)
- Medical devices (MD)

The analysis and interviews conducted to recyclers at the Project Countries, demonstrated that the amount of WEEE required to justify a dismantling facility is much lower than the quantities generated, even in the smaller countries. As an example, Caribbean E-waste in Barbados receives 48 to 60 tons of WEEE per year are up to 40 are exported. In Saint Kitts and Nevis, the country with the least generation of WEEE among the Project Countries, the average total generation of WEEE per year over the period 2015-2033 is of 2.891 tons; if only the categories suggested to be covered under a take-back system are considered, then the number is 2.600 tons per year generated. Even if less than 10 per cent is collected, the operation of dismantling and exporting WEEE is economically viable.

In terms of implementation, a positive or negative list could be used[35]: A positive list includes all products for which EPR apply while a negative list establishes a general definition and indicates those categories for which EPR does not apply. Taking into consideration the lack of experience on implementing EPR for WEEE in the Project Countries, it would be preferable to start with a positive list in order to avoid misunderstandings. This is the approach that other countries of the region have implemented in their legislations (Chile, Mexico and the Draft act of Dominican Republic).

It is important to recall that the different types of EPR instruments can be used in combination and that an implementation in stages could be designed in which certain products are initially covered by the EPR mechanisms, and as the system evolves and stakeholders assess lessons learned, it grows to cover other categories.

[35] For example, in the case of electrical and electronic equipment, the first Directive on EPR for WEEE in the EU indicates a general list and examples, while the reviewed Directive indicates a general list and exceptions.

Finally, in general for any take-back system where EEE consumers have a key role to play, a strong communication campaign is needed to change their behaviour, and a combination with *Information-Based Instruments* is highly recommended. It is needed to bear in mind that the instruments should be those that could be implemented by importers, rather than producers. In this sense, using their communication campaigns and their points of sale to communicate the new take back requirements, focusing in the environmental and health benefits derived from doing so, could be an initial step. Experiences in the region have demonstrated that the participation of NGOs could strengthen this important aspect of EPR. It will also be necessary to plan the required enforcement measures, to guarantee that all importers are in compliment of such instruments.

7.6. Governance models for take back systems

If a take-back system is to be implemented, even in combination with other EPR instruments such as an economic and trade based instrument, a key definition is the governance model to implement. As it has been said in section 7.5, mainly four types of take-back systems are used worldwide: IPR (Individual Producer Responsibility; PRO (Producer Responsibility Organization) – Single or Competing-; Government- run; and, Tradable credits system[36].

Though competing PROs is the most used governance model for WEEE EPRs systems worldwide, the local conditions at the Caribbean Region present a different situation, where there is no local production of EEEs and the market is atomized in a small number of importers: 2-3 big volume importers that represent up to 80% of the market and 4-5 small players that represent the remaining 20%[37]. Also, usually a multiple PRO approach is used when large territories are to be covered, which is not the case case of the Project countries.

Both the Competing PROs and the Tradable credits system imply a larger complexity in terms of its management, both for the private sector as for the government, due to its regulation role. At the project countries, it appears not to be convenient to pursue these two models and the recommendation would be to design the EPR system execution through a single PRO / an IPR or a government run model. This initial conclusion is to be validated with governmental officials and private sector stakeholders.

The case of IPR at the Project countries would have a more difficult implementation if importers commerce the same brands, since there would be a need of treatability system to assure that consumers are returning their EOL EEE at the correspondent Collection Point. Also, this would present more complexity for customers who would have to identify the specific Collection Points for each EOL EEE. On the other hand, IPR results more bureaucratic and has more administrative and logistics costs than a Single PRO, where an economy of scale is presented.

[36] More information on each model can be found in Extended Producer Responsibility, Updated Guidance for Efficient Waste Management, OECD, 2016

[37] Estimation based on the interviews conducted. A further assessment on EEE imports should be conducted to obtain the specific market share of each importer.

Also, a distinctive characteristic of the region is that the same importers act along the different Project Countries and at the wider Caribbean Region. This facilitates a regional approach if a single PRO is designed, such as setting up dismantling facilities that act as regional hubs, receiving EOL EEE from the different Project Countries, improving operational costs and benefiting from becoming an economy of scale.

An aspect of very relevant importance in the Project Countries is the lack of dedicated areas within the administration to manage and control the EPR system to put in place. Thus, systems that require less effort from government are to be prioritized, e.g. through creating a specific area for its management. In this sense, a Single PRO provides administrative simplicity for the government and minimizes logistical and administrative costs for importers.

On the other hand, as presented at the SWOT analysis, importers openness to this approach should be assessed during the design phase. Usually there is reluctance to this model in comparison to no-EPR approach, but when presented as an alternative to a government-run model, private sector presents less reticence, due to the wide experiences worldwide in relation to the deviation of funds collected form the specific WEEE management use and the business opportunity it may present.

In case a government-run model is pursued, a strong mechanism for transparency and assuring that the funds collected are destined to managing WEEE should be in place. During the design phase, costs for this implementation should be assessed as well, in terms of the specific areas that should be established within government, either for running the system, as for its enforcement system.

The implementation of EPR models involves not only the incorporation of new stakeholders in the management of waste, but also the definition and assignment of roles and responsibilities specific to each of those stakeholders. In Project countries, in most cases, the responsibility for waste collection and treatment is at the head of the municipalities/national governments.
When designing the system, even if the governance model selected is PRO or IPR, it is worthy to evaluate adapting the existing collection service into a separate collection service, rather than duplicating the system and, thus, the infrastructure and equipment. For the case of WEEE a kerbside collection at the Project Countries would not be required, due to the generation frequency. It would be preferable to assign Collection Points to which customers are to take their UEEE and to involve informal waste pickers in the collection.

7.7. Considerations for National and Regional Approaches when designing EPR systems

When designing an EPR system it is necessary to take into consideration the characteristics of each country (main economic activities, population, legal and institutional framework, among others). The following are some of the main constraints detected from the SWOT analysis for an EPR system at the local level within the Project Countries:

- Limited availability of suitable land on small islands for treatment and storage facilities, and landfills;
- Dependency on viability of exporting recovered materials and hazardous wastes, thus, storage times are larger since large quantities need to be collected;
- In less populated countries, smaller consumption rates to facilitate investments.

These difficulties could be addressed through implementing a regional approach where economies of scale would facilitate investments and space requirements would be reduced due to larger collection rates and more frequency of exports. A regional approach would imply that UEEE/WEEE collected at several countries is processes at a specific country that would act as a regional hub. Within the project countries, more industrialized economies, such as Dominican Republic or Trinidad and Tobago, would probably show more openness to act as regional hubs. On the other hand, a regional approach would imply big challenges for coordination, logistics and legal harmonization. Also, the NIMBY "not in my back yard" effect should be addressed, since importing UEEE or WEEE would probably result in high levels of resistance from citizenship. It is highly recommended to pursue a deeper analysis on the legal and social viability of using a regional approach, since economically and technically it would initially present several benefits.

For the case of Advanced Disposal fees, it would be recommended to coordinate its design at the regional level, in order to avoid potential barriers to commerce, and to implement them at the national level.

7.8. Waste pickers and the informal sector

Waste pickers can strengthen, or introduce, separate collection of products when they become waste. Where waste pickers are present, they should actively be provided with the opportunity to be included in the EPR collection systems in accordance with the rules governing each country; contributing their labour to improve the management of waste while including them socially. When including waste pickers, it is necessary to ensure ESM, worker health and safety and to prevent child labour. Informal sector involvement varies from country to country. The inclusion of waste pickers should be encouraged taking into consideration current recycling activities and gender dimensions. According to the report "Mainstreaming gender into UNDP GEF projects on chemicals and waste"[38] when collecting gender-disaggregated data it is important to better identify routes of exposure and chemicals' impacts on the health of women and men. To collect sex-disaggregated data, it is possible to utilize both quantitative and qualitative methods while using available resources such as national statistics, reports, surveys, stakeholder interviews and outcomes of the relevant round table discussions, brainstorming, and in depth personal interviews. While using these and other methods to collect sex-disaggregated data, it is important that women's views are equally represented to avoid a situation where surveys and interviews present men's opinions only.

[38] UNDP Guidance Document: Gender and Chemicalswww.undp.org › undp › library

7.9. Leakage

Leakage is considered to happen when EPR systems cannot capture all the wastes they were established to manage. In order to avoid leakage, clear definitions of products and stakeholders' responsibilities should be attained, as well as enforcement schemes. In the Project Countries, due to the fact that most EEE are imported, free-riders and leakage could be easily controlled.

7.10. Targets

Targets should be measurable and achievable. The establishment of targets should consider technical feasibility and economic viability, including national treatment capacities and the availability of export opportunities, and the overall environmental, human health and social impacts. Targets should consider gradual growth, considering timeframes for new enterprises to be set up. The establishment of EPR will be an important input to boost new projects, as targets do assure a demand for waste management capacity. Besides, targets should be periodically reviewed and adjusted, taking account of changes in market conditions and technology[39].

7.11. Costs and financing

Every PRO or Government-run take back system should cover their portion of the net costs related to waste management, which dependent on the EPR system may include:

(a) Costs for establishing a separate waste collection system;

(b) Net costs for waste management, including transport, recovery and final disposal;

(c) Administrative costs, i.e. costs linked to the running of PROs;

(d) Costs for public communication and awareness-raising (on waste prevention, litter reduction, separate collection, etc.) as long as producers have a say in their design and implementation;

(e) Costs for the appropriate monitoring of the system (including auditing and measures against free-riders).

Every organization should assess financial parameters to calculate the cost share of each of the producers/importers. The challenge is to provide a fair allocation of the costs and avoid underfinancing of the collection and recycling activities. In case of establishing the cost share as the current put on the market share there is no risk of underfinancing as waste of producers/importers that have left the market will be financed by the current producers/importers. Furthermore, all participants currently on the market contribute so

[39] Directive 2012/19/EU establishes for WEEE a collection rate of 45% from 2016, evolving gradually to 65% from 2019.

there is no competitive advantage for new entrants; and it is easier to determine the share of costs as only recent data is needed. A disadvantage is that current producers/importers' obligations can be different from their historic market share if their products have a long life-time.

7.12. Fees

Fees are usually needed to cover the costs of EPR. Fees should be established by the governance organization and should cover the net cost of the management of products when they become waste, including not only net costs for waste management, but also for information provision to consumers, data gathering and reporting, among others. Fees should be adaptable to market circumstances over the time.

A fee could be established per product, this way the fee can be linked directly to the cost of collection and disposal of the product when it becomes waste, which simplifies communication to the market and households.

Fees should be transparent, and might be visible or non-visible on the product. The fee is an important tool to create public awareness, as they relate to the cost of collection and disposal of the product when it becomes waste. Customers could use it as a way to choose sustainable products.

On the other hand, EOL fees are defined as a cost paid by the end-user at the point of discard for the electronic device. The main advantages of this fee are that it provides immediate funding for a recycling system, it pays for orphan products, and the financing costs are paid by the consumer. The main disadvantage of an EOL fee is that the consumer or end user might resort to illegal dumping to escape the fee, which is counterproductive to what the fee aims to achieve.

7.13. Information

Consumers should be given the necessary information about the available collection systems, including collection points.

Data should be available on products placed on the market and, once these products become waste, their collection and disposal, including compliance with targets.

In addition, multi-stakeholder platforms should be encouraged to ensure dialogue among stakeholders, with the involvement of representatives of Governance Organizations, producers, retailers, public authorities (national and regional/local), waste management operators, consumers (citizens and industrial consumers), environmental NGOs and policy makers.

REFERENCES

UNEP/CHW.13/4/Add.1/Rev.1, A set of practical manuals for the promotion of the environmentally sound management of wastes, Basel Convention Expert Working Group on Environmentally Sound Management, May 2017.

UNEP/CHW.13/INF/31/Rev.1, Partnership for Action on Computing Equipment (PACE) under the Basel Convention, May 2017.

UNEP/CHW/OEWG.11/INF/7, Draft practical manuals on Extended Producer Responsibility and on financing systems for environmentally sound management, Basel Convention Expert Working Group on Environmentally Sound Management, July 2018.

"Guidelines on Best Available Techniques and Best Environmental Practice for the Recycling and Disposal of Articles containing Polybrominated Diphenyl Ethers (PBDEs) under the Stockholm Convention on Persistent Organic Pollutants", Stockholm convention, 2017. http://chm.pops.int/Implementation/NIPs/Guidance/GuidanceonBATBEPfortherecyclingofPBDEs/tabid/3172/Default.aspx

The State of Play on Extended Producer Responsibility (EPR): Opportunities and Challenges, OECD 2014. https://www.oecd.org/environment/waste/Global%20Forum%20Tokyo%20Issues%20Paper%2030-5-2014.pdf

The Global E-Waste Monitor 2017. https://collections.unu.edu/eserv/UNU:6341/Global-E-waste_Monitor_2017__electronic_single_pages_.pdf

EPR policies for electronics in Developing Asia: A Phase in approach. https://www.jstor.org/stable/resrep00755?seq=4#metadata_info_tab_contents

Pacific E-waste: A Regional Strategy and Action Plan. https://www.sprep.org/2011SM22/pdfs/eng/Officials/WP_8_2_9_Att_1_Draft%20Regional%20E-waste%20Strategy.pdf

CLEANER PACIFIC 2025 Pacific Regional Waste and Pollution Management Strategy 2016–2025. https://sustainabledevelopment.un.org/content/documents/commitments/1326_7636_commitment_cleaner-pacific-strategy-2025.pdf

Estudio sobre modelos de gestión de residuos en zonas insulares. https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/prevencion-y-gestion-residuos/Estudio%20sobre%20modelos%20de%20gesti%C3%B3n%20de%20residuos%20en%20entornos%20insulares_tcm30-193051.pdf

Solid Waste Management in Small Island Destinations: A Case Study of Gili Trawangan, Indonesia. https://journals.openedition.org/teoros/1974

Extended Producer Responsibility, Updated Guidance for Efficient Waste Management, OECD, 2016. http://www.oecd.org/environment/waste/extended-producer-responsibility.htm

A practical guide for the systemic design of WEEE management policies in developing countries, SRI – Sustainable Recycling Industries, 2017. https://www.sustainable-recycling.org/wp-content/uploads/2017/10/Mendez_2017_Guide-WEEE-Policy_EN.pdf

“Dismantling guide for IT-equipment” SRI – Sustainable Recycling Industries. https://www.resource-recovery.net/sites/default/files/ewam-2016_6b_schluep_dismguide_it_ppp.pdf

“La minería urbana. La gestión de residuos electrónicos” https://sigraee.files.wordpress.com/2013/10/libro-raee-completo.pdf

Eco-norms
https://sigraee.files.wordpress.com/2014/06/argentina.pdf

ANNEXES

ANNEX A: TECHINCAL QUESTIONNAIRE

FOR GOVERNMENTS

1. Has your country implemented any Extended Responsibility Producer (EPR) system or any e-waste management- related policy?

Yes

No

If **yes**, please provide all the information you have of it (e.g. products covered, such as beverages or others, regulation ID number, scope, logistics, status of implementation, success of accomplishment)

If **no**, please describe barriers faced when facing any attempt regarding the design of an EPR or an e-waste management policy

2. Which would you consider are the main challenges to address an effective implementation of EPR systems? (you can choose more than one option)

a) Transport and logistics
b) Private sector reluctance
c) Public and private sector coordination
d) Regulation gaps
e) Informal sector involvement
f) Rising awareness campaigns
g) Other (Please specify)

3. Which of the following EPR approaches do you think are more suitable for your country? (You can choose more than one option)

a) Voluntary
b) Mandatory
c) A mixture of a) and b) (depending of amounts, products or other criterion)
d) Individual
e) Collective
f) National approach
g) Regional approach (include other countries from the Caribbean)
h) Other (Please specify)

4. If EPR systems were implemented in your country: which would be the most relevant e-waste streams to tackle?

5. To answer this question, please complete the chart below ordering the following e-waste

streams according to the importance to address its sound management (where 1 is highest and 5 is lowest importance). Please indicate the criteria or rationale used for the ordering:

Quantity: large or small amount generated
Size: they occupy a lot or very little space in the final disposal site
Hazardousness and environmental impact: High or low
Toxicity and Health affection: High or low
Other (specify)

E-waste category	Importance	Criteria or rationale	Observations
Temperature exchange devices[40]			
Monitors[41]			
Lamps[42]			
Large appliances[43]			
Small appliances[44]			
Small computing and telecommunications devices (without any external dimension greater than 50 cm)[45]			

6. According to the current legal framework at your country, which type of legislations are needed to put in force an EPR system (Law, Decree, other)?

[40]Refrigerators, freezers, appliances that automatically supply cold products, air conditioners, dehumidification equipment, heat pumps, oil radiators and other temperature exchange devices that use fluids other than Water.
[41] Screens, and devices with screens larger than 100 cm. Screens, televisions, digital photo frames with LCD technology, monitors, laptops, including "notebook" type.
[42] Straight fluorescent lamps, compact fluorescent lamps, fluorescent lamps, high intensity discharge lamps, including sodium pressure lamps and metal halide lamps, low pressure sodium lamps and LED lamps.
[43] Washers, dryers, dishwashers, cookers, electric cookers and ovens, electric stoves, electric heat plates, luminaires; sound or image reproduction apparatus, music equipment (except pipe organs installed in churches), knitting and knitting machines, large computers, large printers, copiers, large slot machines, large medical devices, large instruments surveillance and control, large devices that supply products and money automatically, photovoltaic panels.
[44] Vacuum cleaners, sewing machines, luminaires, microwave ovens, ventilation devices, irons, toasters, electric knives, electric kettles, clocks, electric razors, scales, hair and body care devices, calculators , radio devices, camcorders, video recording devices, hi-fi chains, musical instruments, sound or image reproduction devices, electric and electronic toys, sporting goods, computers for cycling, diving, racing, rowing, etc. , smoke detectors, heating regulators, thermostats, small electrical and electronic tools, small sanitary products, small monitoring and control instruments, small devices that supply products automatically, small devices with integrated photovoltaic panels.
[45] Mobile phones, GPS, pocket calculators, routers, personal computers, printers, telephones.

7. If an EPR system was implemented in your country, how should e-waste be transported from the collection points to the recycling/treatment companies?

a) Regular household transport
b) Hazardous waste transport
c) Other (Please specify)

8. Does your country have inter-governmental and/or inter-sectorial arrangements where the design of an EPR system could be discussed?

Yes
No
If **yes,** please indicate as much information as possible (e.g. objective of the group, sectors involved, currency of meetings, time since have been implemented, level of formalization)

9. Could you mention any EPR system that has been successfully implemented in the Caribbean region or abroad?

Yes
No
If **yes**, please provide as much information as possible (e.g. country/ies involved, products covered, such as beverages or others, regulation ID number, scope, logistics, status of implementation, success of accomplishment)

10. What would be the main opportunities of implementing an EPR system?

RECYCLING COMPANIES

1. **What is the main activity of your company?**

2. In which countries of the Caribbean region does your company provide services?

3. What types of waste material are recycled by your company? Please explain the reasons why those types of waste were chosen.

4. Please complete the chart below providing for each e-waste stream the origin, quantities received, recycled/treated and discarded.

E-waste stream (*)	Origin of the e-waste**	Quantities of e-waste received**	Quantities of e-waste recycled **	Quantities of e-waste discarded**
E.g. monitors	E.g. Municipalities	XX quantity (units or tonnes)	XX quantity (units or tonnes)	XX quantity (units or tonnes)

XXXXXX	XXXXXX	XX quantity (units or tonnes)	XX quantity (units or tonnes)	XX quantity (units or tonnes)
XXXXXX	XXXXXX	XX quantity (units or tonnes)	XX quantity (units or tonnes)	XX quantity (units or tonnes)
XXXXXX	XXXXXX	XX quantity (units or tonnes)	XX quantity (units or tonnes)	XX quantity (units or tonnes)
XXXXXX	XXXXXX	XX quantity (units or tonnes)	XX quantity (units or tonnes)	XX quantity (units or tonnes)
XXXXXX	XXXXXX	XX quantity (units or tonnes)	XX quantity (units or tonnes)	XX quantity (units or tonnes)

* E.g.: Refrigerators, monitors, personal computers, lamps, mobile phones, etc.

** E.g.: Municipalities (household); private sector (large quantity generators or industrial processes); informal sector; or other (please specify)

*** Please indicate timeframe (quantities received, recycled/treated and discarded per year month/year or other measurement unit)

5. Indicate the recycling or treatment technology/ies performed.

6. How is e-waste transported from its generation point to your company? Who is responsible for that transport?

7. What is the destination of recovered material? If it is exported, please indicate country/ies of destination.

8. What is the destination of discarded material? If it is exported, please indicate country/ies of destination.

9. Is there any category of e-waste that could be recycled/treated by your company and is not currently being performed?

Yes

No

If **yes**, please indicate what are those categories and the reasons why your company is not currently recycling/treating them.

10. Does your company charge private generators or the government for treating e waste? If do, would you say your main incomes come from charging the treatment or from the revenue of selling the materials recovered?

11.Does your company receive any tax exemption or any other governmental incentive?

Yes

No

If **yes**, please indicate as much information as possible (type of exemption/incentive, regulation ID number, operating mode)

12. Has your company participated in any activity related to an Extended Responsibility Producer (EPR) system or any policy on e-waste management?

Yes

No

If **yes**, please provide as much information as possible (e.g. brief description of the project/initiative, activities developed under the project/initiative, timeframe, products covered, scope, status of implementation, success of accomplishment)

13. What are the main challenges and opportunities that an EPR system may represent for your company?

IMPORTERS

1. What is the main activity of your company? (you can choose more of one option)

a) Import of electrical and electronic equipment (EEE)
b) Production of electrical and electronic equipment (EEE)
c) Retail of electrical and electronic equipment (EEE)

2. In which countries of the Caribbean region does your company operate?

3. What type of electrical and electronic equipment (EEE) does your company import/produce/retail? Please complete the chart below, providing for each EEE category estimated quantities imported/produced/retailed and lifespan. In case of imports, include where the EEE come from.

Type of Equipment(*)	Estimated Lifespan	Estimated quantities imported, produced or sold nationally per year	Country/ies where the equipment is imported from (fill in only if the EEE is imported)
E.g. monitors	"XX years" or "XX to XX years"	XX quantity (units or tonnes)	XXXXX

XXXXX	"XX years" or "XX to XX years"	XX quantity (units or tonnes)	XXXXX
XXXXX	"XX years" or "XX to XX years"	XX quantity (units or tonnes)	XXXXX
XXXXX	"XX years" or "XX to XX years"	XX quantity (units or tonnes)	XXXXX
XXXXX	"XX years" or "XX to XX years"	XX quantity (units or tonnes)	XXXXX

*E.g.: Refrigerators, monitors, personal computers, lamps, mobile phones, etc

4. Does your company have refurbishment or repair systems implemented?

Yes

No

If **yes**, please provide as much information as possible (e.g. type of EEE accepted at the reparation centres, quantities received, estimated cost of the reparations, time of reparation, EEE conditions required to be accepted, where is the reparation centre located, logistics)

5. Has your company implemented any Extended Producer Responsibility (EPR) system?

Yes

No

If **yes**, please provide as much information as possible (e.g. products covered, scope, logistics, status of implementation, success of accomplishment, countries where EPR was implemented).

If **no**, please describe the main challenges you identify for the private sector in regards to implement e-waste EPR systems.

6. Please provide the following information on the EEE sector:

a. Estimated amount of importers (those that represent about 80% of the market)
b. Estimated amount of producers (those that represent about 80% of the market
c. Estimated amount of distributors (those that represent about 80% of the market)
d. Estimated amount of retailers (those that represent about 80% of the market)

7. Please chose from the following the option that best represents the sector:

a. **Importers/producers** are **retailers**
b. **Importers/producers** sell to **distributors** who sell to **retailers**
c. **Importers/producers** sell to **main distributors** who sell to **secondary distributors** who sell to **retailers**
d. Other

8. What are the main challenges and opportunities that implementing an EPR system may represent for the private sector?

FOR NGOs

1. **Please briefly describe your profile organisation including its geographical scope.**

2. **Has your organisation participated in any activity related to an Extended Responsibility Producer (EPR) system or policy on e-waste management?**

Yes

No

If **yes**, please provide all the information you have of it (e.g. brief description of the project/initiative, geographical scope, activities developed under the project/initiative, timeframe, products covered, status of implementation, success of accomplishment).

3. **Which would you consider are the main challenges to address an effective implementation of EPR systems? (you can choose more than one option)**
   h) Transport and logistics
   i) Private sector reluctance
   j) Public and private sector coordination
   k) Informal sector involvement
   l) Rising awareness campaigns
   m) Other (please specify)

4. **Which of the following EPR approaches do you think are more suitable for the Caribbean region? (You can choose more than one option)**
   i) Voluntary
   j) Mandatory
   k) A mixture of a) and b) (depending of amounts, products or other criterion)
   l) Individual
   m) Collective
   n) National approach
   o) Regional approach (include other countries from the Caribbean)
   p) Other (Please specify)

5. **If EPRs system were implemented in the Caribbean region: which would it be the most relevant e-waste streams to tackle? To answer this question, please complete the chart below ordering the following e-waste streams according to the importance to address its sound management (where 1 is highest and 5 is lowest importance). Please indicate the criteria or rationale used for the ordering:**

   Quantity: large or small amount generated
   Size: they occupy a lot or very little space in the final disposal site
   Hazardousness and environmental impact: High or low
   Toxicity and Health affection: High or low

Other (specify)

E waste category	Importance	Criteria or rationale	Observations
Temperature exchange devices[46]			
Monitors[47]			
Lamps[48]			
Large appliances[49]			
Small appliances[50]			
Small computing and telecommunications devices (without any external dimension greater than 50 cm)[51]			

6. Could you mention any EPR system that has been successfully implemented in the Caribbean region or abroad?

Yes

No

If **yes,** please provide as much information as possible (e.g. country/ies involved, products covered, such as beverages or others, regulation ID number, scope, logistics, status of implementation, success of accomplishment)

7. According your experience, what are the main challenges and opportunities that an EPR system may represent for NGOs in the Caribbean region?

[46]Refrigerators, freezers, appliances that automatically supply cold products, air conditioners, dehumidification equipment, heat pumps, oil radiators and other temperature exchange devices that use fluids other than Water.

[47] Screens, and devices with screens larger than 100 cm. Screens, televisions, digital photo frames with LCD technology, monitors, laptops, including "notebook" type.

[48] Straight fluorescent lamps, compact fluorescent lamps, fluorescent lamps, high intensity discharge lamps, including sodium pressure lamps and metal halide lamps, low pressure sodium lamps and LED lamps.

[49] Washers, dryers, dishwashers, cookers, electric cookers and ovens, electric stoves, electric heat plates, luminaires; sound or image reproduction apparatus, music equipment (except pipe organs installed in churches), knitting and knitting machines, large computers, large printers, copiers, large slot machines, large medical devices, large instruments surveillance and control, large devices that supply products and money automatically, photovoltaic panels.

[50] Vacuum cleaners, sewing machines, luminaires, microwave ovens, ventilation devices, irons, toasters, electric knives, electric kettles, clocks, electric razors, scales, hair and body care devices, calculators , radio devices, camcorders, video recording devices, hi-fi chains, musical instruments, sound or image reproduction devices, electric and electronic toys, sporting goods, computers for cycling, diving, racing, rowing, etc. , smoke detectors, heating regulators, thermostats, small electrical and electronic tools, small sanitary products, small monitoring and control instruments, small devices that supply products automatically, small devices with integrated photovoltaic panels.

[51] Mobile phones, GPS, pocket calculators, routers, personal computers, printers, telephones.

ANNEX B: INTERVIEWS CONDUCTED

Recycling Companies
Antigua and Barbuda: Hasani Williamson – Wills Recycling
Barbados: Malikca Cummings - Caribbean E-Waste Management
Barbados: Paul Bynoe - B's recycling
Saint Kitts and Nevis: Geoffrey Folsom - Enclave Resources
Saint Lucia: Wayne Neale – Greening the Caribbean
Trinidad and Tobago: Nadine Lakatoo and Anthony Brian Allum – Piranha International Ltd.

NGOs
Dominican Republic: María Alicia Urbaneja and Mariely Ponciano – EcoRed

ANNEX C: INTERVIEWS PROGRAMMED BUT NOT CONDUCTED

The following interviews were programmed but not conducted due to the Covid19 crisis:

Government

Waste management responsible in the project countries

OECS (Organization of Eastern Caribbean States)

Importers/retailers

Carter's

Precision Electrical Sales & Services Inc.

Do It Best Home Centre

Kooyman Barbados

Promotech Inc

Unicomer (Barbados) Limited

NGOs

Antigua and Barbuda: Antigua and Barbuda E-waste Center

Belize: The Recycling Network of Belize and Bun Suni Foundation.

Appendix 11 – Technical project specific annexes: ELVs Recommendations Report

IMPLEMENTING SUSTAINABLE LOW AND NON-CHEMICAL DEVELOPMENT IN SMALL ISLAND DEVELOPING STATES (ISLANDS) PROJECT PREPARATION GRANT PHASE

Final Recommendations Report

Trade Flows and Practices for the Management of End of Life Vehicles

EXECUTED BY:

BASEL CONVENTION REGIONAL CENTRE FOR TRAINING AND TECHNOLOGY TRANSFER FOR THE CARIBBEAN

PREPARED BY:

ALEJANDRA ACOSTA AND MAGALID CUTINA

Submitted 26th June 2020

CONTENTS

ABBREVIATIONS AND ACRONYMS

ASR	Auto Shredder Residue
ATF	Authorized Treatment Facility
BAT	Best Available Techniques
BEP	Best Environmental Practices
BSWaMa	Belize Solid Waste Management Authority
CoD	Certificate of Destruction
DOE	Department of the Environment
EOL	End-of-life
ELV	End-of-Life Vehicle
EMA	Environmental Management Act
EPA	Environmental Protection Agency
EPD	Environmental Protection Department
EPR	Extended Producer Responsibility
ESM	Environmental Sound Management
EU	European Union
IAST	Institute of Applied Science and Technology
MFA	Mass Flow Assessment
MoU	Memory of Understanding
NEP	National Recycling Policy
NMA	National Environment Authority
NSWMA	National Solid Waste Management Authority
OECD	Organization for Economic Cooperation and Development
OEMs	Original Equipment Manufacturers
PBDEs	Polybrominated diphenyl ethers
PBM	Population Balance Model
PCDD	Polychlorinated dibenzo-p-dioxins
PCDF	Polychlorinated dibenzofurans
POP	Persistent Organic Pollutants
PPP	Purchasing Power Parity
SSA	Sanitation Service Authority
SLSWMA	Saint Lucia Solid Waste Management Authority
ULAB	Used Lead Acid Batteries
UPOPs	Unintentional Persistent Organic Pollutants
USD	United States of America Dollar
WEEE	Waste Electric and Electronic Equipment

EXECUTIVE SUMMARY

Vehicle ownership[1] has increased greatly in the last few decades, resulting in a rapidly growing number of ELVs. Automobile ownership worldwide exceeded 1 billion in 2010. The EU and the USA accounted for 50 % of this total number, each having 270 million and 240 million units, respectively. In newly industrialized countries such as China and India, the number of automobiles is rapidly growing. It was reported that automobile ownership in China has reached more than 100 million in 2012. [2]

Throughout the Caribbean region, environmentally sound management (ESM) of end-of-life-vehicles (ELVs) is still not a well-developed public policy issue. Often, these types of policies compete with other pressing economic and social issues, such as fiscal and trade matters, poverty and unemployment, education and health, and many times don't receive the required priority in the political agenda to move forward. Thus, the Project Countries[3] lack specific policies and legal framework to ensure ESM of ELVs. ELVs and spare parts, such as batteries, motor oils and tires, are usually managed as sporadic short-sight initiatives, in informal circuits, with no major attachment to environmental principles and health care.

ELVs policies should possess a comprehensive vision, aiming primarily to prevent the generation of ELVs and to reduce their harmfulness, to then promote proper depollution and dismantling processes, enhancing reuse, recycling and recovery of materials and spare parts in an environmental sound manner and, ensuring safety final disposal as the last stage in the management chain. In the region, however, presently ELVs management is mainly characterized by a market approach, in the sense that treatment of ELVs is guided by the purely commercial costs and benefits associated with the trade of some materials, as a valuable secondary resource.

Project Countries are "technology-takers", meaning they import vehicles and lack local manufacturing. In addition, a large percentage of imports are of used vehicles.[4] Existing vehicle regulatory gaps between developed and developing markets cause that vehicles that make their way into developing and transitional markets may undermine the gains made in other policy areas – including air quality and fuel quality – and allow for the transfer of obsolete and polluting vehicle technology. Despite the fact that most of the Projects Countries have implemented age limit restrictions for used vehicles imports, this approach may not be enough if not implemented with other restrictions, such as emission standards. However, countries are beginning to take an encouraging path in this regard. Green technology solutions are readily available to achieve emissions reductions in the transport sector in the Caribbean and other islands, where the size of many Small Island Developing States (SIDS) is well suited to the 100–200-mile (160–320 kilometre) range of currently available electric vehicles.[5]

---

[1] Referred as to passenger and commercial cars, does not include marine vessels

[2] Sakai, S.; Yoshida, H; Hiratsuka, J.; Vandecasteele, C.; *et al.* (2013) *An international comparative study of end-of-life vehicle (ELV) recycling systems*. https://link.springer.com/article/10.1007/s10163-013-0173-2. Accessed at April 20th.

[3] Antigua and Barbuda, Barbados, Belize, Dominican Republic, Guyana, Saint Kitts and Nevis, Saint Lucia, Suriname and Trinidad and Tobago.

[4] UNECE/ITC Background Paper Used Vehicle Global Overview, 2017. https://www.unece.org/fileadmin/DAM/trans/doc/2017/itc/UNEP-ITC_Background_Paper-Used_Vehicle_Global_Overview.pdf

[5] "Request for Expression of Interest (EOI)For the Supply of Electric Buses and Charging Stations". Antigua and Barbuda, Department of Environment. https://caricom.org/wp-content/uploads/Emobility-EOI.pdf . Accessed, June 2020.

The lack of ESM of ELVs puts the Countries at a major challenge concerning the very high POPs and UPOPs emission risks if open burning of ELVs is taking place. ELVs not properly treated contain flame retardants such as decaBDE and other brominated flame retardants in the textiles and foams used in artificial leather for seat covers and interior lining, as well as added to hard plastics, electronic parts, cable casings, shrink plastics, tapes, and other vehicular components.

While regional programs are necessary, country-based programs are key to moving towards a circular economy. Externally, governments need to engage with stakeholders in meaningful ways to share knowledge and gain their support. Internally, government officials responsible for ELVs management need to design programs that contribute to higher priority work streams, such as job creation, skills development and economic development.[6]

Under this complex scenario, governments have to identify appropriate alternatives to ELVs management and choose the best option based upon priorities and local context. The Programme ISLANDS – Implementing Sustainable Low and Non-Chemical Development in Small Island Developing States (SIDS) was approved by the GEF Council in June 2019 (GEF ID 10185) and seeks to address the sound management of chemicals and waste through strengthening the capacity of sub-national, national and regional institutions, strengthening the enabling policy and regulatory framework in the Project Countries and unlocking resources to implement sound management of chemicals and waste.

Based on the results of the examination of the selected case studies and global best practices, this assessment report aims to provide recommendations/guidelines for the ESM of ELVs in the Project, including:

- Assessments of vehicles in the Project Countries;
- Estimations of ELVs generation at the Project Countries;
- Definition of the current trade flow of ELVs;
- Identification of existing regulations and initiatives related to ELVs and spare parts management;
- Definition of the Best Environmental Practices (BEP) and Best Available Techniques for ELVs ESM
- Identification of existing and potential opportunities for regional cooperation for ELVs management
- Determination of the potential economic opportunities;
- Recommendation of measures to implement.

The report begins conducting an estimation of the ELVs as a key input for designing its management strategies. An assessment of vehicles imports was conducted for the Project Countries. Considering that ELVs are directly related to the following: ELVs= (vehicles produced + vehicles imported – vehicles exported) (according to their lifespan), and considering that there is no representative manufacture of vehicles in the Project Countries, focus was made in imports and exports. The following categories were assessed: passenger vehicles (PV), commercial vehicles (CV) and vehicles´ parts and accessories (P&A).

Results obtained shown:

[6] UN environment: "Small Island and Developing States waste management outlook" https://wedocs.unep.org/bitstream/handle/20.500.11822/27683/SIDS_WMO.pdf?sequence=1&isAllowed=y Accessed, May 2020.

- During 2017-2019, average imports per year of PV were of $1,289,206,000 USD, 272,444 tonnes and 151,308 PV in total for the nine Project Countries. For CV average imports per year were of $87,571,000 USD, 15,731 tonnes and 1,165 CV. While for P&A, average imports per year were of $190,933,000 USD and 29,513 tonnes.
- On average, 40% of imported vehicles in the Project Countries are used vehicles.
- Vehicles exports are negligible in comparison to imports.
- In all Project Countries, 104,731 units and 207,367 tonnes of ELVs are generated per year, on average, over the period 2020-2037.

An analysis of each of the Project Countries' information related to vehicles imported and ELVs generation is presented in the report.

Having estimated the main figures to be considered for informed decision making on the matter, the assessment continues to study the current trade flow of ELVs at Project Countries. In this case, it is noted that when a vehicle reaches its end of life, since there are no formal processes established in the Project Countries for the management of ELVs, general waste management acts apply, meaning that owners are responsible for disposing derelict vehicles to an approved site (landfill). Nevertheless, since usually this would imply paying a fee, common practice is that vehicles are abandoned in public areas or delivered/sold to scrap metal handlers. Generally, ELVs are scraped in low-technology recycling facilities and reusable parts are sold, usually in local markets, leaving what cannot be sold to be exported as scrap metal.

A compendium of Best Environmental Practices (BEP) and Best Available Techniques (BAT) is presented as a technical section extracted from the waste vehicles fact sheet to support the implementation of the ESM of hazardous wastes and other wastes, in accordance with the obligations of the Basel Convention on the control of transboundary movements of hazardous wastes and their disposal[7].

An analysis of the regulations and initiatives in the Project Countries was conducted, related to the management of the ELVs and with the main objective of knowing the degree of progress achieved, not only from the perspective of the existing regulations, but also from the integration with the programs and initiatives taking place. The assessment indicates that Project Countries' policies and strategies towards achieving ESM for ELVs management are heterogeneous and fragmented. Lack of precise regulation and enforcement, absence of deregistration processes, high operating costs of depollution and dismantling activities, limited viability of recycling or alternative ELVs treatment systems due to the absence of economies of scale, high Persistent Organic Pollutants (POP) and Unintentional Persistent Organic Pollutants (UPOPs) emission risks due to inappropriate treatment being carried out and barriers to regional initiatives caused by lack of legal regimes and definitions, are the major challenges identified. The situation becomes more complex due to the lack of information systems to assess ELVs life-cycle, from their generation and treatment, until the destination of recovered spare-parts and final disposal of residues. Limited financial and human resources capable to face these challenges becomes a huge barrier.

Regarding the existing and potential opportunities for regional cooperation for ELVs management, the report highlights the limited availability of suitable land on small islands for treatment, storage facilities and landfills. A considerable opportunity for implementing a regional approach and developing of economies of scale is identified. This would make ELVs

[7] UNEP/CHW/CLI_EWG.5/INF/5, Expert Working Group on Environmentally Sound Management, Basel Convention, June 2016.

treatment economically feasible, facilitate investment and reduce dependency on storage for exporting recovered materials and hazardous wastes.

The potential economic opportunities chapter was limited by the restriction on access to information. With the information available, a study was carried out to present the potential incomes of selling materials obtained from recycling ELVs, based on raw data from benchmark cases and literature data, taking into consideration that materials obtained are commodities and global prices are applicable. Three different scenarios were assessed: the first one consisting of achieving a 20% recovery rate; the second one, a 50% recovery rate; and, the third one, an 80% recovery rate. In addition, tonnes of material requiring environmental pretreatments and tonnes of residues generated were estimated for the three scenarios. Further assessment on transportation and operation costs (at the national and regional level) is required to obtain the potential economic gain. Finally, an estimation of POPs content was conducted, which showed that more than 16 tonnes per year of Polybrominated diphenyl ethers (PBDE) could be present in total Project Countries´ ELVs.

The last section presents a set of regulatory measures that are feasible to be implemented in the Project Countries. The objective is to provide decision makers and environmental policy makers with a set of actions to regulate and promote sustainable ELVs management. The set of measures proposed is organized as follows:

1. Measures to address the importation of used vehicles
2. Specific ELVs management legislation, with the following components that could be executed altogether or separately:
    a. EPR approach
    b. Establishing an ELVs Fund
    c. Collection system
    d. Licensing of storage, treatment and disposal facilities, in compliance with Environmental and health standards.
    e. Informal Sector
    f. Ensuring data availability and improvement of registration and de-registration procedures.
3. Scrappage programs
4. Treatment facilities
5. Design and implement proper enforcement mechanisms.

CONTEXT

Sustainable waste management has gained importance in the last decades acquiring centrality in the agenda of the states. A wide flow of consumer goods and limited product life spans brings a worldwide concern: an increased generation of used goods and waste that requires sustainable management.

Vehicle[8] ownership has increased greatly in the last few decades, resulting in a rapidly growing number of ELVs. Automobile ownership worldwide exceeded 1 billion in 2010. The EU and the USA accounted for 50 % of this total number, each having 270 million and 240 million units, respectively. In newly industrialized countries such as China and India, the number of automobiles is rapidly growing. It was reported that automobile ownership in China has reached more than 100 million in 2012. [9]

Latin America and the Caribbean has experienced explosive urbanization in the last 40 years, with the share of its urban population increasing from 50 percent of the population in 1970 to 80 percent by 2013 (United Nations 2011). In addition, robust income growth and a sharp expansion of the middle class have spurred a rapid increase in automobile and motorcycle ownership. With an average of approximately 90 vehicles per 1,000 population, the motorization rate in LAC exceeds those of Africa, Asia, and the Middle East (De la Torre, Fajnzylber, and Nash 2009). However, there is heterogeneity across countries. For example, between 1990 and 2010, per capita car ownership more than doubled in Mexico from about 75 to 175 cars per 1,000 population, and nearly tripled in Brazil from 45 to 125 cars per 1,000 population (Fay et al.17)[10].

ELVs are characterized by being a source of secondary resources for what recycling is seen as an attractive operation beyond environmental impacts. Even though, ELVs contain materials that are toxic, such as lead, refrigerant gases, mercury, cadmium, oils, among other which should be considered and managed as hazardous waste since their improper management may cause severe environmental problems and human health consequences. it is also necessary to consider that certain ELVs components contain POPs. Circuit boards, car seats and other plastic components inside the vehicle may contain tetra, penta, hexa or hepta bromodiphenyl ethers (PBDEs), which are POPs. The main challenge at this issue is that it is currently difficult to identify and remove all POPs-containing ELV components before compressing and crushing vehicles.[11]

On the other hand, ELVs contain large amounts of secondary resources, and recycling of these materials can contribute to the conservation of usage of primary materials, which can further contribute to circular economy, reduce energy use and the emission of greenhouse gases. Also, recycling processes are a potential source of income for individuals and entrepreneurs aiming at regaining the valuable materials contained in vehicles. Securing reliable access to materials and functioning spare parts becomes a challenge to ensure second-hand markets and supply chain of those products, within ensuring its environmentally sound management.

[8] Referred as to passenger and commercial cars, does not include marine vessels

[9] Sakai, S.; Yoshida, H; Hiratsuka, J.; Vandecasteele, C.; *et al.* (2013) *An international comparative study of end-of-life vehicle (ELV) recycling systems*. https://link.springer.com/article/10.1007/s10163-013-0173-2. Accessed at April 20th.

[10] Urban Transport Systems in Latin America and the Caribbean: Challenges and Lessons Learned, IDB Invest, Patricia Yañez-Pagans et al. (2018)

[11] https://elv.whereabouts.oeko.info/index.php?id=52, Accessed, June 2020.

ELVs management practices, beyond any regulation, adopted a market led approach, in the sense that treatment of ELVs prior to public intervention is determined by the purely commercial costs and benefits associated with the treatment. Since ELV's consist of more than 70 % iron, these have been traditionally traded as a valuable secondary resource, and their recycling has been conducted autonomously based on market mechanisms. When designing the system and considering the strong weight in the economic model that the ferrous scrap price has, measures that could be activated when there is a downturn in the ferrous scrap price to avoid the end-of-life vehicle (ELV) recycling system malfunction should be included.

Moving forward to being regulated, some countries changed the playing field. Thus, the different stakeholders involved in the regulated management of ELVs must assume responsibilities and internalize the environmental and social costs to enhance the Environmental Sound Management (ESM) of ELVs. Project Countries and relevant trade organizations should take into consideration that legislation can be a fair starting point, but without losing sight of the importance of full compliance by all stakeholders involved. Adequate enforcement policies should be in place so as to ensure that all vehicles entering and sold in the countries are compliant with rules as well as all traders ensure this. The generation of situations of unfair competition must be avoided by all means, in order to promote an efficient regulatory framework.

Experience shows as well, that proper ELVs management systems require the involvement of all stakeholders: government authorities, producers/dealerships, consumers, dismantling facilities -authorized and informal ones too-, remanufacturing facilities, second-hand markets, landfills facilities, civil society, among others. They should all participate and be involved in any policy making process from the very beginning. Thus, ELVs management includes the management of all related activities and material, financial, and information flows between and among the ELVs network entities.

In this scenario, it has been over a decade since different regulatory authorities began to develop policies to address the challenge of sound ELVs processing. The analyses of cases that have already implemented such measures, as well as of suggested approaches, are essential to prevent predictable obstacles, reduce risks and speed up implementation times.

Legislation on ELVs recycling exists in the EU, Japan, Korea, China and Taiwan, but in many countries and regions where automobile ownership is rapidly increasing, the recycling systems and policies are not yet established. Developing countries are lagging in the establishment of legislation due to economic and social circumstances, but the environmental awareness and depletion of natural resources have also driven many of these countries in adapting strategies towards sustainable management of ELVs. [12]

Furthermore, in the cases of islands, such as the Project Countries, the recycling is more difficult and the abandoned vehicle problem is especially serious due to the absence of local ELVs treatment business and high shipment fees in removing the ELVs. Several studies were conducted on the impact of ELVs in small islands reporting of the problem of abandoned vehicles in Pacific Ocean Island's countries[13] because of the additional cost of the marine

[12] Hsin-Tien Lin; Kenichi Nakajima; Eiji Yamasue and Keiichi N. Ishihara (2018): Recycling of End-of-Life Vehicles in Small Islands: The Case of Kinmen, Taiwan https://www.researchgate.net/publication/329159935_Recycling_of_End-of-Life_Vehicles_in_Small_Islands_The_Case_of_Kinmen_Taiwan Accessed April 2020.

[13] Shioji, H. Abandoned vehicles problem in Pacific Ocean islands countries. In Gerpisa Colloquium; The Gerpisa Blog: Paris, France, 2018.

transportation of ELVs. Studies revealed that the smallness, remoteness and scatteredness of these island countries make the scrapping and recycling business unprofitable. These problems are faced not only for island countries, but countries with small surrounding islands also face similar problems.

METHODOLOGY

The methodology applied to elaborate this assessment included a combination of quantitative and qualitative activities that would collate, analyze and synthesize data and information obtained via primary and secondary sources in order to understand the generation, flows and management of vehicles and ELVs with the ultimate end-point of developing recommendations that would lead to the design and implementation of strategies to enhance the ESM of ELVs in Antigua and Barbuda, Barbados, Belize, Dominican Republic, Guyana, Saint Kitts and Nevis, Saint Lucia, Suriname and Trinidad and Tobago (from now on referred as *Project Countries*).

In the data collection phase, a variety of methods were used to gather information for this study including a questionnaire sent to national stakeholders, recyclers and importers[14] (Annex A) and desktop review of the existing literature documents and databases.

In terms of imports and exports, there is a lack of easy access of official information from customs. Thus, an assessment of imports and exports of vehicles and their spare parts was conducted, based on a 4-digit analysis of the data available at the Trademap database. However, the use of the trade data from the HS Codes presented several challenges. Specifically, the main issues that were encountered were as follows:

- The use of 4-digit HS codes instead of 6-digit codes and the vague description of the HS may have led to the inclusion of irrelevant or exclusion of pertinent data. The classification of codes described as “Other” will have also presented limitations to the assessment.
- Most of the HS Codes that were selected for the study illustrated data for volume (tons) but only a few of these HS Codes in the categories studied had unit values.
- The imports done through e-retailers (Amazon, eBay, others) are not considered.
- Trademap only presents information up to the first six digits, which refer to the classification in the WCO Harmonized System (HS). This classification may further subdivided by the regions (e.g. CARICOM). For import declarations, these codes are subdivided further into ten-digit code. For import and export customs declarations, commodities need to be classified in the Combined Nomenclature. Custom codes would be useful for differentiating used from new vehicles, but usually this is done within the ten-digit code.

In the case of Suriname, the data obtained from Trademap was compared with the data provided by the government authotities. It is worth highlighting that, though discrepancies were identified in terms of values imported, the tonnes of vehicle imports and the percentage of imports of used vehicles versus new vehicles reported do not show significant variations with respect to the data obtained from Trademap.

Challenges faced when developing the report were the lack of information available from national stakeholders in terms of statistics related to vehicles and ELVs and the lack of time

[14] A very low rate of responses was obtained, probably due to COVID19 crisis: 4 from governments (Belize, Saint Lucia, Suriname and Trinidad and Tobago), one from an importer (Toyota), one from a recycling facility (Renew St Lucia Inc.). Also, and interview based on the questionnaire was conducted to the Antigua and Barbuda ELVs Recycler.

available for conducting interviewees to provide requested data[15]. Thus, the main input of this report comes from the desktop review.

VEHICLES IN THE PROJECT COUNTRIES

In order to obtain an estimation of the ELVs, a key input for designing its management strategies, an assessment of the vehicles quantities placed in the Project Countries market by weight was conducted, considering that ELVs are directly related to the following:

ELVs= (vehicles produced + vehicles imported – vehicles exported) * [according to their useful lifespan]

Since there is no representative manufacturer of vehicles in the Project Countries, and retailers and consumers acquire their products from foreign suppliers, focus is made on imports and exports.

The following categories and correspondent HS 4-digit[16] codes were assessed:

- Passenger vehicles (PV): road motor vehicles, other than a motorcycle, intended for the carriage of passengers and designed to seat no more than nine persons (including the driver). The term "passenger cars" therefore covers taxis and hired passenger cars, provided that they have fewer than ten seats. This category may also include pick-ups or microcars (need no permit to be driven). This category falls under HS 4-digit code 8703: Motor cars and other motor vehicles principally designed for the transport of persons (other than those of heading 8702), including station wagons and racing cars (less than 10 persons).
- Commercial vehicles (CV): include light commercial vehicles, heavy trucks, coaches and buses (except for some countries in which the buses or heavy trucks data are not available). This category falls under HS 4-digit code 8702: Motor vehicles for the transport of ten or more persons, including the driver.
- Parts and accessories (P&A): this include all spare parts except Chassis and Bodies, which were not part of this assessment due to time restrictions and that, in terms of quantities commercialized, they are less significant. This category falls under HS 4-digit code 8708: Parts and accessories of the motor vehicles of headings 8701 to 8705. The discrimination of spare parts only of the motor vehicles of headings 8702 and 8703 is not possible to be done within the six-digit code. Thus, results include spare parts of vehicles of headings 8701 (tractors), 8704 (Motor vehicles for the transport of goods) and 8705 (special purpose motor vehicles, other than those principally designed for the transport of persons or goods (for example, breakdown lorries, crane lorries, fire fighting vehicles, concrete mixer lorries, road sweeper lorries, spraying lorries, mobile workshops, mobile radiological units), thought they are out of the scope of this project.

[15] The Project Countries that did not answer the survey were: Antigua and Barbuda, Barbados, Dominican Republic, Saint Kitts and Nevis and Saint Lucia.

[16] 4-digit codes classification does not differentiate between new and used vehicles. Trademap only presents information up to the first six digits, which refer to the classification in the WCO Harmonized System (HS). Custom codes would be useful for differentiating used from new vehicles, but usually this is done within the ten-digit code

Passenger vehicles imports

Table 1 presents PV imports in the nine project countries during the period 2017-2019. On average, imports per year were valued at 1,289,206 thousand USD, with an overall weight of 272,444 tonnes for approximately 151,308 PV units.

At trademap.org, quantities are reported usually in tonnes and not in units. An average of 1.8 tonnes per PV (EPA fuel economy standards[17]) was used to calculate the units.

PV Imports at the Project Countries	2017	2018	2019
Value (thousand USD)	$ 1,284,868	$ 1,349,693	$ 1,233,057
Weight (tonnes)	270,804	286,874	259,653
ELVs (Units)	150,447	159,374	144,252

Table 1: PV imports in the project countries over the period 2017-2019 considering an average of 1.8 tonnes per PV (EPA fuel economy standards[18])

The PV imports in each Project Country are compared in Figures 1 and 2 and Table 2.

The amount of PV imported at Dominican Republic represents more than 60% of total imports, in weight, units and value. This may be due to the fact that, in terms of population, it represents almost 74% of total population at the Project Countries. If added together with Trinidad and Tobago´s imports, more than 80% of total imports are covered. In the case of Trinidad and Tobago, this may be due to its higher level of industrialization.

[17] The 2019 EPA Automotive Trends Report, Greenhouse gas emissions, fuel economy, and technology since 1975, EPA, United States Environmental Protection Agency, March 2020. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100YVFS.pdf

[18] The 2019 EPA Automotive Trends Report, Greenhouse gas emissions, fuel economy, and technology since 1975, EPA, United States Environmental Protection Agency, March 2020. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100YVFS.pdf

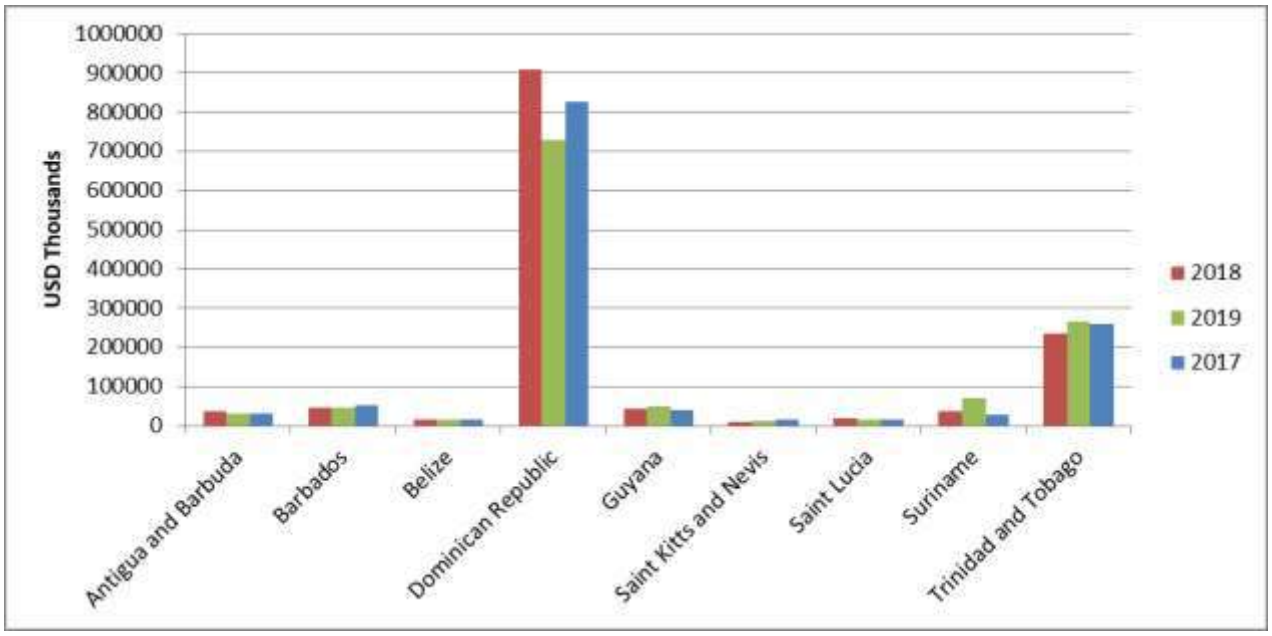


Figure 1: Annual PV imports in USD thousands per country over the period 2017-2019

Country	PV average imports (Thousand USD)	Percentage
Dominican Republic	822,337	63.8%
Trinidad and Tobago	253,121	19.6%
Barbados	48,077	3.7%
Suriname	44,801	3.5%
Guyana	43,722	3.4%
Antigua and Barbuda	32,677	2.5%
Saint Lucia	16,264	1.3%
Belize	15,898	1.2%
Saint Kitts and Nevis	12,310	1.0%

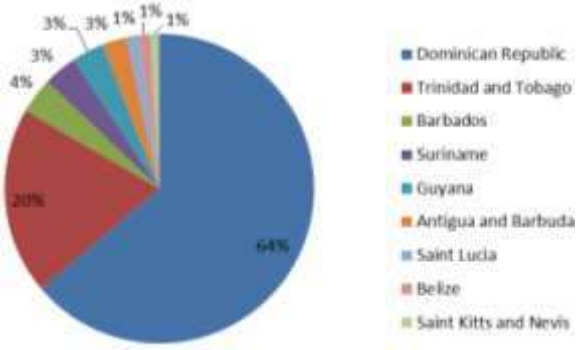


Figure 2: PV average imports in USD thousands per country vs total imports over the period 2017-2019

Country	PV average imports (tonnes)	PV average imports (units)	Percentage
Dominican Republic	170,383	94,657	62.5%
Trinidad and Tobago	52,445	29,136	19.2%
Suriname	12,490	6,939	4.6%
Belize	11,257	6,254	4.1%
Guyana	7,612	4,229	2.8%
Antigua and Barbuda	6,383	3,546	2.3%
Barbados	5,920	3,289	2.2%
Saint Lucia	3,531	1,962	1.3%
Saint Kitts and Nevis	2,424	1,346	0.9%

Table 3: PV average imports in tonnes and units per country vs total imports over the period 2017-2019

Commercial vehicles imports

Table 4 presents CV imports in the nine project countries during the period 2017-2019. On average, imports per year were valued at 87,571,000 USD, with an overall weight of 15,731 tonnes for approximately 1,165 CV units.

In the case of CV, an average of 13.5 tonnes per vehicle[19] was used to calculate the units.

CV imports at the Project Countries	2017	2018	2019
Value (thousand USD)	$ 82,998	$ 101,770	$ 65,947
Weight (tonnes)	16,408	17,596	13,190
ELVs (Units)	1,215	1,303	977

Table 4: CV imports in the project countries over the period 2017-2019

The CV imports in each Project Country are compared in Figures 3 and 4 and Table 5.

The amount of CV imported by Dominican Republic represents more than 60% of total imports in value and more than 55% in weight and units. This may be due to the fact that, in terms of population, it represents almost 74% of total population at the Project Countries.

If added together with Guyana´s and Trinidad and Tobago´s imports, more than 80% of total imports in value are covered.

In the case of weight and units, 80% of total imports is conformed by Dominican Republic, Belize and Trinidad and Tobago.

Trinidad and Tobago is present in the top three in both rankings probably due to its higher level of industrialization.

Belize presents a very low unit value imported: an average of 800 USD/tonne while the region presents an average of 6,600 USD/tonnes. Consequently, it appears ranked in second position in terms of weight. This may be caused by the importation of larger vehicles (e.g. trucks vs buses).

Guyana on the other hand presents a raise of importation in 2018 and 2019 compared to previous years. According to BCRC Caribbean, this may be due to the advancement of their Oil and Gas Industry in this time period. Importers probably overpurchased in 2018 to meet the assumed demand, resulting in an excess of supply available on markets in 2019 that would explain the decline in this year.

[19] https://wiki.ead.pucv.cl/images/5/56/Autobus_Ficha2.2.pdf

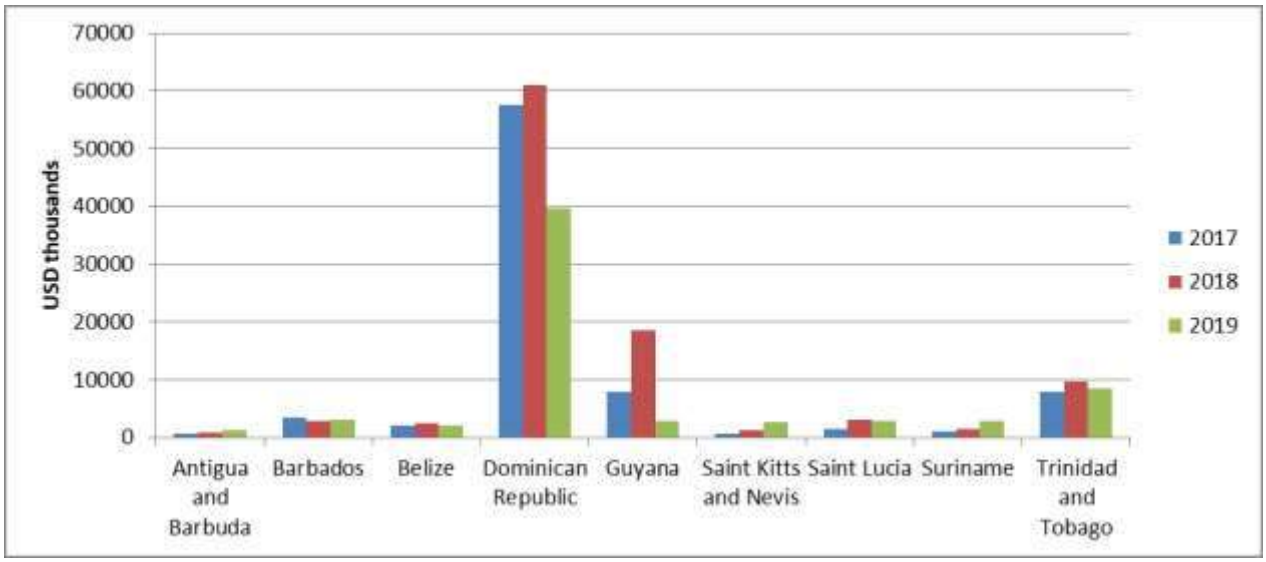


Figure 3: Annual CV imports in USD thousands per country over the period 2017-2019

Country	CV average imports (Thousand USD)	Percentage
Dominican Republic	52,732	63.1%
Guyana	9,773	11.7%
Trinidad and Tobago	8,756	10.5%
Barbados	3132	3.7%
Saint Lucia	2529	3.0%
Belize	2208	2.6%
Suriname	1877	2.2%
Saint Kitts and Nevis	1633	2.0%
Antigua and Barbuda	931	1.1%

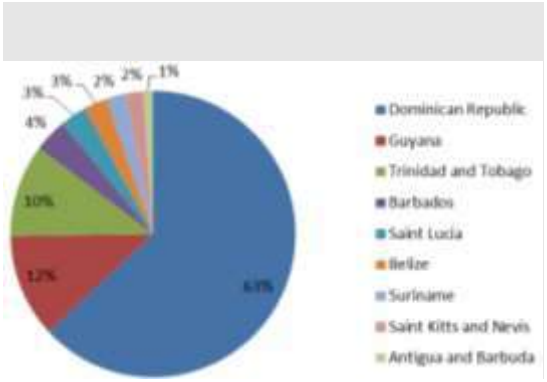


Figure 4: CV average imports in USD thousands per country vs total imports over the period 2017-2019

Country	CV average imports (tonnes)	CV average imports (units)	Percentage
Dominican Republic	8,693	644	55.3%
Belize	2,821	209	17.9%
Trinidad and Tobago	1,443	107	9.2%
Guyana	987	73	6.3%
Barbados	574	42	3.6%
Suriname	455	34	2.9%
Saint Lucia	399	30	2.5%
Saint Kitts and Nevis	254	19	1.6%
Antigua and Barbuda	107	8	0.7%

Table 5: CV average imports in tonnes and units per country vs total imports over the period 2017-2019

PV + CV imports

Table 6 presents vehicle imports in the nine project countries during the period 2017-2019. On average, PV imports represent more than 95% of total imports, in value, weight and units. In conclusion, PV imports may be taken as basis for further calculations due to its representativeness over the global value.

	Imports at the Project Countries	2017	2018	2019
TOTAL	Value (thousand USD)	$ 1,367,866	$ 1,451,463	$ 1,299,004
	Weight (tonnes)	287,213	304,470	272,843
	ELVs (Units)	151,662	160,678	145,229
PV	Value (thousand USD)	$ 1,284,868	$ 1,349,693	$ 1,233,057
	Weight (tonnes)	270,804	286,874	259,653
	ELVs (Units)	150,447	159,374	144,252
CC	Value (thousand USD)	$ 82,998	$ 101,770	$ 65,947
	Weight (tonnes)	16,408	17,596	13,190
	ELVs (Units)	1,215	1,303	977

Table 6: Total, PV and CV imports in the project countries over the period 2017-2019

New vs Used PV imports

The study "Examining Barriers to trade in used vehicles"[20] presents the imported values of used passenger vehicles in Barbados, Belize, Dominican Republic, Guyana and Trinidad and Tobago, exported by USA, Canada, Japan, Korea and Mexico, over the period 2010-2014.

Imports from these exporting countries represent in average 84% of total imports.

An assessment was conducted to determine the percentage in value of used vehicles vs new ones, comparing the information provided in the study to trademap.org database for the same period of time. A high dispersion was identified in terms of percentages of used cars imported over total imports (Table 7). Particularly, the case of Guyana stands out with 90% of vehicles imported being used. This could be attributed to the fact that Guyana has a Purchasing Power Parity (PPP) [21] meanwhile the other countries fall under the mid or high PPP categories. Barbados and Trinidad and Tobago, both fall under high PPP category, thus it is expected that new vehicles would be preferred over used ones. Belize has a mid PPP category and Dominican Republic, though in present time is categorized as high PPP, during years 2010-2014 they were going through the transition from a mid PPP country.

- Trinidad and Tobago, Saint Kitts and Nevis, Antigua and Barbuda, Barbados and Dominican Republic fall under high PPP category.
- Belize and Saint Lucia fall under mid PPP category.
- Guyana and Suriname fall under low PPP category.

[20] "Examining Barriers to trade in used vehicles", David Coffin, Jeffrey Horowitz and Mitchell Semanik, United States International Trade Commission (2016: Appendix A)

[21] PPPs measure the total amount of goods and services that a single unit of a country's currency can buy in another country. https://data.worldbank.org/ Updated: May 2020

Country	Percentage of used vehicles imported over total imports (2010-2014)
Barbados	30%
Belize	59%
Dominican Republic	55%
Guyana	90%
Saint Kitts and Nevis	30%
Trinidad and Tobago	31%

Table 7: Percentage of used vehicles imports in value vs total imports over the period 2010-2014

In order to obtain the amount of used vehicles imported over the period 2017-2019, an extrapolation based on the PPP categories was done to the Project Countries that lack information on used vehicles imported (Table 8). High PPP were assigned a 30% of used vehicles over total imports, Mid PPP a 55% and Low PPP a 90%, which was corroborated with the data provided by Suriname in the surveys conducted. Dominican Republic PPP was adjusted to consider their present economy.

Country	Percentage of used vehicles imported over total imports (2017-2019)	PPP category
Antigua and Barbuda	30%	High
Barbados	30%	High
Belize	59%	Mid
Dominican Republic	40%	High
Guyana	90%	Low
Saint Kitts and Nevis	30%	High
Saint Lucia	55%	Mid
Suriname	90%	Low
Trinidad and Tobago	31%	High

Table 8: Estimation of percentages of used vehicles imports in value vs total imports for the period 2017-2018

Table 9 presents total, used and new PV imports in the nine project countries during the period 2017-2019. On average, 40% of imported vehicles in value, weigh and units are used vehicles.

	PV Imports at the Project Countries	2017	2018	2019
TOTAL	Value (thousand USD)	$ 1,284,868	$ 1,349,693	$ 1,233,057
	Weight (tonnes)	270,804	286,874	259,653
	ELVs (Units)	150,447	159,374	144,252
USED	Value (thousand USD)	$ 519,782	$ 554,871	$ 526,122
	Weight (tonnes)	112,396	121,584	112,636
	ELVs (Units)	62,442	67,547	62,575
NEW	Value (thousand USD)	$ 765,086	$ 794,822	$ 706,935
	Weight (tonnes)	158,408	165,290	147,018
	ELVs (Units)	88,005	91,828	81,676

Table 9: Total, Used and New PV imports in the project countries over the period 2017-2019

The used PV imports in each Project Country are compared in Figure 5 and 6 and Table 10.

The amount of Used PV imported at Dominican Republic represents 60% of total imports, in weight, units and value. This may be due to the fact that, in terms of population, it represents almost 74% of total population at the Project Countries. If added together with Trinidad and Tobago´s and Suriname´s imports, more than 80% of total imports are covered. In the case of Trinidad and Tobago, this may be due to its higher level of industrialization.

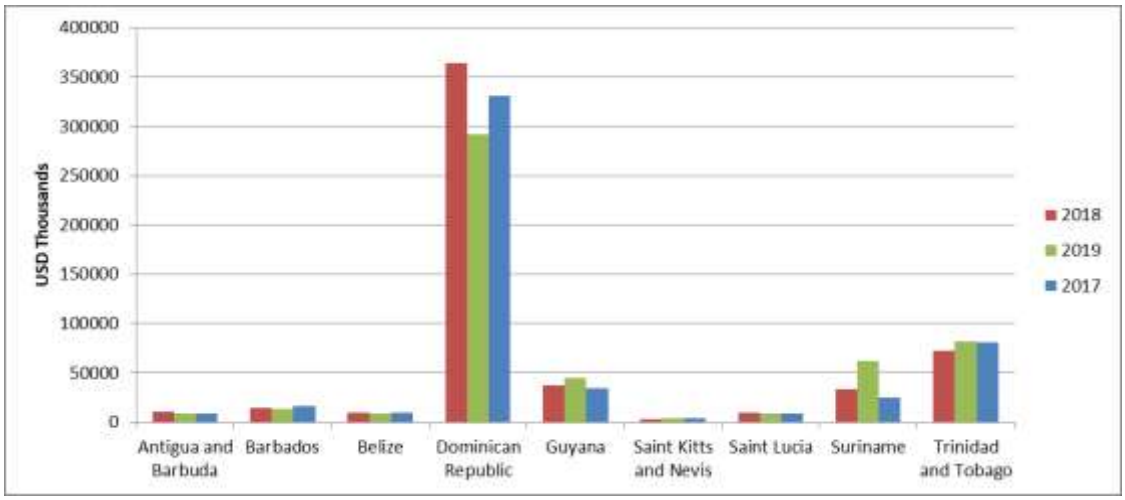


Figure 5: Annual Used PV imports in USD thousands per country over the period 2017-2019

Country	Used PV average imports (Thousand USD)	Percentage
Dominican Republic	328,935	61.6%
Trinidad and Tobago	78,703	14.7%
Suriname	40,321	7.6%
Guyana	39,167	7.3%
Barbados	14,663	2.7%
Antigua and Barbuda	9,803	1.8%
Belize	9,362	1.8%
Saint Lucia	8,945	1.7%
Saint Kitts and Nevis	3,693	0.7%

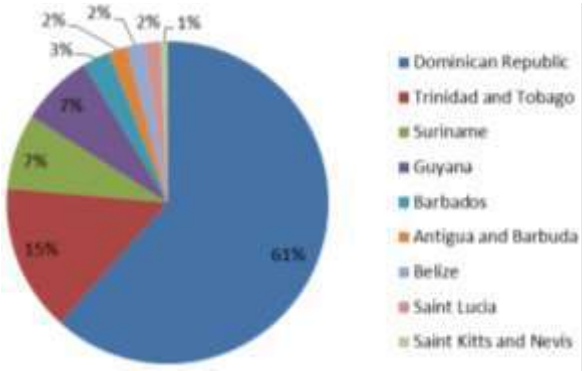


Figure 6: Used PV average imports in USD thousands per country vs total imports over the period 2017-2019

Country	Used PV average imports (tonnes)	Used PV average imports (units)	Percentage
Dominican Republic	68,153	37,863	59.0%
Trinidad and Tobago	16,307	9,059	14.1%
Suriname	11,241	6,245	9.7%
Guyana	6,819	3,788	5.9%
Belize	6,629	3,683	5.7%
Saint Lucia	1,942	1,079	1.7%
Antigua and Barbuda	1,915	1,064	1.7%
Barbados	1,805	1,003	1.6%
Saint Kitts and Nevis	727	404	0.6%

Table 10: Used PV average imports in tonnes and units per country vs total imports over the period 2017-2019

PV Exports

An assessment was conducted for PV and CV 2019 exports at the Project Countries (Table 11), showing that exports are negligible in comparison to imports. In consequence, for simplification purposes, in further calculations exports are assumed null.

	USD	Percentage
PV imports at the Project Countries for 2019 (USD)	1,233,057,000	99.79%
PV exports at the Project Countries for 2019 (USD)	2,588,000	0.21%

	USD	Percentage
CV imports at the Project Countries for 2019 (USD)	65,947,000	99.72%
CV exports at the Project Countries for 2019 (USD)	187,000	0.28%

Table 11: PV and CV 2019 exports in the Project Countries

Parts and Accessories imports

Table 12 presents P&A imports in the nine project countries during the period 2017-2019. On average, imports per year were of $190,933,000 USD and 29,513 tonnes.

P&A Imports at the Project Countries	2017	2018	2019
Value (thousand USD)	$ 170,361	$ 176,837	$ 225,600
Weight (tonnes)	26,063	28,414	34,061

Table 12: P&A imports in the project countries over the period 2017-2019

The P&A imports in each Project Country are compared in Figure 7 and 8 and Table 13.

The amount of P&A imported at Dominican Republic represents more than 55% of total imports in value in weight. This may be due to the fact that, in terms of population, it represents almost 74% of total population at the Project Countries.

If added together with Trinidad and Tobago´s and Guyana´s imports, more than 80% of total imports in value and weight are covered.

Trinidad and Tobago is present in the top three countries in both rankings probably due to its higher level of industrialization.

In terms of tonnes, P&A imports are equivalent to in average, 10% of PV imports.

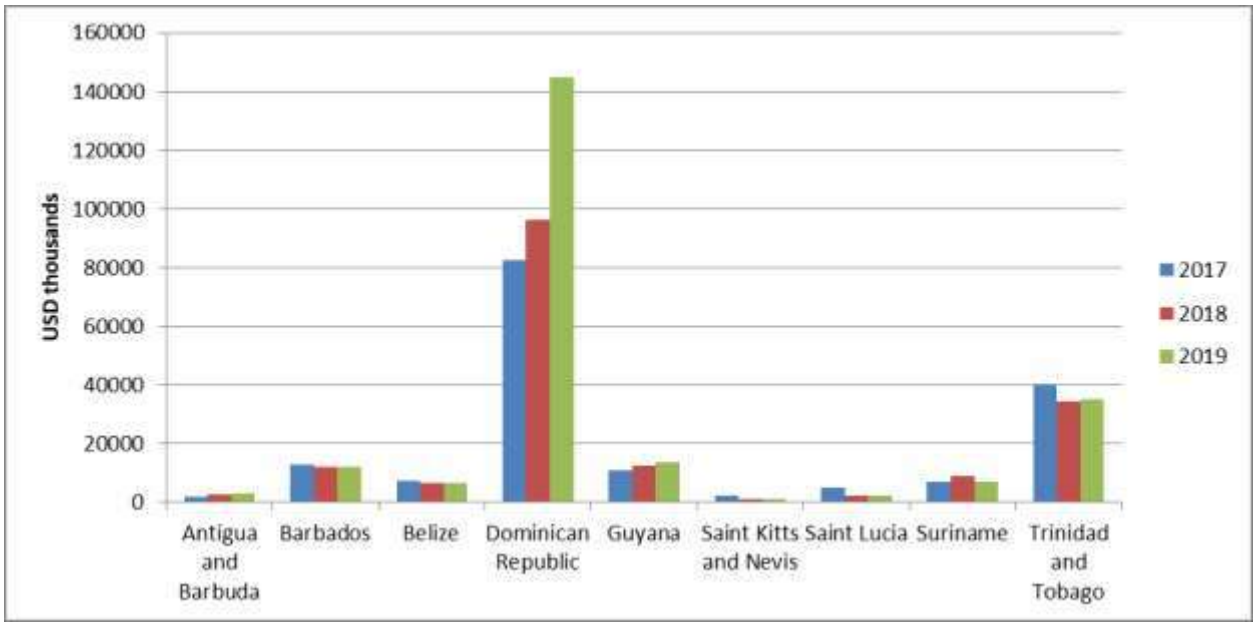


Figure 7: Annual P&A imports in USD thousands per country over the period 2017-2019

Country	P&A average imports (Thousand USD)	Percentage
Dominican Republic	107,809	56.5%
Trinidad and Tobago	36,636	19.2%
Guyana	12,440	6.5%
Barbados	12,290	6.4%
Suriname	7,587	4.0%
Belize	6,870	3.6%
Saint Lucia	3,170	1.7%
Antigua and Barbuda	2,501	1.3%
Saint Kitts and Nevis	1,629	0.9%

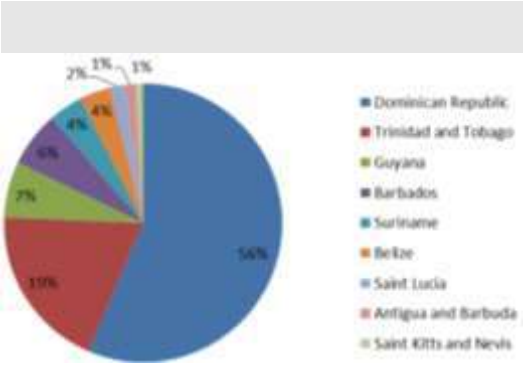


Figure 8: P&A average imports in USD thousands per country vs total imports over the period 2017-2019

Country	P&A average imports (tonnes)	Percentage
Dominican Republic	16,232	55.0%
Trinidad and Tobago	5,516	18.7%
Guyana	2,407	8.2%
Suriname	1,902	6.4%
Barbados	1,518	5.1%
Belize	879	3.0%
Saint Lucia	425	1.4%
Antigua and Barbuda	409	1.4%
Saint Kitts and Nevis	224	0.8%

Table 13: P&A average imports in tonnes per country vs total imports over the period 2017-2019

ELVs GENERATION IN THE PROJECT COUNTRIES

ELVs are directly related to the following:

ELVs= (vehicles produced + vehicles imported – vehicles exported) * [according to their useful lifespan]

As it was stated in the chapter before, vehicles produced and exported can be considered null for this assessment. As well, focus will be given to Passenger Vehicles, thus, the generation of ELVs will be estimated considering imports of PV according to their lifespan.

For quantifying ELVs generation, several methodologies are available. One of the most popular due to its simplicity is the Population Balance Model (PBM) developed by Tasaki el al.[22], which is applied in many researches and used in several cases[23,24,25]. PBM consists of modeling the lifespan, constructing the time series of active-stock, calculating total sales and calculating total ELVs generated. In order to apply this model, the following information, at a minimum, is needed:

a) Sales, imports, exports and production per type of vehicle and per year, historic and forecasted.
b) Population forecasts.
c) Vehicles ownership and vehicles deregistered, per year and per type, categorized by age
d) Average lifespan at the Project Countries per type of vehicle.

The lack of information of the Project Countries restricts the possibility of applying PBM. Nevertheless, it is recommended to put in place the needed mechanisms and regulations to obtain systematically the information required in order to provide a more accurate estimation of ELVs, and correspondently, a more accurate measure of the economic gain of implementing an ELVs management system.

For this assessment, in order to provide decision makers with recommendations, ELVs generation will be calculated based on the following assumptions:

a) Since there is no information on sales, registered vehicles or vehicles ownership, all imports will be assumed sales.
b) Since there is no information regarding lifespan or deregistration at the Project Countries, a benchmark of other countries lifespan was conducted (See Annex B). Assessing the characteristics of the Project Countries, an average lifespan of 18 years

[22] Developed by Tasaki, T.; Oguchi, M.; Kameya, T.; Urano, K. A Prediction Method for the Number of Waste Durable Goods.J. Jpn. Soc. Waste Manag. Expert. **2001**, 12, 49–58. https://www.jstage.jst.go.jp/article/jswme1990/12/2/12_2_49/_article/-char/ja/

[23] Recycling of End-of-Life Vehicles in Small Islands: The Case of Kinmen, Taiwan; Hsin-Tien Lin, Kenichi Nakajima, Eiji Yamasue and Keiichi N. Ishihara; 2018.

[24] Kim, S.; Oguchi, M.; Yoshida, A.; Terazono, A. Estimating the amount of WEEE generated in South Korea by using the population balance model. Waste Manag. 2013, 33, 474–483. https://www.sciencedirect.com/science/article/pii/S0956053X1200311X?via%3Dihub

[25] Yano, J.; Hirai, Y.; Okamoto, K.; Sakai, S. ichi Dynamic flow analysis of current and future end-of-life vehicles generation and lead content in automobile shredder residue. J. Mater. Cycles Waste Manag. 2014, 16, 52–61. https://link.springer.com/article/10.1007/s10163-013-0166-1

was decided for new vehicles, equivalent to Kinmen´s case study[26], since being both islands, they present similar vehicles usage characteristics: due to the geographic limitation, the driving distance is limited, which makes the lifespan of vehicles longer. Used vehicles lifespan will be considered: new vehicles lifespan minus age limit for used vehicles imports, according to Table 14.

c) Proportion of new and used vehicles imported will be considered constant according to Table 8.
d) Since there are no forecasts in terms of sales or imports, it will be assumed that the impact in ELVs generation from the growth of population is cancelled with the lifespan extension over the years, this meaning that both population and lifespan will remain constant.
e) In order to include P&A into the calculation, a 10% in weight will be added to total tonnes of ELVs generated.

Table 14 presents age limit restrictions for the import of used vehicles and correspondently, used vehicles lifespan used for these calculations. Antigua and Barbuda, Saint Kitts and Nevis and Saint Lucia, do not have age limit restrictions. In their cases, the higher age limit presented by the economies of Latin American Region and the Caribbean was used: 10 years[27].

Country	Age limit for used cars importation	New vehicles lifespan	Used vehicles lifespan
Antigua and Barbuda	10	18	8
Barbados	4	19	15
Belize	5	20	15
Dominican Republic	5	21	16
Guyana	8	22	14
Saint Kitts and Nevis	10	23	13
Saint Lucia	10	24	14
Suriname	5	25	20
Trinidad and Tobago	4	26	22

Table 14: Age limit restriction for used cars importation and lifespan used for calculations of the Project Countries. Source: prepared by the authors.

Figure 9 displays the expected (not projected) generation of ELVs in units and tonnes for the period 2020-2037.

[26] Recycling of End-of-Life Vehicles in Small Islands: The Case of Kinmen, Taiwan; Hsin-Tien Lin, Kenichi Nakajima, Eiji Yamasue and Keiichi N. Ishihara; 2018.

[27] Mexico, Jamaica, Panama and Paraguay age limit for used vehicle importation Source: UNEP-UNECE/ITC Background Paper Used Vehicle Global Overview, 2017. https://www.unece.org/fileadmin/DAM/trans/doc/2017/itc/UNEP-ITC_Background_Paper-Used_Vehicle_Global_Overview.pdf

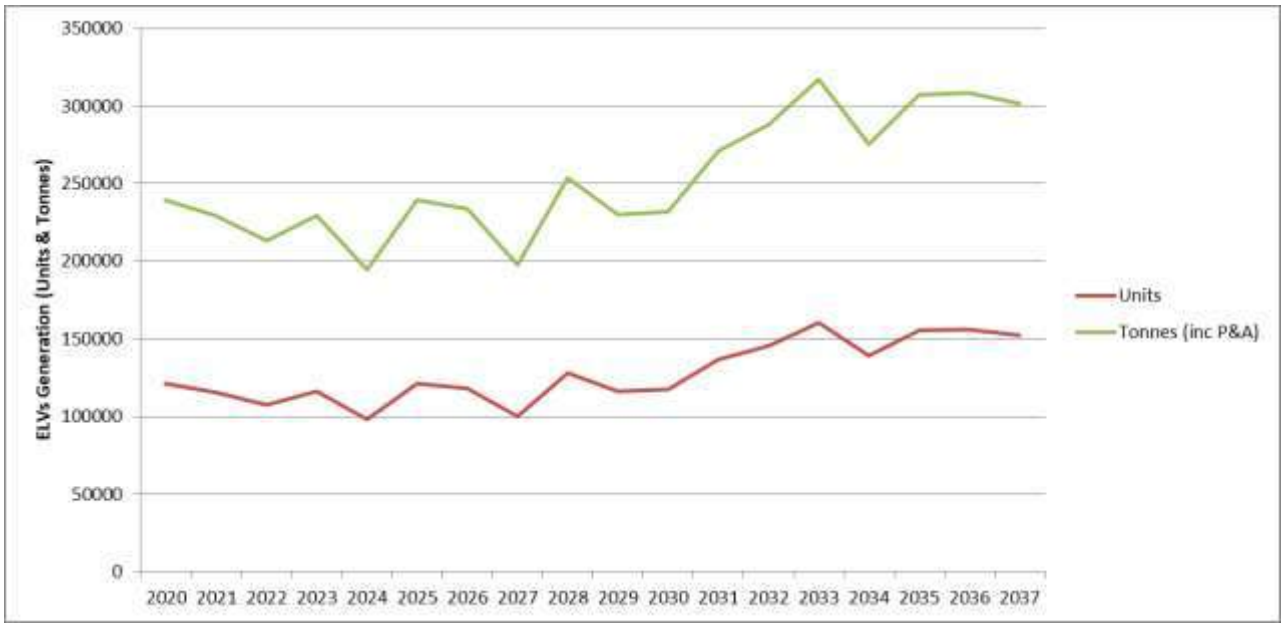


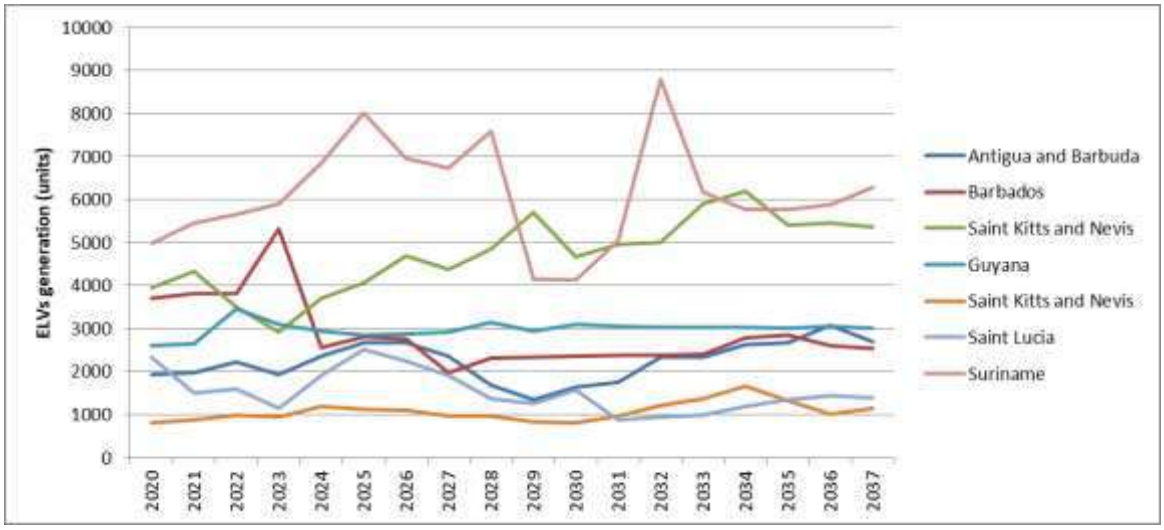
Figure 9: ELVs generation in units and tonnes expected at the Project Countries over the period 2020-2037

Table 15 shows the estimation of ELVs generation in units and tonnes in average over the period 2020-2037 in the Project Countries. In average, in all Project Countries, 104,731 units and 207,367 tonnes of ELVs are generated per year. The amount of ELVs generated at Dominican Republic is estimated to represent almost 60% of total ELVs generation. If added together with Trinidad and Tobago´s ELVs generation, 80% of total ELVs generated are covered.

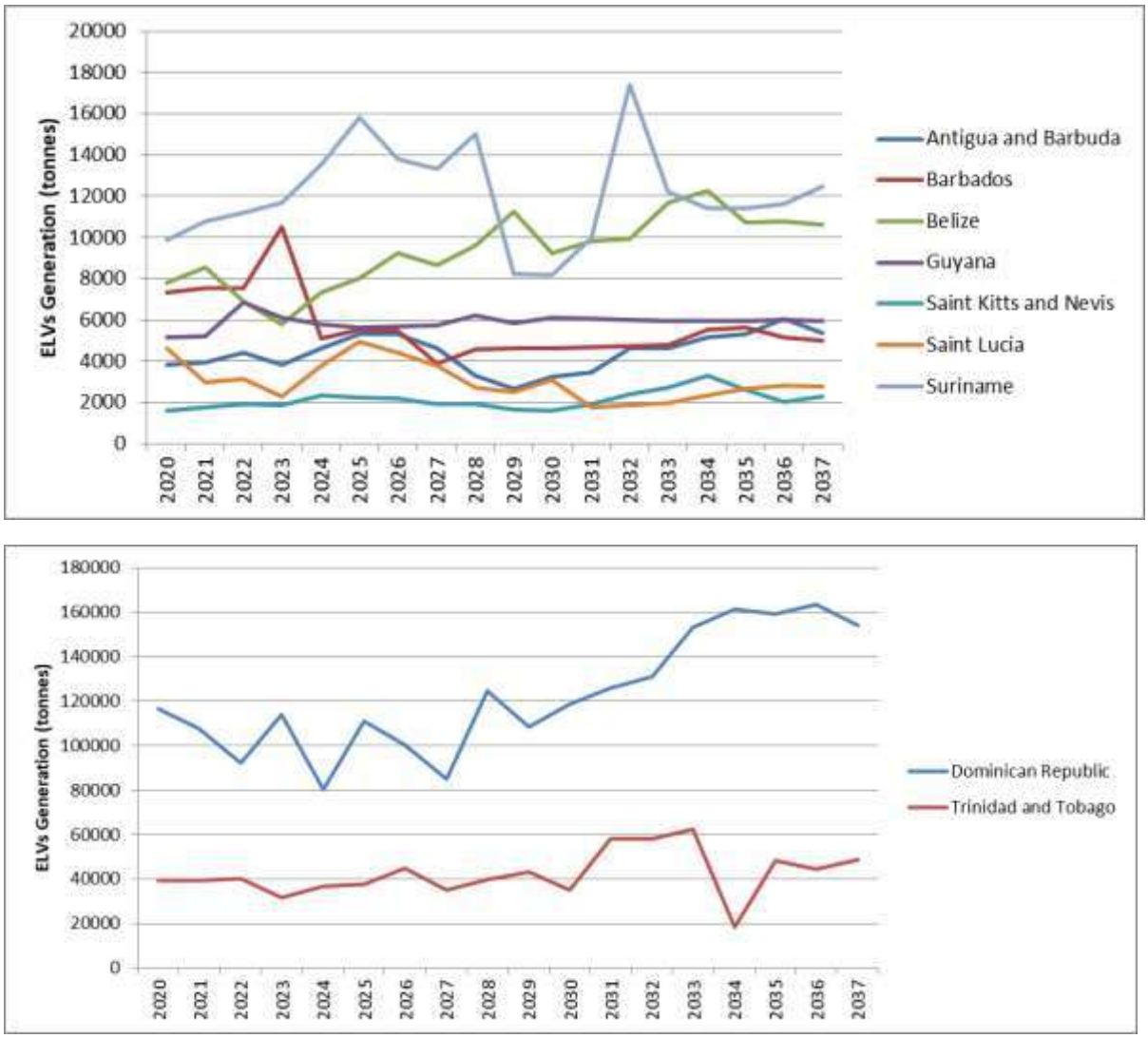
Country	Average ELVs per year (tonnes)	Average ELVs per year (units)
Dominican Republic	122546	61892
Trinidad and Tobago	42197	21311
Suriname	12109	6116
Belize	9347	4721
Guyana	5908	2984
Barbados	5686	2872
Antigua and Barbuda	4429	2237
Saint Lucia	3027	1529
Saint Kitts and Nevis	2118	1070
Project Countries	**207367**	**104731**

Table 15: Average of Project Countries ELVs generation in tonnes and units over the period 2020-2037

Figures 10 and 11 show the estimation of ELVs generation in units and tonnes per year and per country over the period 2020-2037. Dominican Republic and Trinidad and Tobago are represented separately because of their larger generation in comparison to the other Project Countries.



Figures 10: Project Countries' ELVs generation in units over the period 2020-2037



Figures 11: Project Countries' ELVs generation in tonnes over the period 2020-2037

CURRENT TRADE FLOW OF ELVs

The following section presents the current trade flow of ELVs in the Project Countries based on questionnaires received and interviews conducted.

The vehicle market is mainly composed of few large – quantity importers. Imports mainly consist of new and used vehicles. Shared importers and dealerships are found alongside Project Countries.

When a vehicle reaches EOL, since there is no formal processes established in the Project Countries for the management of ELVs, general waste management acts apply, meaning that owners are responsible for disposing derelict vehicles to a landfill or a private processor /operator. Nevertheless, since usually this would imply paying a fee, common practice is that vehicles are abandoned in public areas or delivered/sold to scrap metal handlers. Antigua and Barbuda, Belize, Saint Kitts and Nevis, Saint Lucia, Suriname and Trinidad and Tobago have reported having ELVs recycling facilities or metal scrap dealers in place. In cases such as Antigua and Barbuda, recycling facilities accept ELVs without charging last owners, avoiding

thus paying the landfill fee. In the case of Belize, recycling facilities would pay last owners for their ELV. In addition, some countries would allow recycling facilities to treat abandoned vehicles, which would be collected either by them (Antigua and Barbuda and Saint Kitts and Nevis) or by governmental authorities. In general, ELVs are then scraped in recycling facilities and reusable parts are sold, usually in local markets. What cannot be sold is exported as scrap metal. Belize reported that ELVs not being recycled in Belize are sold to Guatemala or Mexico by ton for them to recycle. Trinidad and Tobago reported that part of the recycling chain is done on an informal basis, and these are usually by scrap metal dealers or scavengers at the landfill sites.

The mass flow assessment (MFA) presented in Figure 12 illustrates the generalized flow of ELVs throughout the life cycle within the Project Countries. The main stages and processes within a product's lifecycle include:

- Importation by dealership;
- Use of vehicles until they lose their functional life, becoming ultimately ELVs;
- Repair or refurbishment of vehicles, which can fall under warranty or be done privately;
- Repaired or refurnished vehicles generate waste P&A and are sent to recyclers / scrap metal dealers or landfill;
- ELVs are being abandoned, sent to landfill or to recyclers / scrap metal dealers;
- Abandoned vehicles are privately or governmentally collected and sent to recyclers / scrap metal dealers or landfill;
- ELVs from landfill are privately or governmentally collected and sent to recyclers / scrap metal dealers;
- Recycling industries or scrap metal dealers receive and treat ELVs;
- Metal scrap is separated for export to international markets;
- Hazardous wastes and other residues are obtained from the dismantling/recycling process and sent to landfill[28].

[28] It is assumed that they are sent to landfill. No information of their destination was available nor received through the questionnaires.

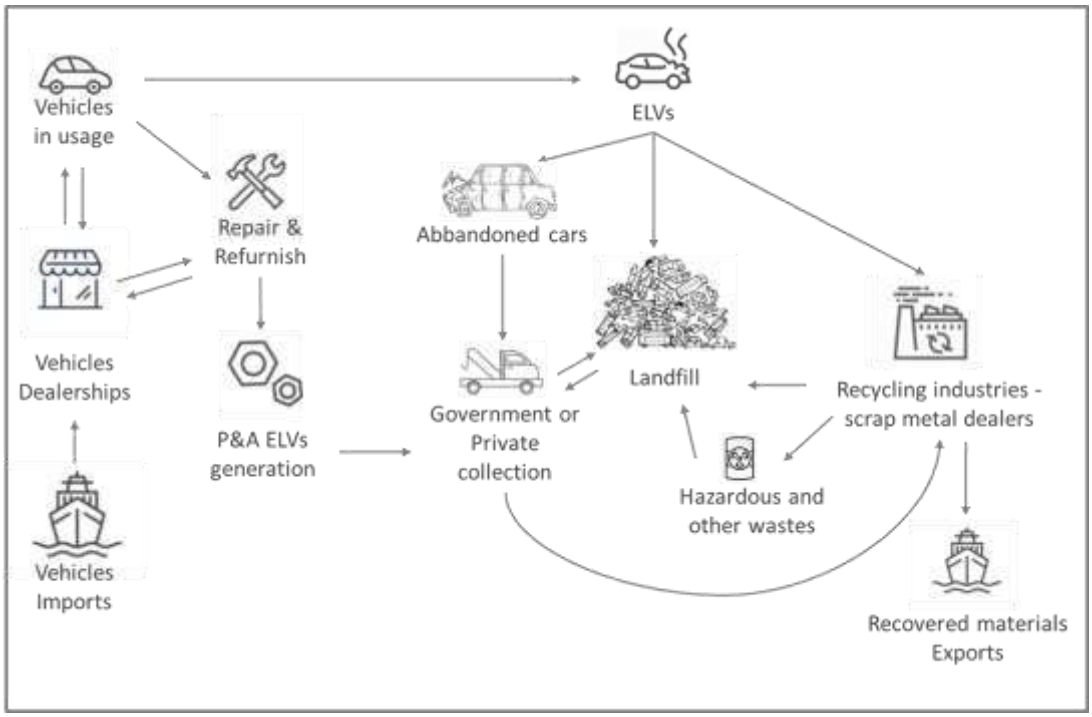


Figure 12: Trade flow assessment showing the generalized flows of Vehicles and ELVs through the project countries. Source: prepared by the authors

EXISTING REGULATIONS AND INITIATIVES RELATED TO ELVS MANAGEMENT IN THE PROJECT COUNTRIES

This section deals with legislation and existing initiatives regarding ELVs management in the Project Countries. It contains an introductory overview of the policy regarding ELVs management in the region, followed by individual profiles for each Project Country.

ELVs Management Policies and Practices Overview

Throughout the Caribbean region, ESM of ELVs is still not a well-recognized public policy issue. Often this type of policies compete with other pressing economic and social issues, such as fiscal and trade matters, poverty and unemployment, education and health, and many times don't receive the required priority in the political agenda to move forward. Thus, the Project Countries lack of specific policies and legal framework to ensure ESM of ELV. ELVs and spare parts, such as batteries, motor oils and tires, are usually managed as sporadic short-sight initiatives, in informal circuits, with no major attachment to environmental principles and health care.

ELVs policies should possess a comprehensive vision, aiming primarily to prevent the generation of ELVs and to reduce their harmfulness, to then promote proper depollution and dismantling processes, enhancing reuse, recycling and recovery of materials and spare parts in an environmental sound manner and, ensuring safety final disposal as the last stage in the management chain. In the region, however, presently ELVs management is characterized by a

market approach, in the sense that treatment of ELVs is guided by the purely commercial costs and benefits associated with the trade, as a valuable secondary resource, of some materials. Mainly no depollution activities are being carried out, and dismantling processes, when taking place, is carried out at the recycling facilities, being guided by the priorities and convenience identified by the recyclers. Generally, ELVs are scraped in recycling facilities and reusable parts are sold, usually in local markets. What cannot be sold is exported as scrap metal.

Despite the fact that there is no specific policy nor legislation regarding ELVs management, regulations and initiatives in place are shaped, in most countries, by the interaction of regulations regarding the import of vehicles and the removing of derelict vehicles, national laws on municipal and hazardous waste management, as well as regulations and initiatives concerning special waste streams such as motor oils, tires and batteries.

Regulatory progress in the Project Countries is heterogeneous. While some countries do not have any legislation at all, others edge their management within the framework of hazardous waste standards. Mostly ELVs are managed under municipal solid waste umbrella, which leads to the situation that the last owner is responsible for disposing derelict vehicles to an approved obliged site. The case of Trinidad and Tobago stands out, as it has approved a vanguard National Environmental Policy that embraces the main international principles and standards in of waste management as a whole and yet the country declared that recycling chain is done on an informal basis. Nevertheless, this policy results in a major opportunity to the effective design and implementation of and specific ELVs management system. Also, Saint Lucia's Waste Management Act refers to derelict vehicles and has some proper handling mechanism in place, including enforcement dispositive, as fines in case of non-compliance.

This lack of specific regulations structures the ELVs management in such a way that abandoning vehicles on the public road or in public spaces is usually the most widespread practice. As the owner of the vehicle is responsible for its disposal at an authorized site and this, usually, has a cost, abandonment is the solution. Some countries, as Trinidad and Tobago, design programs that encourage private recyclers to remove vehicles from public roads, at no cost, in exchange for their scrapping and shipping. Although this is not a definitive solution, it is a good measure for dealing with the problem of abandoned vehicles and at the same time allows exploration in dismantling and recycling practices and their optimization.

Among the project countries, Barbados, Suriname and Trinidad and Tobago have facilities for processing ELVs prior to shipment to recycling companies. In other countries, there are only basic amenities for recycling, such as storage facilities as well as baling/shredding machines. Regarding Barbados its worth outstanding that despite the country counts with a Material Recovery Facility and Transfer Station operating in the Sustainable Barbados Recycling Center (SBRC), it doesn't operate with ELVs, thus, any scrap metal or ELVs coming into the SBRC is re-directed mainly to the private recycling facility located next door, "Scrapman Recycing". In addition in Barbados there is another private firm, B's Recycling, that operates with ELVs.

Regarding management of waste oils it is noticed that it has been inadequate in most Caribbean Countries due to a lack of infrastructure and facilities for the collection and processing of the waste oil, as well as the absence of a legislative and enforcement system. Even though, based mainly on informal practices, currently, Antigua & Barbuda, Barbados, Belize and Saint Lucia motor oils are collected and transported to relevant industries for reuse as a fuel. The BCRC-Caribbean has embarked on a demonstration project for the establishment of a small-scale waste oil re-refining facility for the island of Tobago. Once successful, this project can be replicated within other countries.

For many Caribbean Countries, the management of waste tires represents a long-standing issue that has not always been sufficiently addressed. Even though, some Project Countries, are exploring shredding used tires and giving different uses for tire shredding by-products. Mainly it is being consider using tire shreds as a protective cover of the landfill liner, as an alternative fuel source, as well as asphalt for road paving operations. Despite this plans under study, nowadays current crumb is just placed in comingled landfill waste. A shredding operation also takes place in Trinidad and Tobago, however, because there is a fee attached to this activity, it is not well subscribed to and there is still a high incidence of illegal disposal. However, this is not a constant practice, so it does not prevent large accumulations of tires in the landfills, with the high risk of fire that this implies. Consideration has been given to utilizing tires as a fuel in the local cement kiln, a practice which is established in many countries with Latin America already. As a matter of fact, Trinidad is considering a proposal to use tires as an alternative fuel source. Particularly in Dominican Republic, a common practice is to deliver, through informal channels, tires for energy recovery in lime / cement kilns. However, the cost for the retrofitting of the burners of the kiln to accommodate the incineration of the tires has, in the past, been considered prohibitive. In the other Project Countries, tires are either stockpiled or disposed of within the sanitary landfill. Because of the relatively high cost of tire processing, it is recommended to consider a regional waste management solution.[29]

In many of the Project Countries, the intrinsic value of the lead in a used lead-acid battery leads to an informal recovery/recycling activity where the batteries are collected, the plastic removed, and the lead sold to scrap metal dealers and/or exported. Whilst this activity ensures that the lead acid batteries do not end up at the landfill sites, the private, fragmented and informal nature of the exercise does not allow for the measurement of quantities of batteries being recovered. In Belize, through a used lead acid batteries (ULAB) recycling program, the environmental authority has developed technical guidelines for the overall management, while Saint Kitts and Nevis ULAB program implies batteries are collected privately with a discount in new batteries if old ones are return. Also in Trinidad and Tobago some innovative technologies have been introduced regarding ULAB regeneration. Particularly the MIC Institute of Technology (MIC-IT) uses an Ion Hammer that regenerates spent used lead-acid batteries at a commercially viable rate, optimising waste resource use which mitigates environmental contamination.[30]

All Project Countries are “technology-takers”; they import vehicles due to the lack of local manufacturing and a large percentage of imports are used vehicles.[31] Many developing and transition countries, however, lack of standards to address used vehicle imports and, where they exist, enforcement is poor. This leads to the use of partial regulations such as age limits which achieve some of the cleaner vehicles’ objectives, not all, unless it is implemented with other strategies. Overall, the more selective an importing country is in terms of used vehicle quality, the higher the level of emission control technologies of the imported fleet. However, used vehicle importers in developing countries operate in an environment where price is the main factor of consideration. As most importing countries lack the requisite regulations to control used vehicles imports, the bulk of vehicles imported into these countries are not in the

[29] *Draft baseline chapter on current waste management activities and institutional capacity.* (2020:24). Prepared by: Individual Contractor MR. Ronald Roach. Project: Implementing sustainable low and non-chemical development in Small Islands Developing States (Islands). PPG.
[30] https://newsday.co.tt/2019/12/24/mic-unveils-new-innovations/ Accessed, June 2020.
[31] UNEP-ITC Background paper. Used Vehicle Global Overview.

best of condition. Many vehicles imported into these countries are compromised in terms safety/road worthiness, fuel economy and emissions.[32]

Six countries – Barbados, Belize, Dominican Republic, Guyana, Saint Kitts and Nevis, Suriname and Trinidad and Tobago – adopted certain policies governing the intake of used vehicles, such as age restrictions, environmental parameters or fiscal instruments. It is worth outstanding that with right policies and specific fiscal instruments in place, the Project Countries can improve environmental indicators and achieve economic benefits due to the low costs of the advanced second-hand vehicles technology.

The need to improve landfill technologies and eliminate illegal dumpsites is a challenge faced by the region itself. Reducing and better managing certain waste streams and the collection of ELVs and WEEE, also depends on adequate forward planning and the development of the necessary organizational arrangements and recovery facilities. As an example, it is worth outstanding that the St Lucia Vieux Fort Solid Waste Management Facility and Deglos Sanitary Landfill are identified as potentially contaminated sites due to POP content in WEEE, ELVs, carpets, foams, disposed at these sites

The institutional arrangements in the Caribbean countries are heterogeneous. Each country has a different set of public offices and actors involved as well as different practices in place. As there is no common regulatory framework many different areas of governments have fragmented management competences. While MSW areas are responsible for derelict vehicles, other areas exercise control, and in some countries, even the hazardous waste area has interference. It is worth highlighting that none of the Project Countries has in place deregistration systems or the extension of a certificate of destruction (CoD). This leads to less available information and an increase of abandoned vehicles. This institutional fragmentation and the lack of coordination attempt against the ESM of ELVs.

Countries profiles regarding ELVs management.
This chapter provides existing regulations, initiatives and practices related to ELVs management disaggregated for each of the Project Countries. In order to prepare a baseline report and, since no specific legislation on ESM of ELVs has been identified, it will be considered:

- Regulatory instruments in the field of vehicle imports;
- Customs and trade agreements related to vehicles, vehicles' spare parts, and/or ELVs;
- National regulations and initiatives regarding municipal solid waste and hazardous waste management that could be related or refer to vehicles, spare parts or EVLs. The practices and procedures carried out for the treatment and final disposal of waste will be considered since they are central to the design of an ELVs policy;
- Specific initiatives in place for vehicles or spare parts such as batteries, tires and motor oils;
- Institutional arrangements that could be related to vehicles management.

1. Antigua and Barbuda

Antigua and Barbuda is a twin island state part of the Leeward Islands which are in the North-Eastern section of the Caribbean archipelago. Tourism and tourism services are the main sectors and economic drivers of this country.[33]

[32] UN Addressing the used vehicles market: *Potential Strategies for Importing and Exporting Countries to Improve Safety, Fuel Economy and Emissions Impacts*

Antigua and Barbuda has no specific ELVs strategy in place. Nevertheless, the ELVs management could be included within the country's waste management systems governed by the provisions under the *Litter Control and Prevention Act No 3* of 2019. The Act has a well-developed definition of hazardous waste[34], as well as deals with the removal of derelict vehicles from public places, and with the disposal of removed vehicles. There is no guidance provided on disposal or treatment.

There is no age limit for used vehicles imports.

The country counts on fiscal policy to encourage environmentally sustainable import and local products with low waste or degradable waste content. The Environmental Levy Act provides a levy, collected by Customs and administered by National Solid Waste Management Authority (NSWMA) upon a number of items including older motor, vehicles and tires. This levy became a revenue measure that redounds to the benefit of the NSWMA and therefore, also to Antigua's sanitary landfill, which is operated by NSWMA. The island has no age restriction regarding imports of used vehicles.

In Antigua, there is one sanitary landfill, namely the Cooks Sanitary Landfill and Civic Amenities Site, located on the western part of the island. The Cooks Landfill is properly constructed, efficient and fully operational. However, the site is now filled to its capacity and open dumping is once again taking place. The site receives most types of waste including MSW, industrial, commercial and institutional waste, construction and demolition waste and many types of special and hazardous waste including used tires, ELVs, asbestos and e-waste. Approximately 155,000 tonnes of waste were received at the site in 2018[35]. Currently ELVs present a major challenge at the Cooks landfill with substantial volumes of non-depolluted vehicles piled up around the perimeter, representing a large pollution potential. Antigua's sanitary landfill has a shredder within its equipment. This serves to reduce waste volumes so as to maximize the life of the landfill. Shredder is also used for destruction of certain waste streams, as used tires.

Barbuda's facilities and equipment include the sanitary cell and leachate treatment lagoon. However, this site is not being efficiently used as most municipal waste is currently being hauled and dumped and burnt at an alternate area.
There are no separate facilities for the treatment or disposal of hazardous wastes on both islands. Some types of hazardous waste, including asbestos and medical waste, are accepted at both disposal sites and buried separately from regular waste.

Practices identified in the country
Despite the fact there is no specific ELVs legislation; Antigua & Barbuda has implemented ELVs management practices that show a certain degree of progress in this area in comparison with other Project Countries.

---

[33] *Legal and Institutional Capacity Report* (2020:3). Prepared by: Individual Contractor as Legal Expert MR. ROMMEL ST. HILL. Project: Implementing sustainable low and non-chemical development in Small Islands Developing States (Islands). PPG.

[34] Hazardous waste: substance, preparation, article or waste which, because of its chemical or physical properties is known or reasonably believed, based on scientific and medical investigation, may cause, promote or result, directly or indirectly, in – (a) hazard or harm to human health; (b) hazard to the natural living condition of plants and animals; (c) pollution of land, water, the atmosphere or the environment;. (d) fire or explosion (e) the appearance and multiplication of harmful animals or plants; and (f) the encouragement of pathogens.

[35] Op. Cit. *Draft baseline chapter on current waste management activities and institutional capacity.* (2020:25).

Last registered owner is responsible for the correct collection and disposal of ELVs, which implies there is a registration process in place, with no evidence of de-registration process. NSWMA and Litter Wardens are responsible for developing regulation on this matter under the Litter Control and Prevention Act. Private haulers collect private ELVs as well as NSWMA. Private recyclers on the island would depollute ELVs and ship them to recycling facilities, if market price for metal would higher.

It is important to mention that in the Island the last owner need to afore a gate fee at the landfill in order to discard the ELVs. Even though, it is a common mechanism to charge costs to the final consumer, in countries without an ELVs strengthened management system and weak control mechanism, this could imply an adverse impact and increase the number of abandoned cars in order to avoid facing the expense.

The country counts with a historical scrap metal dealer located in Antigua Island, who nowadays receives the ELVs collected and became a strategic partner in the ELVs initiative developed by MSWMA under the Litter Management Act. NSWMA collaboration began the derelict vehicle collection program in January 2020, with an estimated target of 5,000 vehicles being removed from the streets.

- **ELVs management program under a public-private agreement**

Presently, the historical scrap metal operator in Antigua Island, located on outskirts of Cooks landfill, implemented a Memory of Understanding (MoU) with NSWMA in order to promote the adequate management of ELVs in the Island. This private operator already managed ELVs that were delivered to his facility; thus, this agreement would optimize and enforce an existing operation facility. An interview was conducted with the management of the recycling facility and the following information was obtained.

The MSWMA facilitated the scrap plant with a new working area of 6 acres annexed to its original 2-acres site, where the collected vehicles are stored until they enter in the recycling process. On its part, the operator handles and ships recovered materials at no cost for authorities.

The facility currently operates with 8 people – 6 bringing cars and operating the plant and 2 carrying out administrative work. During the interview conducted, managers mentioned that they would to incorporate 4 new positions to be more efficient.

The company collects and carries to their facility the abandoned cars, which have been previously notified to be removed by the MSWMA. In order to carry the abandoned vehicles, they used their own trucks -flat bed trucks-. They stated that currently they are picking up around 10/20 cars per day, even though they have capacity to get up to 50 cars a day. In average, the plant is receiving 50 cars per week and 200 can be bailed per week. The MSWMA also delivers cars to the facility, within the framework of its own collection. The facility receives as well ELVs from private owners for free.

Regarding the registration mechanisms, the manager said that no records are kept concerning the ELVs received at the facility. Nevertheless, the national authority keeps a record of the abandoned cars marked to be removed.

Vehicles are received in all conditions: good condition -those that could be driven-, middle conditions -those that despite they are not functional, some spare parts can be recovered-; and, bad conditions -the ELVs goes straight for bailing-.

It was indicated that no special government permit is needed to operate the facility. With regards to depollution and dismantling activities, they are carried out in a rudimentary manner. In this respect, it is important to note that since environmental permits are not required and are not subject to control audits, it cannot be said whether the minimum environmental and health conditions for employees are met. Having clarified this, the operator indicates that they remove from ELVs received the

fuel, the oils and the refrigerator liquids, being all stored in tanks. The coolant is used in their own trucks, while the oils are given for free to the Local Oils Ltd company that used them for fuel.

Copper and rubber engine parts are removed, crushed and bailed. The non-ferrous materials – catalyst, wires, aluminum – are stored and shipped on one container every 6 months. Ferrous spare parts are exported, every two months, as HSM1 and HSM2 to a middleman in Miami. The operator stated that the middleman ships this material to Taiwan or Japan and that exported fraction is not considered hazardous under Basel Convention.

Regarding tires, they are taken out and stockpile. Cardboards, plastics and glass are of concern for the recycler that indicated that they do not have the expertise to treat them properly, but they are in the process of learning how to process them. It was also indicated that more equipment is needed as well as updating the existing one. So far, they are storing all this spare material. They stated that almost nothing goes to landfill. No shredding process is being carried out.

As from the financial aspect concerns, the facility is not receiving any government aid beyond the land to operate at no cost.

Regarding other waste streams related to ELVs management the following are the main actions and practices in place in the country[36]:

- **Automotive batteries**

There is an informal private sector arrangement for the collection and export of these batteries to markets in Brazil and/or South Korea. The amount of used lead acid batteries in Antigua and Barbuda is estimated to be about 236 tonnes annually.

- **Automotive oils**

There is collection and a local oil recycling plant. “Local Oil Limited” plant, in order to address safe disposal of waste oil takes used oil and re-refine it into virgin oil, which they blend with jet fuel and sell for use in diesel engines. Heavy-duty equipment and bus operators are using it as it makes the vehicles more fuel efficient. A by-product that comes off is a small amount of asphalt which even though it is not enough to satisfy Antigua, it avoids oil dumping[37].

- **Used tires**

No recycling or processing of tires is taking place currently. The tires are received at the landfill sites where they are stockpiled. Approximately 855 tonnes were received only in 2019. NSWMA has recently implemented and agreement with the shredder operator to use the equipment to shred the tires. The shredded tires will be buried at the landfill site. The SWMA is in discussions with the Department of Works about exploring possibilities to incorporate them in asphalt for road paving operations.

2. Barbados

Barbados is the most easterly of the archipelago of islands located in Caribbean Sea and is within close proximity of the other islands that makes up the eastern Caribbean including Grenada, Saint Lucia and Saint Vincent and the Grenadines. [38]

[36] Op. Cit. *Draft baseline chapter on current waste management activities and institutional capacity.* (2020).

[37] Harney Motors Ltd, Antigua web page. https://businessviewcaribbean.com/harney-motors/ Accessed June 2020.

[38] Op. Cit. *Legal and Institutional Capacity Report* (2020:11)

There is no strategy neither specific regulations regarding ELVs and its spare parts management in the country. In Barbados, the legal and regulatory MSW framework is mainly composed of the Returnable Containers Act of 1986, the Health Services Act and the Sanitary Service Act. This Act creates the Sanitation Service Authority (SSA) which is responsible for the collection and disposal of non-hazardous waste throughout the island.

Overall responsibility lies in the Environmental Protection Department (EPD), which is the main regulatory agency responsible for the monitoring and control of conditions likely to affect the quality of land, air and water and the general health and environmental well-being of the inhabitants of Barbados. At present, the EPD reviews any hazardous waste disposal on a case-by-case basis. Its functions are exercised throughout the entire island.

A draft Environmental Management Act (EMA) has been in existence since 2009 and was recently revised in 2013. Whilst the Bill is a consolidating statute, it introduces important concepts with relation to dealing with hazardous waste, which is absent in current legislation. Consideration has to be given however to the amount of time that has elapsed since the draft was first produced as it would be almost seven years since the last revision.

There is also a 2014 Green Economy Scoping Study. This document looked at waste and disposal in Barbados in general, and states that Barbados has four operational solid waste disposal sites, with the Vaucluse facility having a chemical waste handling facility that is awaiting certification by EPD before being brought on-stream. It however has resulted in a 70% reduction of solid waste going to landfills and includes wastes in construction and demolition waste, green waste, wood pallets, plastics, glass and metals.

The country established standards restrictions regarding used vehicles imports. Used vehicles must be less than 4 years old and they must have new tires and less than 50,000 km[39]. Nowadays, no financial instrument is in place. Previously, there was a levy, established by the Environmental Levy Act, 1996, which was removed during the Financial Restructuring as it was considered as a trade barrier.

Practices identified in the country. [40]

Despite lack of regulations regarding ELVs, the following recycling initiatives are being carried out in Barbados.[41]

- **End-Of-Life Vehicles**

  There is no ELVs system management in place. Collection is carried out by private haulers and owners of vehicles, despite the fact that SSA will collect ELVs regarded a nuisance or for fee service. SSA do not accept ELVs, they are all delivered to private local collectors. ELVs that arrive to SSA are diverted to a recycling facility -Scrap man and B's recycling- or stockpiled on concrete platforms of SSA until being ship for recycling as scrap metal. At ScrapMan facility the handling of ELVs and White Goods involves direct compaction without depollution for export. Due to the strong dependency of ELVs management to metal market prices, currently the low market value makes the operation uneconomical.

[39] Op. Cit. UNEP-ITC Background paper.

[40] The country did not respond correspondent surveys.

[41] Op. Cit. *Draft baseline chapter on current waste management activities and institutional capacity.* (2020).

- **Automotive Batteries**
  Three companies involved in the collection and processing of batteries on the island have been identified: Ace recycling, B's Recycling and Scrapman Recycling. In all cases, lead acid automotive batteries are collected, packed in containers and shipped overseas for recycling to markets in Korea or Thailand. There are no dismantling or other processing activities taking place in the country. Where batteries are broken or damaged, they are wrapped in plastic and packed in the shipping container along with the other batteries.
- **Automotive Oils**
  Used automotive oil is a source of fuel in some industrial processes. This oil is collected by Machinery and Allied Engineering Services and transported to the relevant industries for reuse as a fuel. In particular, the Mount Gay Rum distillery utilizes the used automotive oil in their boilers.
- **Waste Tires**
  The Mangrove landfill receives approximately 90% used tires on the island. There is no process being carried out, the used tires are stockpiled. Fires have been recorded, which implies a constant burden on the environment. Currently some research is being carried out so as to recycle these tires. The options analyzed include their conversion to rubberized asphalt or to use them as a fuel source.

3. Belize

Belize is a small country in Central America consisting of 8,867 square miles. Belize's major economic industries are tourism and agriculture. It possesses a wealth of ecosystems and biodiversity.[42]

Currently there is no regulation for ELVs in the Country. The country has a restriction age for imported use vehicles requiring they should be less than 5 years old[43] as well as vehicles pay 1% environmental import tax.

In Belize, the legal and regulatory framework for solid municipal waste and hazardous waste are composed of the Solid Waste Management Authority Act of 199, the Environmental Protection Act and the Hazardous Waste Regulations enacted in 2009.

The Belize Solid Waste Management Authority (BSWaMa) is a statutory body, which was formally established through the enactment of the Solid Waste Management Authority Act in 1991 to ensure that solid waste generated in the country is managed in an environmentally sound manner. The Department of the Environment would have responsibility over wastes, in particular hazardous waste as it is the body defined within the Environmental Act to deal with such matters.

Since the BSWaMA took over the responsibility for waste transport and disposal, a number of significant measures were taken and improve the waste management as whole. The regional sanitary landfill opened in 2013 at Mile 24 and constitutes a major step forward in the development of a more sustainable system for managing solid wastes, enabling numerous uncontrolled dumpsites to be closed and remediated. Previously open dumping and burning of waste has been the standard approach to solid waste disposal throughout the country.

[42] Op. Cit. *Legal and Institutional Capacity Report* (2020:20)
[43] Op. Cit. UNEP-ITC Background paper.

Practices identified in the country

According to the information provided by the Department of the Environment of Belize in respond of the survey sent by the Consultants, the main aspects regarding vehicle imports and ELVs management are:

- **End-Of-Life Vehicles:**
  In Belize vehicles and vehicle's parts are imported. Used parts are mainly coming from is the United States of America. The import is recorded by the Customs Department. Importers of used parts or used vehicles must accomplish a detail declaration.
  There is no formal system set in place to estimate amount of ELVs generated, what implies there is no de registration process.
  No formal process is in place for collecting ELVS. ELVs are dismantled locally, scraped and sold for recycling to Guatemala or Mexico. Useful parts separated during dismantling process are sold locally and what is not sold is taken to a scrap yard and exported as scrap metal. Scrap metal handlers and exporters must be registered by Department of the Environment (DOE), even though many small scrap dealers are not registered. Export of scrap metal requires a permit from the DOE and information regarding volumes are aggregated and separated in source and metal types.

Regarding other waste streams related to ELVs management the following are the main actions and practices in place in the country:[44]

- **Automotive Batteries**
  Through the ULAB recycling program, the DOE has developed technical guidelines for the overall management of ULAB and is currently engaging with authorized entities to promote the recycling of ULAB.
- **Automotive Oils**
  Currently, spent automotive oils are used as a fuel source in smelting activities. The automotive oils are collected by the DOE, in order to prevent/minimize the contamination of the environment through the improper disposal of these oils.
- **Waste Tires**
  There is currently no program for the processing of waste tires. Tires are currently stockpiled at the landfill site.

4. **Dominican Republic[45]**

Dominican Republic is a country located on the island of Hispaniola in the Greater Antilles archipelago of the Caribbean region. It occupies the eastern five-eighths of the island, which it shares with the Republic of Haiti. The Dominican Republic is the second-largest nation in the Antilles with 48.671 square kilometers and has a population 10.500.000 million people of whom approximately 3.300.000 million live in the metropolitan area of Santo Domingo, the capital city. During the last three decades, the Dominican economy, formerly dependent on the export of agricultural commodities (mainly sugar, cocoa and coffee), has transitioned to a diversified mix of services, manufacturing, agriculture, mining, and trade.

[44] Op. Cit. *Draft baseline chapter on current waste management activities and institutional capacity.* (2020).

[45] No information was received from the national authorities; the section was elaborated with the information available on the web. Mainly the following document was consulted "Actual situation of MSW management in Dominican Republic" (2018). Published by: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. https://cambioclimatico.gob.do/phocadownload/Documentos/giz/Wolf,%20Judith%20-%20Informe%20Final,%20Estado%20GIRS%20Rep.Dom.%20Nov.%202018.pdf

Dominican Republic has no specific regulations regarding ELVs management and the country lacks a solid legal framework regarding waste management. Current environmental legislation is not sufficiently rigorous to ensure the proper disposal of waste generated in households and industry. The MSW management system in the Dominican Republic currently focuses on the collection and disposal of waste in open dumps where recovery of recyclables by informal waste pickers takes place. Most of the recovered waste is prepared for export, but there is also a certain level of recycling and energy recovery at the national level. There are environmentally and climatically harmful practices such as burning and uncontrolled dumping of waste.

The country prohibits the import of automobiles and light trucks (under five tons) older than over 5 years old.

Law 64-00 on the Environment and Natural Resources is the framework law that ensures the protection of biodiversity and regulates the sustainable use of natural resources in the Dominican Republic. This general framework is combined with specific regulations regarding Labelling and Risk and Safety Information Regulations of Hazardous Materials; Transportation of Hazardous Materials and Substances; Environmental regulation for the management of end-of-life tires and Management of Chemical Substances and Hazardous Waste.

Nevertheless, it is worth outstanding that in the Senate Chamber there is currently a project about *"General Law of Integral Management and Co-Processing of Waste of the Dominican Republic",* already approved by the Chamber of Deputies. The project incorporates the extended producer's responsibility principle (EPR) that could bring an important opportunity in the country for the design and implementation of strategies to enhance the ESM of ELVs.

The Ministry of the Environment and Natural Resources is the authority responsible for the definition of the waste management policy, the monitoring of human activities generating waste as well as of issuing environmental permits. Regarding management of medical and hazardous waste, the Ministry of Health is the main responsible.

Practices identified in the country

In general terms, there is no evidence of management or recycling of ELVs, nor motor oils, nor batteries in Dominican Republic. According with the available information there are some formal and informal practices regarding the management of end of life tires. There is no evidence of formal channels dealing with used tiers, and practices are related to the deliver or sale, to both formal and informal waste managers, of tires for energy recovery, for example in lime kilns, pyrolysis plants or for hotel or industrial boilers. There are no data on the rate of thermal recovery as it fluctuates greatly and is an informal business in many cases.

Some companies collaborated with cement companies for the use of their waste, tires between others, in cement kilns. Usually the company gave up the waste and the cement company paid for the transport. The business fell through when the cement company no longer paid for transport.

5. Guyana

The Cooperative Republic of Guyana is a small country on the South American mainland with approximately 770,000 persons. Its main economic drivers are agriculture and mining, notably of gold and bauxite; the main cash crops are sugar and rice.[46]

Guyana has no specific ELVs regulation, even though it has specific environmental legislation, the Environmental Protection Act. This Act establishes the Environmental Protection Agency (EPA) as the authority with legal mandate to administer and implement the national environmental policies of the country. The EPA is responsible for the management, conservation, protection and improvement of the environment, the prevention or control of pollution, the assessment of the impact of economic development on the environment and the sustainable use of natural resources.

Whilst the EPA has the overall responsibility for monitoring waste management, there are no specific regulations yet in place for MSW. There is a draft Solid Waste Management Bill, but no date has been set for its debate in parliament.

However, under the environmental management act, hazardous waste regulations have been established to regulate the generation, storage, treatment and disposal of hazardous wastes in the country.

The country established a limit for used cars importation of 8 years old.

In Guyana, the Haags Bosch Landfill, a sanitary landfill, was built with support of the IDB. This facility, which was managed by a private contractor until the end of 2015 on behalf of the Ministry of Communities, is now operated by the Ministry.

Practices identified in the country[47].

Recycling in Guyana is done under very limited basis, mainly is reduced to glass, PET, some metals and some E-waste.

There is a privately-operated recycling company, Eternity Investments, based in Georgetown since 2009. It trades metals and e-waste and has established markets in Asian countries for the export of these commodities. They operate with a permit of the EPA.

The following programs and recycling activities are carried out in the country:

- **End-Of-Life Vehicles**
  There is no established system for ELVs in the Country. Scrap vehicles are dismantled for their metal content only.
- **Automotive batteries**
  They are currently shipped to markets in South Korea. Eternity Investments collects the batteries, drains the acid into a container, packs the batteries onto a pallet and then load them into a 40-foot container. After getting approval from the EPA, the containers are then shipped to the destination where the old batteries are used to make new ones. The EPA reported that 280 tonnes of batteries are exported annually.
- **Waste tires**

[46] Op. Cit. *Legal and Institutional Capacity Report* (2020:27)
[47] The country did not respond correspondent surveys.

They are currently received at the landfill site and stockpiled. The government, through the Ministry of Public Infrastructure is in the process of installing a new 160 tonnes per hour asphalt plant that will be able to utilize waste tires along with plastic bags and plastic bottles[48]. The plant is located in the Garden of Eden, East Bank. It is expected to become operational by mid-2020.

- **Pilot Recycling Tires Program**
  The Institute of Applied Science and Technology (IAST) has successfully operated several pilot-scale recycling programs involving domestic and industrial solid wastes which it is currently working to commercialize used tires. The program promoted the process of used tires to produce crumbed tires which is combined with rubber and has been used to surface the Demerara Bridge.

6. Saint Kitts and Nevis

The twin island Federation of Saint Kitts and Nevis (SKN) consists of two islands located in the northern part of the Lesser Antilles chain of islands in the Eastern Caribbean. Saint Kitts is the larger of the two islands at 176 sq. km, whilst Nevis has an area of 93 sq. km. Both islands are volcanic in origin, with central mountain ranges that dominate the landscape and radiate downward to the coasts.[49]

Saint Kitts and Nevis specifically includes derelict vehicles in its Solid Waste Management Act, No. 11 of 2009 - The purpose of the Act is to, inter alia, provide for the management of solid waste in conformity with the best environmental practices (BEP). The Act governs both solid and hazardous wastes. The definition of solid waste includes litter, garbage, refuse, organic waste, scrap metal, and other solid materials, as well as derelict vehicles.

There is no age limit for used vehicles imports; instead there is an environmental levy for imported used vehicles. The levy varies depending on the vehicle's age. Higher levy is above 5 years. [50]

MSW management on the twin island is undertaken by separate organizations serving the two islands. On the island of Saint Kitts, waste management is the responsibility of the Solid Waste Management Corporation. On the island of Nevis, it is the responsibility of the Nevis Solid Waste Management Authority, an entity that falls under the jurisdiction of the Nevis Island Administration. In Saint Kitts, the financing for Solid Waste Management is through an environmental levy paid by each visitor to the island. In Nevis, a waste management fee is included on the resident's electricity bills. However, the corporations do not benefit directly from these finances. The levy and the waste management fee go to the consolidated fund and central government redistributes in accordance with the priority areas of the country.

The island of Saint Kitts is served by a single Sanitary Landfill Site, Conaree Landfill Site located on the East of the island. The site does accept some types of hazardous waste and Waste Electric and Electronic Equipment (WEEE). Currently there is a stockpile of used tires at the site. Previously tires were buried within the site, but this practice has been discontinued. Whilst the Waste Management Corporation has had discussions regarding the shredding of tires for use in asphalt, no way forward has yet been agreed upon for this to be actioned.
There is also a single landfill site that services the island of Nevis, the Low Ground Landfill, situated at Long Point. Hazardous waste are also accepted and either buried on site, or mixed

[48] Op. Cit. *Draft baseline chapter on current waste management activities and institutional capacity.* (2020:25).
[49] Op. Cit. *Legal and Institutional Capacity Report* (2020:37)
[50] Op. Cit. UNEP-ITC Background paper.

into the rest of the waste. There is also a stockpile of tires on site. No tire processing facilities are available.

Practices identified in the country[51;52]

- **End of life Vehicles**
  Regarding ELVs management, even though no strategy plan is in place, some practices are carried out which promotes a more controlled management. In both islands last owners of ELVs are responsible for taking them to the approved landfill or other approved site, having to pay a fee. A gate fee is charged at both landfills and in Saint Kitts there is also a collection services with charge for the last owner. ELVs are stockpiled at these sites. In 2018, Enclave Resources was hired by the Government of Saint Kitts and Nevis, and has an exclusive arrangement for collecting ELVs and scrap, to process them and export the metal components of the stockpiled vehicles to NuCor Steel in the USA. In Nevis fuel is subsidized by the government. A total of 3,000 to 4,000 tones were collected from Conaree site and 2,200 tones from the Low Ground. Car Batteries recovered are also exported to USA.
- **Automotive batteries**
  Used lead acid batteries are collected privately by Island Auto Supplies, with an economic incentive on place: take old battery and get a discount on new.
- **Automotive oils**
  Both landfills sites, Conaree and Low Ground, were equipped with holding tanks for used oil but they are both full. The sites continue to receive used oil in storage pits dug into the landfill site. No processing or export of used oil is currently taking place.
- **Waste Tires**
  Waste tires are received at the Conaree and Low Ground landfill sites. They are currently stockpiled. The responsibility is that of the tire dealers to bring them to the site.

7. Saint Lucia

This country is approximately 616 square miles and lies within the Caribbean Sea. It has a population of approximately 179.000 persons and its main economic drivers are tourism and agriculture.[53]

In Saint Lucia the Waste Management Act includes ELVs, between other waste streams in the overall waste management strategy. Derelict vehicles are mentioned in regulations under the hazardous waste category. The Waste Management Act and regulations establishes the Saint Lucia Solid Waste Management Authority (SLSWMA) as is responsible for the collection, treatment, transportation recycling and disposal of solid waste, including hazardous waste, and the establishment and management of sanitary landfills throughout the island. The Waste Management Act also mandates the prohibition of unauthorized disposal of waste or its removal from disposal areas or any other locations under the control of the Authority.

There is no age limit for used vehicles imports.

[51] The country did not respond correspondent surveys.
[52] Op. Cit. *Draft baseline chapter on current waste management activities and institutional capacity.* (2020).
[53] Op. Cit. *Legal and Institutional Capacity Report* (2020:44)

Saint Lucia was beneficiary of the OECS Solid Waste Management Project and the Ship Generated Waste Management Project in the early 1990's. Through this project, landfill sites were constructed at Deglos in the North and Vieux Fort in the South of the country, and the (SLSWMA) was instituted. The Vieux Fort Landfill Site has been essentially closed off as of October 2019, and the site is now used as a transfer station, with the waste entering this site being placed into transfer trailers and brought to the Deglos Landfill Site. However, some bulky wastes and organic wastes are still accepted at this site.

Practices identified in the country

The country shows a significant degree of progress regarding ELVs management. It has in place a set of actions and measures that promote proper vehicle management.

- **End of life vehicles**

  Last owners of derelict vehicles are responsible to take them to the landfill or to the licensed waste management facility free of cost. According to Waste Management Act owners are fined upon failure to remove derelict vehicles after 7 days from notice, and the owner is also billed for the removal costs. Some recyclers appointed that the Department of Sustainable Development makes them pay for picking up derelict vehicles. ELVs are sent to landfill.

  The quantity of derelict vehicles/scrap metal registered at Deglos weighbridge, between April 2018 and March 2019, was of 170 tonnes. At an average of 2,200 kg/vehicle, and 10% scrap rate per year, the total estimated weight of derelict vehicles generated, out of all vehicles registered is approximately 12.121 tonnes/year.

  Much of the generated quantity of scrap metal from derelict vehicles would go to the private recyclers on the island. The installed capacity report developed within the framework of this project indicates that the country has ferrous metal recycling companies that consolidate a relatively structured business.

  According to the information provided by the firm Renew St Lucia Inc. in response to the survey sent by the Consultants, it is highlighted that the firm used to process and export ELVs, in compliance with Basel Convention standards. Users were paid for bringing ELVs. The process carried out mainly consisted in cutting, unbolting and removing nonferrous materials for then packing them in containers for export. They mostly received abandoned cars and spare parts. During dismantling process batteries were removed and properly stored. For the time being ELVs and batteries are no longer received. At this point it was indicated that the process is not quite profitable, adding that no Government and any assistance is given.

  Regarding operation capacity it was indicated they could manage 80 tonnes of ELV, which are stored for around two months. When full operation is carried out, 7 employees are in site.

  It was informed that there is a formal management process in place, which is not effective, as far as the solid waste management department "tags" derelict vehicles but they are not removed.

Regarding other waste streams these are the actions in place[54]:

- **Automotive batteries**

  Between 2005 and 2010 there were approximately 600 tonnes per annum of used lead acid batteries being collected and exported.

[54]Op. Cit. *Draft baseline chapter on current waste management activities and institutional capacity.* (2020).

- **Automotive oil**
  The SLSWMA established an automotive oil collection program by which there are designated bins as service stations throughout the island. These are subject to inspection by the authority. The used oils is reprocessed and utilized in the company's boilers or otherwise used in the boilers at the Saint Lucia Distillers.
- **Waste tires**
  Currently collected and shredded at the Deglos Landfill Site. Between 2004 and 2018 there was an average of 833 tonnes per year being received at the site. The tires are currently shredded utilizing a shredder on site. However, the shredding activity is not keeping pace with the rate at which tires are being received and there is an extensive stockpile of tires at the site. The shredder tires were once utilized as landfill cover, but due to the fire threat posed, the shredded material is now being buried on site.

8. Suriname

This country is situated in North-East South-America with a surface area of 164,000 km^2 and a population of 575, 991 persons. It consists of 93% forested area at 153,300 km2 of its surface. Suriname is rich in natural resources, which includes gold, oil, iron ore, other minerals; forestry; hydroelectric potential; fish and shrimp.[55]

The country has no regulations regarding ELVs management and has a weak MSW management framework too. Waste management practices in Suriname are still at a very rudimentary level. The country does not have a sanitary landfill site, thus waste is disposed in open dumps.

In 2020 a National Environmental Framework Act was passed. Until then, Suriname has neither MSW management policy nor plan. The existing legislation was composed of outdated laws with practically no enforcement.

Despite the lack of a solid legal framework regarding waste management as a whole, according to the UNEP report Suriname has an age restriction regarding used vehicles imports. Used vehicles must be less than five years old to be imported to the country.[56]

The National Environmental Framework Act recently passed, provides Suriname with a mechanism for creating a legal basis for how to deal with the environment. It will enable domestic, regional and international compliance with some of the mandates and agreements of which Suriname is party to. There will be a National Environment Authority (NMA), which, together with institutes such as the National Institute for Environment and Research in Suriname (NIMOS) and a management institute that is yet to be established, will be responsible for the technical implementation and control of environmental policy.

The new legislation will give NIMOS and the NMA an increased role as institutions in the implementation of obligations on waste management. In the meantime, it is worth noticing that the Ministry of Public Works, through the Department of Waste Collection and Disposal is responsible for collecting in Greater Paramaribo and other districts.

[55] Op. Cit. *Legal and Institutional Capacity Report* (2020:50)
[56] Op. Cit. UNEP- ITC Background paper.

Practices identified in the country[57]

According to information gathered in the Baseline chapter on current waste management activities and institutional capacity, there are no activities regarding ELVs management, neither for processing used tires, nor to manage automotive oils. There are three (3) companies involved in processing automotive batteries: Zane Trading, Kairos NV, Samies Trading, but no major information is available.

The report indicates that there are a couple of companies/institutions (Amreco and Soundation Suresur) currently involved in plastic, cardboard and aluminum waste recycling in the country. These companies operate in an isolated, *ad-hoc* manner, since there is no policy of waste recycling and no systems in place to promote recycling at a national level.

9. Trinidad and Tobago

Trinidad and Tobago is located in the Southern Caribbean region and has a population of approximately 1.3 million. It is currently the largest oil and natural gas producer in Caribbean. The country is also the largest exporter of ammonia and the second largest exporter of methanol globally.[58]

Trinidad and Tobago counts with a modern environmental framework legislation which is major opportunity to develop an ELVs management system. Over the last years, the Trinidad and Tobago government guided a process to revamp the MSW management system. Several polices were passed, such as the Green Government Policy (2011), the Integrated Solid Waste Resource Management Policy (2013), the Waste Recycling Policy (2015) and the National Environmental Policy (NEP-revised in 2018).

The NEP[59] aimed at providing a comprehensive framework for environmental management issues, including those related to hazardous and non-hazardous waste management. The Policy establishes the context under which all environmental related regulations operate. In this regard, the policy on waste management is based on the principles of reuse and recycling. According to the National Environment Policy the Government, among other issues, will:

- Prohibit the abandonment, dumping or uncontrolled disposal of municipal waste including bulky waste, derelict vehicles, stoves, other appliances and tires;
- Promote economic instruments and market incentives including deposit/refund taxes for beverage containers, tires, batteries, fluorescent bulbs, appliances, used oil and automobiles.

It is worth highlighting that the NEP promotes the development of an enabling legislative and administrative framework as well for waste recycling to achieve the following mutually reinforcing objectives:

- Protection of human health and the environment;
- Maximization of resource use efficiency and value recovery from wastes;
- Reduction by 60% of the quantity of waste requiring final disposal by the year 2020, based on a 2010 baseline;
- Minimization of litter;
- Creation of a culture of waste minimization;

[57] The country did not respond correspondent surveys.
[58] Op. Cit. *Legal and Institutional Capacity Report* (2020:60).
[59] https://www.planning.gov.tt/sites/default/files/WASTE%20RECYCLING%20POLICY%202015%20Final.pdf Accessed, May 2020.

- Enhancement of economic development by the creation of novel business opportunities in the reduction, collection, handling and recycling of waste;
- Creation of a culture of shared responsibility for waste management among government, producers, distributors and consumers.

In addition to these cutting-edge policies, the management of waste in Trinidad and Tobago is nowadays governed primarily by the provisions under the Litter Act of 1973 and the Public Health Act of 1950 and their accompanying regulations.

Regarding vehicles management, Litter Act deals primarily with the control of littering in public places, however, it also confers powers on local authorities to cause litter on any premises to be cleaned, to have derelict vehicles which are left in public places removed. Derelict vehicles are defined as *"a vehicle or part of a vehicle in a public place which by reason of its condition appears to a public health officer to have been abandoned and any motor vehicle that is left in a public place and does not carry a current license issued by the Licensing Authority therefore shall be presumed to be a derelict vehicle until the contrary is proved.*"

The Scrap Metal Industry plays a significant role in the recycling of metals locally. As part of the management regime, the Old Metal and Marine Stores Act of 1904 (amended by 41 of 1942, and 3 of 1994) governs the management of scrap metal in Trinidad and Tobago. Under this Act licenses need to be obtained in order to carry a business of a dealer in old metal.

Trinidad and Tobago also established an age limit for importation of gasoline-powered foreign used cars of 4 years.

On the operational field, the Trinidad & Tobago Solid Waste Management Company Limited (SWMCOL) is responsible for the management, collection, treatment and disposal of all wastes, including solid, liquid, hazardous and special waste in Trinidad and Tobago. Whilst the Tobago House of Assembly (THA) manages the Studley Park Landfill, the sole disposal site in Tobago, SWMCOL manages the three (3) largest MSW disposal sites in Trinidad, namely: Beetham Landfill, Sealots; Forres Park Landfill, Claxton Bay; and Guanapo Landfill, Arima.[60]

Practices identified in the country.

Currently, there are a number of private entities involved in recycling in Trinidad and Tobago in a much unregulated system. Recycling is focused on metals, glass, some plastics, used car batteries, used cooking oil and used motor vehicle oil.

According to the information provided by the Ministry of Planning and Development of T&T, by responding the survey sent by the Consultants, the main aspects regarding vehicles importation and ELV management are as follows:

- **End of Life Vehicles**
  Any person can import new vehicles without an import license. Importers are normally assigned a fixed quota of vehicles to be imported each year. Vehicle constituents/parts can be imported from anywhere. Also used vehicles and spare parts can be imported. Foreign Car dealers must be registered and must obtain a license prior to importation of used vehicles. The country has a series of requirements for importing cars, to prevent the entry of potentially polluting cars. For extension reasons they will not be

[60] Op. Cit. *Draft baseline chapter on current waste management activities and institutional capacity.* (2020).

reproduced, but it is worth mentioning that a Certificate of Cancellation of Registration of the country of origin is required.
Regarding registration, despite there is a national registry of vehicles, no ELVs are registered.

In Tobago, ELVs are disposed of at the Studley Park Integrated Waste Facility via private persons (garages, etc.). The Public Health Department also works to ensure vehicles are removed. Vehicles are brought in on flatbeds or trucks this may be in the form of a vehicle shell or parts of a vehicle. Landfill receives roughly 42 ELVs yearly.
Part of the recycling chain is done on an informal basis, and these are usually by scrap metal dealers or scavengers at the landfill sites. These informal sectors usually undertake dismantling activities for the purpose of exporting such items. Dismantling activities involve the stripping of metal from ELVs, separating aluminum, copper and iron and removal of engines from vehicles. Some scrap yards also have the necessary facilities to remove and dispose of oils from the vehicles. ELVs that end up at the Tobago landfill are also recycled via the informal recyclers (scavengers- 4-5 persons). These vehicles are then "scrapped" for parts, stockpiled, collected and shipped to Trinidad where it is exported by private companies. Remaining parts at the landfill are crushed, compacted and buried.
Outside from the informal recycling sector process, vehicles are crushed, compacted and buried at the Studley Park Landfill.

The export of scrap metal is a revenue earner for Trinidad and Tobago. The Ministry of Trade and Industry has indicated that for 2019, exports valued at approximately US$42 million.[61] Certificates have been issued, by the Ministry of Trade and Industry, to scrap metal collectors for the recovery/recycling of waste which may include the collection of automotive/autobody parts mixed with other scrap metal, though no specific certificates were applied for ELVs.

Following are practices in place[62].

- **Automotive Batteries**
  At the country some innovative technologies have been introduced regarding ULAB regeneration. Particularly the MIC Institute of Technology (MIC-IT) uses an Ion Hammer that regenerates spent used lead-acid batteries at a commercially viable rate, optimising waste resource use which mitigates environmental contamination.[63]
  Automotive Batteries are exported under the Basel Convention Provisions. Approximately 632.3 tonnes of Used Lead Acid Batteries were exported in 2017
- **Automotive Oils**
  The main company involved in the treatment of automotive oils is Oil Mop Services Limited. They utilize a process plant which converts the spent oil into a usable blend, through an ultra-filtration system. Oil Mop provides an oily waste collection service for its commercial, industrial and institutional clients where the waste oil is collected for a fee. The fee ranges from TT$ 2.00 to TT$ 3.00 per gallon depending on the location and quantity. The company has indicated that their system is feasible at an oil price of US$ 40.00 per barrel or greater.

[61] According to the information provided by the "End of Life Vehicles (ELVs) questionnaire for Governments" of Trindiad and Tobago.
[62] Op. Cit. *Draft baseline chapter on current waste management activities and institutional capacity.* (2020).
[63] https://newsday.co.tt/2019/12/24/mic-unveils-new-innovations/ Accessed, June 2020.

- **Waste tires**
  Trinidad and Tobago's 2017 Finance Bill include "an environmental tyre tax" which shall be charged on tyres imported into the country.[64] In 2015, the state-owned company invested in a heavy-duty shredder for waste tires. Tires are shredded by SWMCOL into steel wire and rubber pieces. The company charges a fee ranging from TT$ 5.00 to TT$ 10.00 per tire depending on size and volume. Whilst several tire dealers have subscribed to the tire shredding program, the majority of tires still remains uncollected and end up in unauthorized dumps throughout the country. Out of an estimated 8602 tonnes of scrap tires generated annually, only about 43 tones are shredded. Furthermore, the company is unable to recycle the shredded tires at this point, and the shredded pieces are disposed off at the Beetham Landfill Site.

64 http://www.ttparliament.org/legislations/b2017h24-1rS.pdf. Accessed, June 2020.

To conclude this section, a chart summarizing the most relevant aspects in terms of legislation and practices in place related to ELVs management in the Project Countries is presented:

Countries	End of life vehicles		Automotive Batteries		Automotive Oils		Tires	
	Regulations	Practices in place	Regulations	Practices in place	Regulations	Practices in place	Regulations	Practices in place
Antigua & Barbuda	No specific regulation. Thus, ELVs management included within the country's waste management systems. derelict vehicles are addressed.	Derelict vehicle collection program within a public-private arrangement. ELVs collected are delivered to a recycling facility. Basic dismantling activities take place. Baling and export.	No specific regulation.	Informal private sector arrangement for the collection and export of batteries.	No specific regulation.	There is collection and a local oil recycling plant. "Local Oil Limited" plant, in order to address safe disposal of waste oil takes used oil and re-refine it into virgin oil, which they blend with jet fuel and sell for use in diesel engines. Heavy-duty equipment and bus operators are using it as it makes the vehicles more fuel efficient . A by-product that comes off is a small amount of asphalt.	No specific regulation.	No treatment on place. Stockpiling at landfill. Project for shredding used tires under analysis.
Barbados	No specific regulation. Thus, derelict vehicles are addressed by SSA.	SSA collect when regarded a nuisance or for a fee. ELVs delivered to recycling facilities. Recyclers do direct compaction without depollution for export.	No specific regulation.	Collected, packed in containers and shipped overseas for recycling to markets in Korea or Thailand.	No specific regulation.	Collected and transported to relevant industries for reuse as a fuel.	No specific regulation	No processing. Stockpiling in the landfill with fire risk
Belize	No specific regulation.	No formal collection system. Locally dismantled, scraped and sold for recycling to Guatemala or Mexico. Useful parts separated during dismantling process are sold locally. and what is not sold is taken to a scrap yard and exported as scrap metal.	ULAB recycling Program	Development of technical guidelines. Engagement of authorized entities to promote the recycling of ULAB.	No specific regulation.	Collected by the DOE. Used as a fuel source in smelting activities.	No specific regulation	No processing. Stockpiling in the landfill with fire risk
Dominican Republic	Bill at Congress to enhance managing waste with EPR.)	No practices in place	No specific regulation.	No practices in place.	No specific regulation.	No practices in place.	Regulation for the management of end-of-life tires	Through informal channels tires are delivered for energy recovery, in lime/ cement kilns

Countries	End of life vehicles		Automotive Batteries		Automotive Oils		Tires	
	Regulations	Practices in place	Regulations	Practices in place	Regulations	Practices in place	Regulations	Practices in place
Guyana	No specific regulation.	Scrap vehicles are dismantled for their metal content only. Its worth outstanding that scrap	No specific regulation.	Private company collects the batteries, drains the acid export them to Asia.	No specific regulation.	No practice in place.	No specific regulation.	No processing. Stockpiling in the landfill. On process to install a plant to produce crumbed tires for
Saint Kitts and Nevis	No specific regulation. Derelict vehicles are addressed. There's a levy for used cars importation	Last owners are responsible for taking them to the approved landfill or other approved site, having to pay a fee. ELV stockpiled at the site. In 2018, Enclave Resources was hired by the Government of Saint Kitts and Nevis, and has an exclusive arrangement for collecting ELVs and scrap, to process them and	ULAB program	ULAB are collected privately with a discount in new batteries if old ones are return.	No specific regulation	Both landfills equipped with holding tanks (both filled). Still oil and storage in pits	No specific regulation.	No processing. Stockpiling. Tires dealers must bring them to the landfill. in the landfill.
Saint Lucia	Waste Management Act refers to derelict vehicles and some proper mechanism are in place.	Last owners of derelict vehicles must deliver them at landfill or to the licensed waste management facility. Fines are foreseen for non-compliance. ELVs are delivered to landfill where	No specific regulation.	No practices in place.	No specific regulation. Existence of authorized company.	Authorized company to collect used oil throughout the Island. The used oils is reprocessed and utilized in the company's boilers or otherwise used in the boilers at the Saint Lucia Distillers.	No specific regulation.	Collection and shredded at the Landfill Site. No pace between processing and reception. Shredder tires used as cover landfill.
Suriname	No specific regulation.	No practices in place.	No specific regulation.	No practices in place.	No specific regulation.	No practices in place.	No specific regulation.	No practices in place.
Trinidad & Tobago	No specific regulation. Derelict vehicles are addressed under the provisions of the Litter Act and the Public Health Act.	Last owner is responsible for derelict vehicles. They are disposed at the sanitary landfill by private persons. The Public Health Department also works to ensure vehicles are removed. Part of the recycling chain is done on an informal basis, and	No specific regulation.	Batteries are being exported based on movement registered under the Basel Convention.	No specific regulation	Thee main company involved in the treatment of automotive oils utilizes a process plant which converts the spent oil into a usable blend, through an ultra filtration system	No specific regulation.	State-owned company invested in a heavy-duty shredder for waste tires. Tyres are shredded by SWMCOL into steel wire and rubber pieces.

BEP AND BEST AVAILABLE TECHNIQUES (BAT) FOR ELVS ESM

This section is extracted from the waste vehicles fact sheet to support the implementation of the ESM of hazardous wastes and other wastes, in accordance with the obligations of the Basel Convention on the control of transboundary movements of hazardous wastes and their disposal[65]. Other relevant guidelines to consider are: "General technical guidelines on the environmentally sound management of wastes consisting of, containing or contaminated with persistent organic pollutants"[66], "Technical guidelines on the environmentally sound management of wastes consisting of, containing or contaminated with hexabromodiphenyl ether and heptabromodiphenyl ether, or tetrabromodiphenyl ether and pentabromodiphenyl ether"[67], and "Revised draft guidance on best available techniques and best environmental practices for the recycling and waste disposal of articles containing polybrominated diphenyl ethers listed under the Stockholm Convention"[68].

Other fact sheets are presented in the mentioned document related to waste oils, waste lead acid batteries, waste tires and electrical and electronic waste.

Storage

Waste vehicles should be stored in properly licensed, permitted or otherwise authorized facilities. Storage of vehicles, even temporarily, should be undertaken on an impermeable surface with spill containment. Spillage collection facilities should include a sealed drainage system as the primary means of containment; however, spill kits to deal with spillages of oils, fuels and acids should be provided and used as appropriate[69]. Devices such as silt traps and oil separators should be provided for the treatment of storm water runoff. If engines or greasy parts are exposed, they should be covered with a tarpaulin or other covering to prevent rain contact[70].

Storage sites should be secured in order to prevent unauthorized access, and to ensure that no material can escape[71]. An inventory should be kept of the waste vehicles stored on the facility. The make, model, and year of each vehicle, the date the vehicle arrived, the date it was last

[65] UNEP/CHW/CLI_EWG.5/INF/5, Expert Working Group on Environmentally Sound Management, Basel Convention, June 2016.
[66] http://www.basel.int/Portals/4/download.aspx?d=UNEP-CHW.12-5-Add.6-Rev.1.English.pdf
[67] http://www.basel.int/Portals/4/download.aspx?d=UNEP-CHW.12-5-Add.6-Rev.1.English.pdf
[68] http://chm.pops.int/Portals/0/download.aspx?d=UNEP-POPS-COP.7-INF-22.English.pdf
[69] Scottish Environment Protection Agency. Guidance on the Standards for Storage and Treatment of End of-Life vehicles. Version 1.2. https://www.sepa.org.uk/regulations/waste/endof-life-vehicles/
[70] New Hampshire Department of Environmental Services (2011) N.H. Green Yards: Best Management Practices for Motor Vehicle Recyclers Storing End-of-Life Vehicles.
http://des.nh.gov/organization/divisions/waste/swmb/tsei/greenyards/bmp.htm
[71] Scottish Environment Protection Agency. Guidance on the Standards for Storage and Treatment of End of-Life vehicles. Version 1.2. https://www.sepa.org.uk/regulations/waste/endof-life-vehicles/

inspected for leaks, and other information needed to control the flow of the inventory, should be recorded[72].

Reception

Waste vehicles should only be handled in properly licensed, permitted or otherwise authorized facilities that employ ESM practices.

When waste vehicles first arrive at a facility, they should be inspected for leaks and unwanted materials that could have been placed in the vehicle ([73],[74]). Any oil or fluid leaking from the vehicle should be collected immediately using drip trays. Vehicles that are leaking should be moved immediately to the dismantling area and processed[75].
Runoff management is an important consideration for waste vehicle dismantlers. Best practices to prevent or minimize pollutants from entering storm water runoff and/or reduce the volume of storm water requiring management include, among others, regular clean-up, collection and containment of debris in storage areas, and other housekeeping practices, spill control, and employee training[76]. Best practices for minimizing exposure of potential pollutant sources to precipitation include covering materials or activities with temporary covers (e.g., tarpaulins) or permanent covers (e.g., roofs). Contaminated runoff should be treated prior to discharge with devices such as oil-water separators[77]. Oil-water separators should be cleaned out on a regular basis (twice a year at a minimum) [78].

Dismantling

Any dismantling involving the engine, transmission or hydraulic systems should take place on impermeable surfaces with a sealed drainage system as a primary means of containment. However, spill kits to deal with spillages of oils, fuels and acids should be provided and used as appropriate. Waste vehicles may be dismantled on hard standing surfaces only if the dismantling is of parts not associated with, and the dismantling activity will not disturb, the engine, transmission or hydraulic systems[79]. Oil-water separators should not be used as part of the spill control strategy[80].

---

[72] New Hampshire Department of Environmental Services (2011) N.H. Green Yards: Best Management Practices for Motor Vehicle Recyclers Storing End-of-Life Vehicles.
http://des.nh.gov/organization/divisions/waste/swmb/tsei/greenyards/bmp.htm
[73] New Hampshire Department of Environmental Services (2011) N.H. Green Yards: Best Management Practices for Motor Vehicle Recyclers Storing End-of-Life Vehicles.
http://des.nh.gov/organization/divisions/waste/swmb/tsei/greenyards/bmp.htm
[74] U.S. Environmental Protection Agency (2006) Industrial Stormwater. Sector M: Automobile Salvage Yard (EPA-833-F-06-028). https://www3.epa.gov/npdes/pubs/sector_m_autosalvage.pdf
[75] British Columbia Ministry of Environment (2008) Guidebook for the Vehicle Dismantling and Recycling Industry Environmental Planning Regulation. http://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrialwaste/vehicles/guide-vehic-dismantling-recyc-indenv-plan-reg.pdf
[76] U.S. Environmental Protection Agency (2006) Industrial Stormwater. Sector M: Automobile Salvage Yard (EPA-833-F-06-028). https://www3.epa.gov/npdes/pubs/sector_m_autosalvage.pdf
[77] U.S. Environmental Protection Agency (2006) Industrial Stormwater. Sector M: Automobile Salvage Yard (EPA-833-F-06-028). https://www3.epa.gov/npdes/pubs/sector_m_autosalvage.pdf
[78] British Columbia Ministry of Environment (2008) Guidebook for the Vehicle Dismantling and Recycling Industry Environmental Planning Regulation.
http://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrialwaste/vehicles/guide-vehic-dismantling-recyc-indenv-plan-reg.pdf
[79] Scottish Environment Protection Agency. Guidance on the Standards for Storage and Treatment of End of-Life vehicles. Version 1.2. https://www.sepa.org.uk/regulations/waste/endof-life-vehicles/
[80] British Columbia Ministry of Environment (2008) Guidebook for the Vehicle Dismantling and Recycling Industry Environmental Planning Regulation.

It is recommended that depollution activities be conducted using tools and equipment designed specifically for carrying out the required operations. The use of such equipment is generally considered to yield the best results as it ensures that a high level of depollution can be achieved in a relatively short time frame, generally 20-30 minutes[81].

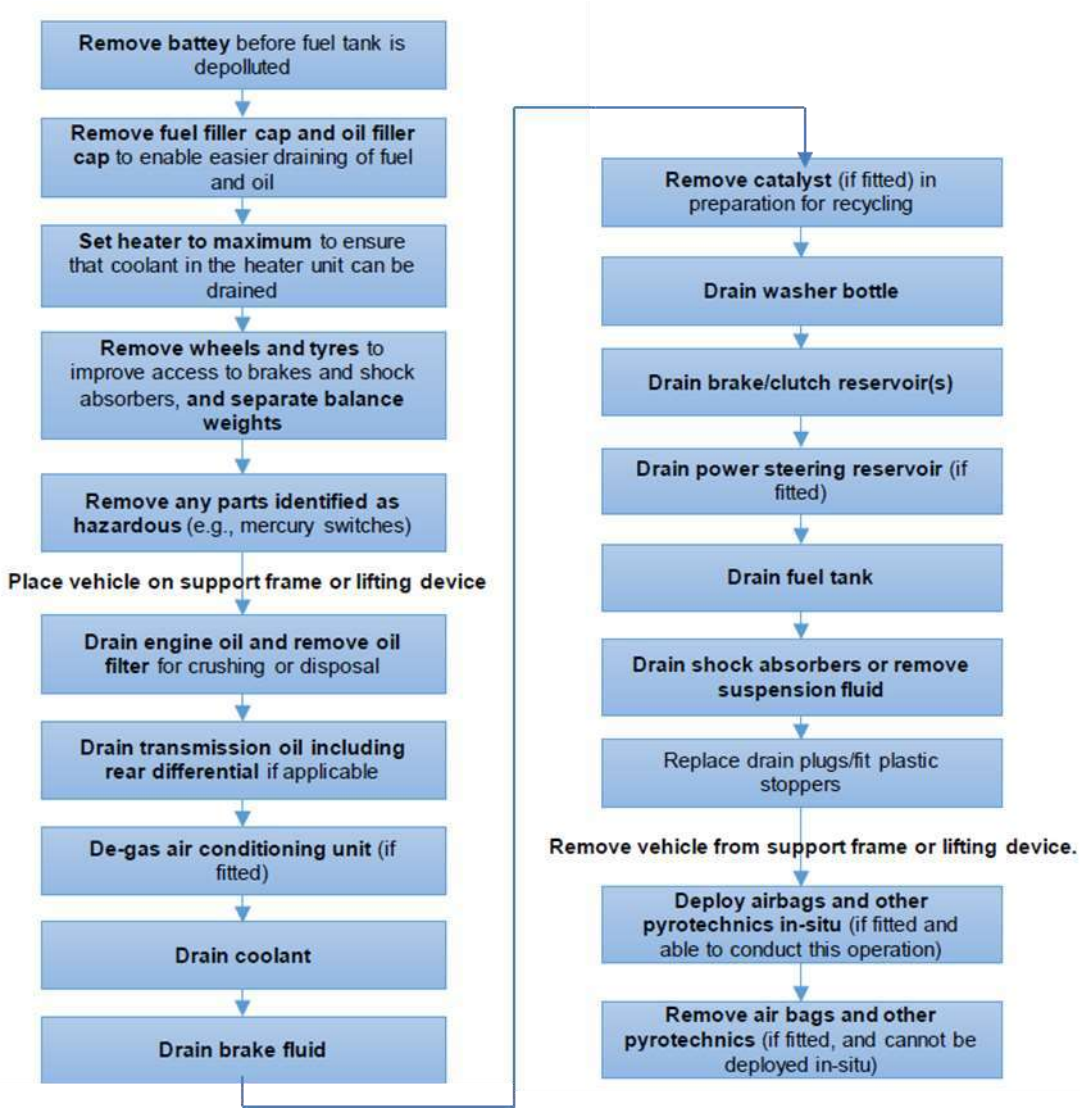


Figure 13: Example of depollution process. Source: Fact sheets on specific waste streams, Expert Working Group on Environmentally Sound Management, Basel Convention

Dismantling operations include parts removal and vehicle depollution (the removal of fluids and hazardous components prior to crushing or shredding) to various degrees. Figure 13 shows an example of the depollution process. In order to depollute a waste vehicle, a number of operations have to be conducted, the sequence of which may vary depending on the vehicle. Model-specific information (such as airbag deployment instructions, identification of mercury-

http://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrialwaste/vehicles/guide-vehic-dismantling-recyc-indenv-plan-reg.pdf

[81] DEFRA/BIS (2011) Depolluting End-of-Life Vehicles (Cars and Light Goods Vehicles) Guidance for Authorized Treatment Facilities. https://www.gov.uk/government/publications/depolluting-end-of-life-vehicles-guidance-fortreatment-facilities

containing components, and information about potentially recyclable parts and components) should be obtained from vehicle manufacturers.

After depollution, all gravity-drained holes should be plugged, either with their own drain plug or a suitable plastic bung, to prevent any residual leakage[82].

Fluid storage should be confined to designated areas that are covered and have adequate secondary containment. Containers should be kept closed, except when adding or removing fluids, and should be inspected regularly to check for leaks, cracks, or structural deficiencies[83].

Fluids of differing types should be stored in separate containers prior to being collected and treated by specialist disposal companies[84]. Proper segregation and storage of fluids is required to promote their recovery and it helps to ensure compliance with applicable regulations. Waste vehicle dismantlers should check with the recycler to determine what materials may be mixed (so as not to restrict the possibilities for recycling). Generally, waste oils (e.g. lubricating, transmission, power steering and shock absorber oils) can be mixed together and stored in the same container. Waste oils should not be mixed with waste solvents or products that contain halogen compounds. At a minimum, separate containers are required for fuels (petrol and diesel separate), oils, brake fluids and antifreeze[85].

Waste oils and waste antifreeze should be stored in steel drums[86]. Although plastic containers are acceptable, the plastic deteriorates over time and will eventually fail. Also, plastic containers are more susceptible to puncture.

Fuels should be stored in a separate, well-ventilated area. Consideration should be given to the installation of a suitable storage tank (designed and constructed to an appropriate national or international standard) if the amount of petrol to be stored is more than 1000 liters of petrol[87].

Mercury-containing convenience lighting assemblies (or mercury switch capsules) and ABS sensor modules should be stored in plastic containers with airtight lids ([88],[89]). Containers should be kept closed, except when adding an assembly or pellet. All employees who remove and/or manage mercury-containing switches should be are aware of proper handling methods

---

[82] DEFRA/BIS (2011) Depolluting End-of-Life Vehicles (Cars and Light Goods Vehicles) Guidance for Authorized Treatment Facilities. https://www.gov.uk/government/publications/depolluting-end-of-life-vehicles-guidance-fortreatment-facilities

[83] State of California Auto Dismantlers Association (2006) Partners in the Solution: Guidance Manual. http://www.scada1.com/wpcontent/ploads/2014/03/partners-manual.pdf

[84] DEFRA/BIS (2011) Depolluting End-of-Life Vehicles (Cars and Light Goods Vehicles) Guidance for Authorized Treatment Facilities. https://www.gov.uk/government/publications/depolluting-end-of-life-vehicles-guidance-fortreatment-facilities

[85] DEFRA/BIS (2011) Depolluting End-of-Life Vehicles (Cars and Light Goods Vehicles) Guidance for Authorized Treatment Facilities. https://www.gov.uk/government/publications/depolluting-end-of-life-vehicles-guidance-fortreatment-facilities

[86] British Columbia Ministry of Environment (2008) Guidebook for the Vehicle Dismantling and Recycling Industry Environmental Planning Regulation. http://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrialwaste/vehicles/guide-vehic-dismantling-recyc-indenv-plan-reg.pdf

[87] Health and Safety Executive (2015) Petrol Recovery from End-of-life Vehicles. http://www.hse.gov.uk/pubns/waste10.pdf

[88] State of California Auto Dismantlers Association (2006) Partners in the Solution: Guidance Manual. http://www.scada1.com/wpcontent/uploads/2014/03/partners-manual.pdf

[89] California Environmental Protection Agency (2005) How to Remove Mercury Switches from Vehicles: A Guide for Auto Dismantlers. http://infohouse.p2ric.org/ref/41/40060.pdf

and emergency procedures for containing and cleaning up mercury spills and leaks. It is recommended that all facilities have a mercury spill kit.

Removal of asbestos-containing brake shoes or clutches should be done using specially designed, low-pressure spray equipment that wets down brake or clutch dust and properly catches the runoff to reduce asbestos being released into the air. The use of a HEPA filter vacuum cleaner should be considered. Asbestos-containing brake shoes and clutches should be placed in a heavy plastic bag, double tied, and store in a leak proof, airtight container designated for asbestos waste[90]. Appropriate containers should be provided for any other hazardous components identified and removed from waste vehicles.

It is recommended that, where possible, airbags be deployed in-situ by trained technicians and using appropriate safety protection. Airbags can be deployed safely by using vehicle manufacturer information on airbag management. Non-deployed airbag units should not go through the shredding process. Seatbelt pretensioners that contain explosive devices also need to be deployed as part of the depollution procedure[91]. Nondeployed air bag modules and inflators removed from vehicles should be managed in a manner that prevents them from being accidentally deployed. They should be stored in a cool dry location with appropriate fire protection. Airbag modules should be stored cover side up and not stacked[92].

Catalytic converters, metal parts containing copper, aluminium or magnesium, tires, glass and large plastic components (e.g., bumpers, dashboard) should be removed for recycling in the dismantling stage, if they cannot be segregated in the shredding process in such a way that they can be effectively recycled[93]. Catalytic converters that contain RCF should be stored in a manner that does not result in the metal casing being pierced or breached (e.g., stored in a rigid container).

Storage should be carried out in such a way as to avoid damage to components which contain fluids or to recoverable components and spare parts. Engines, transmissions and other oily parts should be stored under a tarpaulin, roof, or other temporary or permanent cover and on an impervious surface, or in a covered weatherproof container such that there is no contact with rainfall and surface drainage[94]. Parts removed for resale should be stored on racks where practical. Prevention of fire hazards and of excessive stockpiling should be considered when storing used tires. Generally, no more than 2 vehicle loads of tires should be stored[95].
Engines and pats should only be washed if absolutely necessary. Solvent cleaning of parts should be conducted in a solvent-based parts washer[96]. Cleaned parts should be drained for at

[90] Department of Ecology, State of Washington (2011) Vehicle Recycling Manual: A Guide for Vehicle Recyclers. https://fortress.wa.gov/ecy/publications/publications/97433.pdf
[91] DEFRA/BIS (2011) Depolluting End-of-Life Vehicles (Cars and Light Goods Vehicles) Guidance for Authorized Treatment Facilities. https://www.gov.uk/government/publications/depolluting-end-of-life-vehicles-guidance-fortreatment-facilities
[92] Automotive Recyclers Association (ARA) (2007) ARA Protocol for Use of Original Equipment Non-Deployed Airbags.
http://www.airbagresources.com/downloads/guidelines_and_standards/sc_airbagprotocol_ver1.4_may_2007.pdf
[93] Directive 2000/53/EC of the European Parliament and of the Council, of 18 September 2000, on End-of Life Vehicles. http://eur-lex.europa.eu/legalcontent/EN/TXT/PDF/?uri=CELEX:02000L0053-20130611&qid=1405610569066&from=EN
[94] State of California Auto Dismantlers Association (2006) Partners in the Solution: Guidance Manual. http://www.scada1.com/wpcontent/uploads/2014/03/partners-manual.pdf
[95] Scottish Environment Protection Agency. Guidance on the Standards for Storage and Treatment of End of-Life vehicles. Version 1.2. https://www.sepa.org.uk/regulations/waste/endof-life-vehicles/
[96] Automotive Recyclers Association (ARA) (2015) Certified Automotive Recyclers Guide.

least 15 seconds, or until dripping ceases, whichever is longer; parts should be covered during draining[97]. To prevent evaporation washers should be covered when not in use and circulating sinks should be turned off ([98],[99]). To keep the solvent cleaner longer, the use of parts washers equipped with filters and other separation and treatment options should be considered. Also, segregating cleaning into two stages, each having a dedicated washing unit, can extend the usefulness of the solvent[100]. An on-site distillation unit to recycle waste solvent may be considered to further reduce solvent use and waste ([101],[102]). Waste solvent should be stored in covered containers; solvents and degreasers should not be mixed with oils or with fuels.

Crushing

Vehicle crushers and drain racks should be situated on a bunded or self-contained impervious surface, preferably under a roof and protected from the weather. The floor surface should be sloped to contain fluids. Mobile crushers should always be situated on an impervious surface. Containers designed to be fitted to the crusher can help capture fluids. ([103],[104])

Waste vehicles should be adequately drained prior to crushing. The fluids that drain from the crusher reservoir should be collected and disposed of properly.

Shredding

Shredding involves the actual shredding of materials into smaller pieces as well as the separation and sorting of the material once shredded for acceptance by other operations like a steel mill for metal recycling.

To reduce potential emissions, which may include POPs released from materials that were not properly removed during depollution, .systems for dust suppression (e.g. wet shredding) or dust collection (e.g. cyclones) should be considered.

The amount of auto shredder residue (ASR) that would eventually need to be disposed of can be reduced significantly by separation and recovery of recyclable materials from the shredder residue, primarily plastics, rubber, and residual metals, including the reprocessing of the finer fraction. The non-combustible fraction can also be reduced by separating and recovering the metals and their oxides and perhaps the glass.

---

http://arav3.timberlakepublishing.com/Files/CAR%20Program/CAR%20Guide-2015-FINAL.pdf

[97] State of Connecticut Department of Environmental Protection (2004) Auto Recycling Industry Compliance Guide. http://www.ct.gov/deep/lib/deep/compliance_assistance/manuals_guidelines/autorecyclingguide.pdf

[98] Department of Ecology, State of Washington (2011) Vehicle Recycling Manual: A Guide for Vehicle Recyclers. https://fortress.wa.gov/ecy/publications/publications/97433.pdf

[99] California Integrated Waste Management Board (2003) Proper Automotive Waste Management: Resource Manual. http://www.calrecycle.ca.gov/publications/Documents/UsedOil%5C61003012.doc

[100] Department of Ecology, State of Washington (2011) Vehicle Recycling Manual: A Guide for Vehicle Recyclers. https://fortress.wa.gov/ecy/publications/publications/97433.pdf

[101] Department of Ecology, State of Washington (2011) Vehicle Recycling Manual: A Guide for Vehicle Recyclers. https://fortress.wa.gov/ecy/publications/publications/97433.pdf

[102] Automotive Recyclers Association (ARA) (2015) Certified Automotive Recyclers Guide. http://arav3.timberlakepublishing.com/Files/CAR%20Program/CAR%20Guide-2015-FINAL.pdf

[103] Department of Ecology, State of Washington (2011) Vehicle Recycling Manual: A Guide for Vehicle Recyclers. https://fortress.wa.gov/ecy/publications/publications/97433.pdf

[104] State of Connecticut Department of Environmental Protection (2004) Auto Recycling Industry Compliance Guide. http://www.ct.gov/deep/lib/deep/compliance_assistance/manuals_guidelines/autorecyclingguide.pdf

For the treatment of ASR, several options are available e.g. post shredder technology that separates materials from ASR for recycling. Specific attention should be paid to plastics as these may be contaminated with POPs. ASR may be incinerated and in such cases, incineration should take place in facilities that practice ESM. If incineration is not available, ASR may also be disposed of in a controlled (engineered) landfill. In some states of the United States, treated ASR may be authorized to be used as alternative daily cover at landfills if specified requirements are met.

Certification and Auditing Systems

Environmental management systems (EMS) can help organizations identify and manage their environmental impacts as well as compliance with environmental legislation. Dismantlers and recyclers can become certified (e.g., using ISO, EMAS or industry standards) by demonstrating to an accredited, independent third-party auditor that they meet specific standards to safely recycle and manage waste vehicles. An organization can, however, achieve the same benefits from an EMS whether or not it pursues certification. Non-standardized systems can in principle be equally effective provided that they are properly designed and implemented. See reference section for general guidelines and recommendations to help small and medium-sized businesses develop an EMS[105].

Transboundary Movements

Waste vehicles that have been drained of fluids (e.g. engine oil) and are free of other hazardous components (e.g. lead acid batteries) are classified under entry B1250 of Annex IX to the Basel Convention, when subject to transboundary movement. Table 16 is indicative of fluids and components that are generally removed from waste vehicles during dismantling ([106]-[107]) and their classification under Annexes I, III, VIII and IX of the Basel Convention. Also identified therein is the applicable hazard class or division under the United Nations Model Regulations[108].
Transboundary movements of waste vehicles may be subject to additional restrictions and control procedures in certain countries. In some cases, it may be difficult to distinguish second-hand vehicles from waste vehicles. Contact needs to be made with the relevant competent authorities for further information.

[105] For further information on environmental management systems see:
— European Environment Agency (1998) Environmental Management Tools for SMEs: A Handbook. http://www.eea.europa.eu/publications/GH-14-98-065-EN-C
— U.S. Environmental Protection Agency Environmental Management Systems (EMS). https://www.epa.gov/ems
— Bureau of International Recycling (2006) Tools for Environmentally Sound Management for an ISO compliant Environmental Management System that includes OECD Core Performance Elements for the World's Recycling Industries. http://www.bir.org/publications/esm-tools/
[106] Directive 2000/53/EC of the European Parliament and of the Council, of 18 September 2000, on End-of Life Vehicles. http://eur-lex.europa.eu/legalcontent/EN/TXT/PDF/?uri=CELEX:02000L0053-20130611&qid=1405610569066&from=EN
[107] Agenzia per la Protezione dell'Ambiente e per i Servizi Tecnici (2008) Linee Guida sul Trattamento dei Veicoli Fuori Uso. Aspetti Tecnologici e Gestionali. http://www.isprambiente.gov.it/contentfiles/00004100/4158-rapporto-veicoli-2007-marzo-2008.pdf/
[108] United Nations Recommendations on the Transport of Dangerous Goods, Model Regulations. http://www.unece.org/?id=3598

Examples of waste categories	Y-code, annex I of Basel Convention	H-code, annex III of Basel Convention	A-code annex VIII or B-code annex IX of Basel Convention	United Nations shipping name, number, and hazard class or division
Waste lead-acid batteries	Y31 (Y34)	H8, H11, H12, H13	A1160	Waste Battery, Wet, Filled with Acid, UN2794, Class 8 -or- Waste Battery, Wet, Non-spillable, UN2800, Class 8
Waste lead-acid batteries, drained	Y31	H11, H12, H13	A1160	Environmentally Hazardous Substances, Solid, N.O.S., UN3077, Class 9
Waste battery electrolyte	Y34	H8	A4090	Waste Battery Fluid, Acid, UN2796, Class 8
Waste lithium batteries	Y19	H13	A1170	Waste Lithium Ion Batteries, UN 3480, Class 9
Waste tyres	Not applicable	Not applicable	B3140	Not applicable
Waste mercury switches	Y29	H11, H12, H13	A1030, A1180	Environmentally Hazardous Substances, Solid, N.O.S., UN3077, Class 9
Waste oils	Y8	H11, H12, H13	A3020	Environmentally Hazardous Substances, Liquid, N.O.S., UN3082, Class 9
Petrol (fuel)	Y9	H3, H11	A4060	Petroleum Products, N.O.S., UN1268, Class 3
Waste antifreeze	Y42	H11	A3140	Environmentally Hazardous Substances, Liquid, N.O.S., UN3082, Class 9
Waste catalytic converters that contain RCF		H11		Environmentally Hazardous Substances, Solid, N.O.S., UN3077, Class 9
Waste electrical and electronic assemblies or equipment (e-waste)	Various (e.g., Y31, Y20, Y27, Y45)	H11, H12, H13	A1180	Environmentally Hazardous Substances, Solid, N.O.S., UN3077, Class 9
Non-hazardous waste electrical and electronic assemblies	Not applicable	Not applicable	B1110	Not applicable
Non-deployed airbags	Y15	H1		Safety Devices, Pyrotechnic, UN0503, Division 1.4G -or- Safety Devices, Electrically Initiated, UN3268, Class 9
Waste brake pads containing asbestos	Y36	H11	A2050	Waste Asbestos, Chrysolite, UN2590, Class 9
Metal and metal-alloy wastes	Not applicable	Not applicable	B1010	Not applicable

H1=Explosive; H3=Flammable liquids; H8=Corrosives; H11=Toxic (delayed or chronic); H12=Ecotoxic; H13=Capable, by any means, after disposal of yielding another material which possesses any of the characteristics listed in Annex III of Basel Convention

Table 16. Classification of components of ELVs[109].

EXISTING AND POTENTIAL OPPORTUNITIES FOR REGIONAL COOPERATION FOR ELVS MANAGEMENT

The following are some of the main constraints for implementing an adequate ELVs management system at the local level within the Project Countries that could be addressed through putting in place a regional approach for ELVs treatment:

- Limited availability of suitable land on small islands for treatment and storage facilities, and landfills;

[109] UNEP/CHW/CLI_EWG.5/INF/5, Expert Working Group on Environmentally Sound Management, Basel Convention, June 2016.

- Dependency on viability of exporting recovered materials and hazardous wastes, thus, storage times are larger since large quantities need to be collected;
- In smaller economies, higher rates of recovery have to be achieved to facilitate investments.

These difficulties could be addressed through implementing a regional approach where economies of scale would facilitate investments and space requirements would be reduced due to larger collection rates and more frequency of exports. A regional approach would imply that ELVs collected in several countries are processed at a specific country that would act as a regional hub. Within the project countries, more industrialized economies, such as Dominican Republic or Trinidad and Tobago, would probably show more openness to act as regional hub. On the other hand, a regional approach would imply big challenges for coordination, logistics and legal harmonization. Also, the NIMBY "not in my back yard" effect should be addressed, since importing ELVs would probably result in high levels of resistance from citizenship. It is highly recommended to pursue a deeper analysis on the legal and social viability of using a regional approach, since economically and technically it would initially present several benefits. A similar approach to managing waste of Electronic and electrical equipment is presented in the EPR Final Report[110]. It is recommended to align both regional processes in order to synergize efforts.

In terms of a regional approach harmonization is the key. Although every country will develop its own policies and legislation, consultations should be done to ensure the applicability of the whole system. The design of MOUs, or similar collaboration mechanisms, should be addressed in order to coordinate activities among the project countries on a ELVs specific regulation and an EPR system approach.

When designing the regional approach, at least the following aspects should be considered: common definitions in terms of ELVs; storage, transportation and treatment (decontamination) requirements; accountability and economic aspects; social aspects (such as NIMBY effect and informal sector involvement), priority waste streams, long-term needs (including infrastructure, PPEs, technical assistance and investments), and remaining gaps among other elements.

POTENTIAL ECONOMIC OPPORTUNITIES

Due to the lack of local information, this section presents the potential incomes of selling materials obtained from recycling ELVs, based on raw data from benchmark cases and literature data, taking into consideration that materials obtained are commodities and global prices are applicable. Further assessments should look at costs that are applicable (nationally and regionally) in the Project Countries to obtain the potential economic gain.

For the ELVs average weight composition, details are shown in Table 17.

[110] Extended Producer Responsibility (EPR) Assessment Final Report – Project ISLANDS –BCRC for the Caribbean - 2020

Materials	Weight (kg)	Percentage
Engine Oil	6	0.58%
Tyre	27.3	2.64%
Battery	12	1.16%
Coolant	0.5	0.05%
Iron	671	64.89%
Iron (engine)	149.9	14.50%
Aluminum	40.6	3.93%
Plastic	31.8	3.08%
Glass	37.5	3.63%
Foam	14.8	1.43%
Wires (Copper)	4.3	0.42%
Others	38.3	3.70%

Table 17: Weight composition of the ELVs in Project countries used in this study[111].

The unit price of the materials contained in ELVs and used in this assessment are based on the Kinmen case study[112] and shown in Table 18. For the metal scraps, a constant number was used for simplification, but it is worth highlighting that the unit price is fluctuating. In more detailed and advanced economic studies, different scenarios for metal unit price should be reviewed in order to design tools that could be adapted accordingly to face those fluctuations and still sustain the integrity of the system. In the collected ELVs, there are some parts that can be directly sold to second hand parts traders, service garage, or the public for reuse. These parts mainly include engine, gearbox, alternator, starter motor, head-lamp assembly, etc. However, the unit price of reusable parts has a huge difference due to the different usage situation. The unit price of the reusable parts used here is calculated by dividing the average selling price by the average selling weight of the parts to make the units of all materials the same.

Material	Unit price (USD*tonne)	Content per tonne of ELV
Iron	224	79.39%
Aliminum	1,650	3.93%
Copper	3,300	0.42%
Reusable parts* automobiles	129	9.35%

Table 18: The unit price of the materials contained in ELVs used in this study[113].

The incomes of the dismantling business include reusable parts selling revenue, scraps selling revenue, and subsidies from the government. The former two revenues come from selling the iron scraps, aluminum scraps, copper scraps, and reusable parts, that are those fractions that have a market value, and results are presented in Table 19. Government subsidy for ELVs

[111] Hsin-Tien Lin; Kenichi Nakajima; Eiji Yamasue and Keiichi N. Ishihara (2018): Recycling of End-of-Life Vehicles in Small Islands: The Case of Kinmen, Taiwan https://www.researchgate.net/publication/329159935_Recycling_of_End-of-Life_Vehicles_in_Small_Islands_The_Case_of_Kinmen_Taiwan Accessed April 2020.

[112] Hsin-Tien Lin; Kenichi Nakajima; Eiji Yamasue and Keiichi N. Ishihara (2018): Recycling of End-of-Life Vehicles in Small Islands: The Case of Kinmen, Taiwan https://www.researchgate.net/publication/329159935_Recycling_of_End-of-Life_Vehicles_in_Small_Islands_The_Case_of_Kinmen_Taiwan Accessed April 2020.

[113] Hsin-Tien Lin; Kenichi Nakajima; Eiji Yamasue and Keiichi N. Ishihara (2018): Recycling of End-of-Life Vehicles in Small Islands: The Case of Kinmen, Taiwan https://www.researchgate.net/publication/329159935_Recycling_of_End-of-Life_Vehicles_in_Small_Islands_The_Case_of_Kinmen_Taiwan Accessed April 2020.

management is currently null. The subsidy should come from an ELV fund, conformed by the budget collected from the importers if an EPR approach for ELVs is implemented.

Three different scenarios were assessed for each country : the first one consisting of achieving a 20% recovery rate; the second one, a 50% recovery rate; and, the third one, an 80% recovery rate, in respect to the average ELVs per year over the period 2020-2037. These could be targets for different phases if a stepwise approach is designed.

Country	Average ELVs per year over the period 2020-2037 (tonnes)	Incomes from reselling valuable & scrap materials (USD/Year)		
		Recovery rate 20%	Recovery rate 50%	Recovery rate 80%
Antigua and Barbuda	4,429	238,189	595,472	952,756
Barbados	5,686	305,805	764,514	1,223,222
Belize	9,347	502,691	1,256,728	2,010,764
Dominican Republic	122,546	6,590,947	16,477,368	26,363,788
Guyana	5,908	317,750	794,376	1,271,001
Saint Kitts and Nevis	2,118	113,895	284,739	455,582
Saint Lucia	3,027	162,824	407,059	651,295
Suriname	12,109	651,280	1,628,199	2,605,119
Trinidad and Tobago	42,197	2,269,476	5,673,689	9,077,903
Project Countries	**207,367**	**11,152,857**	**27,882,144**	**44,611,430**
Average incomes per vehicle (USD/vehicle)		**106**	**266**	**426**

Table 19: Estimations of average incomes from reselling valuable and scrap materials in the Project Countries.

On the other hand, due to the lack of information, the cost evaluation of the dismantler is not executed in this assessment but its main components are presented. The costs of the dismantling business can be categorized into acquisition cost (to buy ELV from the owner), operation cost, and transportation cost. The acquisition cost of a vehicle is varying depending on the weight of the vehicle and the vehicle condition. One significant item in the costs is the transportation cost for the vehicle to enter the shredding plant. A high acquisition cost may limit the profit of the dismantler company; a lower ELV selling price may reduce the willingness of the people to surrender the ELV. This may result in ELVs being abandoned in the private land or ELVs being sold to the uncertificated recycler for a higher selling price. The operation cost is the combination of personnel cost and maintenance cost, which includes the land fee, factory maintenance, electricity use, environmental pretreatment operations costs and residue disposal. An assessment on the quantities generated that require environmental pretreatment or final disposal are presented for further analysis.

Rubber from tires, lead acid battery, coolants, and engine oil are the fractions that require environmental pretreatment. They may become a serious problem due to the presence of hazardous materials. Their total weight estimated is shown in Table 20.

Country	Average ELVs per year over the period 2020-2037 (tonnes)	Material recovered that require environmental pretreatment (tonnes/year)		
		Recovery rate 20%	Recovery rate 50%	Recovery rate 80%
Antigua and Barbuda	4,429	39	98	157
Barbados	5,686	50	126	202
Belize	9,347	83	207	331
Dominican Republic	122,546	1,086	2,714	4,343
Guyana	5,908	52	131	209
Saint Kitts and Nevis	2,118	19	47	75
Saint Lucia	3,027	27	67	107
Suriname	12,109	107	268	429
Trinidad and Tobago	42,197	374	935	1,495
Project Countries	**207,367**	**1,837**	**4,593**	**7,349**

Table 20: Estimations of material recovered that require environmental pretreatment in the Project Countries.

Plastic and foam could be recycled if they are free of POPs substances. At this assessment plastic, glass, foam and others are not being recycled and are seen as the residues of the ELV system. They must be adequately treated in an ESM manner. Their total weight is shown in Table 21.

Country	Average ELVs per year over the period 2020-2037	Residues (tonnes/year)		
		Recovery rate 20%	Recovery rate 50%	Recovery rate 80%
Antigua and Barbuda	4,429	105	262	419
Barbados	5,686	135	337	539
Belize	9,347	221	553	885
Dominican Republic	122,546	2,902	7,255	11,608
Guyana	5,908	140	350	560
Saint Kitts and Nevis	2,118	50	125	201
Saint Lucia	3,027	72	179	287
Suriname	12,109	287	717	1,147
Trinidad and Tobago	42,197	999	2,498	3,997
Project Countries	**207,367**	**4,910**	**12,276**	**19,642**

Table 21: Estimations of residues obtained from dismantling in the Project Countries.

An estimation of POP contents, particularly PBDE content, was conducted. Only a portion of the cars produced between 1975 and 2005 worldwide have been treated with c-PentaBDE. It is estimated that about 37% of the approximately 100,000 tonnes c-PentaBDE production approximately 37,000 tonnes) has been used in the transport sector (UNEP, 2010a, 2010b). Considering the estimated 160 g of c-PentaBDE/vehicle, according to the PBDEs inventory calculation method presented in the Stockholm Convention Guidance[114], more than 16 tonnes per year of -PentaBDE could be present in total Project Countries´ ELVs. Table 22 presents these results estimated for the Project Countries.

[114] Guidance for the inventory of polybrominated diphenyl ethers (PBDEs) listed under the Stockholm Convention on Persistent Organic Pollutants, January 2017.

Country	POP c-PentaBDE content (kilograms/year)		
	Recovery rate 20%	Recovery rate 50%	Recovery rate 80%
Antigua and Barbuda	71	177	283
Barbados	91	227	364
Belize	150	374	598
Dominican Republic	1,961	4,902	7,843
Guyana	95	236	378
Saint Kitts and Nevis	34	85	136
Saint Lucia	48	121	194
Suriname	194	484	775
Trinidad and Tobago	675	1,688	2,701
Project Countries	**3,318**	**8,295**	**13,271**

Table 22: Estimations of c-PentaBDE content in collected ELVs.

Tables 23 to 32 present the calculation of POP- PBDEs[115] present in recovered ELVs to the POP-PBDES homologues (TetraBDE, PentaBDE, HexaBDe and HeptaBDE).

Project Countries	Distribution homologues c-PentaBDE	POP PBDE content (kilograms/year)		
		Recovery rate 20%	Recovery rate 50%	Recovery rate 80%
Inventoried c-PentaBDE		3,317.86	8,294.66	13,271.46
TetraBDE	32%	1,061.72	2,654.29	4,246.87
PentaBDE	56%	594.56	1,486.40	2,378.25
HexaBDE	9%	53.51	133.78	214.04
HeptaBDE	0.50%	0.27	0.67	1.07

Table 23: Estimations of TetraBDE, PentaBDE, HexaBDe and HeptaBDE content in collected ELVs in Project Countries.

[115] Case study in a hypothetical country A on POP-PBDEs in the Transport Sector, the Secretariat of the Stockholm Convention (SSC), the United Nations Environment Programme (UNEP), the United Nations Industrial Development Organization (UNIDO), the United Nations Institute for Training and Research (UNITAR), the United Nations (UN), July 2012. http://chm.pops.int/Portals/0/download.aspx?d=UNEP-POPS-NIP-GUID-CaseStudyPBDE-1.En.docx

Antigua and Barbuda	Distribution homologues c-PentaBDE	POP PBDE content (kilograms/year)		
		Recovery rate 20%	Recovery rate 50%	Recovery rate 80%
Inventoried c-PentaBDE		70.86	177.15	283.44
TetraBDE	32%	22.67	56.69	90.70
PentaBDE	56%	12.70	31.74	50.79
HexaBDE	9%	1.14	2.86	4.57
HeptaBDE	0.50%	0.01	0.01	0.02

Table 24: Estimations of TetraBDE, PentaBDE, HexaBDe and HeptaBDE content in collected ELVs in Antigua and Barbuda.

Barbados	Distribution homologues c-PentaBDE	POP PBDE content (kilograms/year)		
		Recovery rate 20%	Recovery rate 50%	Recovery rate 80%
Inventoried c-PentaBDE		90.97	227.44	363.90
TetraBDE	32%	29.11	72.78	116.45
PentaBDE	56%	16.30	40.76	65.21
HexaBDE	9%	1.47	3.67	5.87
HeptaBDE	0.50%	0.01	0.02	0.03

Table 25: Estimations of TetraBDE, PentaBDE, HexaBDe and HeptaBDE content in collected ELVs in Barbados.

Belize	Distribution homologues c-PentaBDE	POP PBDE content (kilograms/year)		
		Recovery rate 20%	Recovery rate 50%	Recovery rate 80%
Inventoried c-PentaBDE		149.55	373.86	598.18
TetraBDE	32%	47.85	119.64	191.42
PentaBDE	56%	26.80	67.00	107.19
HexaBDE	9%	2.41	6.03	9.65
HeptaBDE	0.50%	0.01	0.03	0.05

Table 26: Estimations of TetraBDE, PentaBDE, HexaBDe and HeptaBDE content in collected ELVs in Belize.

Dominican Republic	Distribution homologues c-PentaBDE	POP PBDE content (kilograms/year)		
		Recovery rate 20%	Recovery rate 50%	Recovery rate 80%
Inventoried c-PentaBDE		1,960.74	4,901.85	7,842.97
TetraBDE	32%	627.44	1,568.59	2,509.75
PentaBDE	56%	351.36	878.41	1,405.46
HexaBDE	9%	31.62	79.06	126.49
HeptaBDE	0.50%	0.16	0.40	0.63

Table 27: Estimations of TetraBDE, PentaBDE, HexaBDe and HeptaBDE content in collected ELVs in Dominican Republic.

Guyana	Distribution homologues c-PentaBDE	POP PBDE content (kilograms/year)		
		Recovery rate 20%	Recovery rate 50%	Recovery rate 80%
Inventoried c-PentaBDE		94.53	236.32	378.11
TetraBDE	32%	30.25	75.62	121.00
PentaBDE	56%	16.94	42.35	67.76
HexaBDE	9%	1.52	3.81	6.10
HeptaBDE	0.50%	0.01	0.02	0.03

Table 28: Estimations of TetraBDE, PentaBDE, HexaBDe and HeptaBDE content in collected ELVs in Guyana.

Saint Kitts and Nevis	Distribution homologues c-PentaBDE	POP PBDE content (kilograms/year)		
		Recovery rate 20%	Recovery rate 50%	Recovery rate 80%
Inventoried c-PentaBDE		50.15	125.37	200.59
TetraBDE	32%	16.05	40.12	64.19
PentaBDE	56%	8.99	22.47	35.95
HexaBDE	9%	0.81	2.02	3.24
HeptaBDE	0.50%	0.00	0.01	0.02

Table 29: Estimations of TetraBDE, PentaBDE, HexaBDe and HeptaBDE content in collected ELVs in Saint Kitts and Nevis.

Saint Lucia	Distribution homologues c-PentaBDE	POP PBDE content (kilograms/year)		
		Recovery rate 20%	Recovery rate 50%	Recovery rate 80%
Inventoried c-PentaBDE		48.44	121.10	193.75
TetraBDE	32%	15.50	38.75	62.00
PentaBDE	56%	8.68	21.70	34.72
HexaBDE	9%	0.78	1.95	3.12
HeptaBDE	0.50%	0.00	0.01	0.02

Table 30: Estimations of TetraBDE, PentaBDE, HexaBDe and HeptaBDE content in collected ELVs in Saint Lucia.

Suriname	Distribution homologues c-PentaBDE	POP PBDE content (kilograms/year)		
		Recovery rate 20%	Recovery rate 50%	Recovery rate 80%
Inventoried c-PentaBDE		286.75	716.87	1,147.00
TetraBDE	32%	91.76	229.40	367.04
PentaBDE	56%	51.39	128.46	205.54
HexaBDE	9%	4.62	11.56	18.50
HeptaBDE	0.50%	0.02	0.06	0.09

Table 31: Estimations of TetraBDE, PentaBDE, HexaBDe and HeptaBDE content in collected ELVs in Suriname.

Trinidad and Tobago	Distribution homologues c-PentaBDE	POP PBDE content (kilograms/year)		
		Recovery rate 20%	Recovery rate 50%	Recovery rate 80%
Inventoried c-PentaBDE		999.22	2,498.04	3,996.87
TetraBDE	32%	319.75	799.37	1,279.00
PentaBDE	56%	179.06	447.65	716.24
HexaBDE	9%	16.12	40.29	64.46
HeptaBDE	0.50%	0.08	0.20	0.32

Table 32: Estimations of TetraBDE, PentaBDE, HexaBDe and HeptaBDE content in collected ELVs in Trinidad and Tobago.

Table 33 presents an estimation of decaBDE content considering an average of 2 g of decaBDE/vehicle, based on Danish EPA (2007) estimates of 1-5 g decaBDE/vehicle[116].

[116] UNEP/POPS/COP.9/INF/18, Preliminary draft guidance on preparing inventories of decabromodiphenyl ether, Stockholm Convention on Persistent Organic Pollutants, April 2019. http://www.pops.int/Implementation/NationalImplementationPlans/Guidance/tabid/7730/ctl/Download/mid/20996/Default.aspx?id=13&ObjID=26730

Country	POP decaBDE content		
	Recovery rate 20%	Recovery rate 50%	Recovery rate 80%
Antigua and Barbuda	1	2	4
Barbados	1	3	5
Belize	2	5	7
Dominican Republic	25	61	98
Guyana	1	3	5
Saint Kitts and Nevis	0	1	2
Saint Lucia	1	2	2
Suriname	2	6	10
Trinidad and Tobago	8	21	34
Project Countries	**41**	**104**	**166**

Table 33: Estimations of decaBDE content in collected ELVs in Project Countries.

RECOMMENDED MEASURES

This chapter presents a set of regulatory measures, understood as any policy, strategy, program, law or decree, aimed at addressing ELVS management in a comprehensive manner, that are feasible to be implemented in the Project Countries. Addressing complex issues requires multidimensional solutions that are flexible enough to be adapted to the realities of each country. The policy making process, far from being limited to legal issues, involves and requires a set of strategies that are complementary and mutually supportive.

The objective is to provide decision makers and environmental policy makers with a set of actions to regulate and promote sustainable ELVs management. This proposal, far from bringing an exhaustive list, synthesize the main proved strategies developed in other countries, which could be replicated in the project countries, considering the specific barriers and needs of the Project Countries.

There is no hierarchical order for the different fields of action; each can be addressed by independent processes. There is no need for perfect coherence, but addressing more than one field ensures better success. Each measure itself presents a broad spectrum of intermediate activities that could also be implemented independently and could be seen as milestones to achieve the end goal. Programs for the management of other related waste streams, such as used tires, motor oils and used batteries, which the vast majority of countries already carry out in some way, are a good examples of intermediate steps on the way to the ESM of ELVs. Scrappage programs are also good examples of complementary and intermediate actions. These programs blend perfectly with the mechanisms and policies already in place and at the same time they operate as a matrix for evaluating, for example, the existing treatment capacities, stakeholder's commitment, and consumers' interests. The set of measures proposed is organized as follows:

1. Measures to address the importation of used vehicles
2. Specific ELVs management legislation, with the following components that could be executed altogether or separately:
    a. EPR approach
    b. Establishing an ELV Fund
    c. Collection system

d. Licensing of storage, treatment and disposal facilities, in compliance to Environmental and health standards.
e. Informal Sector
f. Ensuring data availability and improvement of registration and de-registration procedures.

3. Scrappage programs
4. Treatment facilities
5. Design and implement proper enforcement mechanisms.

1. *Measures to address the importation of used vehicles*[117]

The global transfer of second-hand machinery and durable goods has tremendous potential economic benefits. However, the quality of these goods is crucial to sustained economic development and to quality of the local and global environments. Vehicles that meet emission standards in exporting markets, when combined with clean fuels, have the potential to lower the impact of road transport in terms of CO2 and non-CO2 emissions in all markets. Existing vehicle regulatory gaps between developed and developing markets mean that vehicles that make their way into developing and transitional markets may undermine the gains made in other policy areas – including air quality and fuel quality and allow for the transfer of obsolete and polluting vehicle technology.

The referenced background paper states that a brief case survey of developing and emerging vehicle markets shows that where there are even basic import restrictions in place (age, emission limits) the vehicle fleet tends to be less dated.

Some countries have banned the import of used vehicles altogether (e.g. Indonesia, Chile, Turkey, South Africa), while others are using fiscal instruments to encourage cleaner technology e.g. Sri Lanka´s tax reduction for hybrid and electric vehicles imported into the country. Some countries have chosen to place age limits on imports. For example, in Uganda where there is no import restriction, the average age of light duty diesel passenger cars was 16.4 years in 2014; the average age of petrol cars was 15.4 years (Makerere, 2014). In Mauritius, where there is a 3-year age limit on auto imports 50% of imported cars were brand new in 2015. Similarly, in Costa Rica, where imported vehicles must pass an Environment Protection Agency Smog Test and all imported vehicles must have catalytic converters, 80% of the imports are new. The more selective an importing country is in terms of used vehicle quality, the higher the level of technology brought into a market is likely to be. In the absence of vehicle emission standards and developed inspection and maintenance systems, age limits are an attractive policy response for importing markets.

Other countries have chosen to tax older vehicles on first registration. This incremental taxation can be seen in most East European countries. For example, Moldova applies increased taxes for imported vehicles older than 3 years, while banning the import of vehicles over 10 years old. In Russia an age-based taxation system is in place for imported vehicles: 30% tax increase on imported cars older than 1 year; 35% tax increase for imported vehicles from 3 to 5 years old; for vehicles older than 5 year the tax is within 2.5 and 5.8 Euro per cm^3 of engine volume. A yearly road tax/re-registration tax can also be assessed in accordance to vehicle environmental performance.

[117]https://www.unece.org/fileadmin/DAM/trans/doc/2017/itc/UNEP-ITC_Background_Paper-Used_Vehicle_Global_Overview.pdf

In Addition, some countries have strict tests as a precondition for vehicle registration, which means that not all vehicles can be registered once imported. For example, in Zambia there is no age limit for vehicles being imported into the country. However, the Zambia Bureau of Standards requires that vehicles pass a roadworthiness inspection prior to export from Japan. This inspection is conducted in Japan, Singapore, the United Kingdom, United Arab Emirates, and South Africa by an appointed agent. Vehicles that fail this inspection cannot be registered.

In the Project Countries, as it has been presented previously, most countries have in place restriction in the age of used vehicle imports. It is highly recommended that those countries that still have no such restrictions in place move forward towards establishing them. Also, it is important to note that there is a global trend of stimulating the use of hybrid and electric vehicles many and thus encouraging the use of new, less polluting technologies for vehicles. Therefore, it is recommended to follow up the implementation of these policies in the Project Countries, considering the need of putting in place the appropriate mechanisms to adequately handle these ELVs.

In addition, it is recommended a more coordinated approach within the region, by setting up a regional agreement to rationalize and govern the flow of second-hand vehicles.

An initial first step would be to set up roundtables among policy makers and other key stakeholders of the region. A deep analysis on the ages of vehicles being imported is needed, in order to take funded decisions and establish a process for revising existing age limits. The establishment of this type of space for dialogue is very useful for agreeing on regional policies and also for exchanging experiences and good practices. For example, Trinidad and Tobago already has in place a set of specific requirements concerning the import of used vehicles, beyond the restriction in the age of used vehicle imports.[118] Their experience, shared at these roundtables, will certainly help in the implementation of national and regional policies. Furthermore, this is a good example of the complementarity of the proposed measures, since even if a regional ELVs management is not yet developed; a regional policy on used vehicle imports could.

On the other hand, considering that the more selective an importing country is in terms of used vehicle quality, the higher the level of technology brought into a market is likely to be, it is recommended to set other restrictions besides age towards used vehicles imports:

- Vehicle emission standards (Euro 4 or above – to be assessed accordingly to local characteristics such as fuel quality)
- Inspection prior importation (this could be done at export country in international certified laboratories)
- Incremental taxation for older vehicles

2. Putting in place specific legislations for ELVs management.

[118] According to the information delivered from T&T in the survey, the following requirements must be accomplish when import of used vehicles a) the vehicle must be accompanied by a Certificate of Cancellation of Registration stamped by the Transport Authority in the country of origin (Export Certificate) and an Age Verification document, which provides the exact age and chassis/VIN number of the vehicle; b) the air condition unit in the vehicle must be fitted with an ozone friendly refrigerant only; c) the vehicle must be structurally and mechanically sound upon importation and; d)_the vehicle must meet all environmental requirements as determined by statute or Regulations approved by the Transport Commissioner

In general, Project Countries are lagging in the establishment of ELVs- specific legislation due probably to economic and social circumstances, but the environmental awareness and depletion of natural resources should drive these countries in adopting strategies towards sustainable management of ELVs.

Implementing legislation is a critical step in the process of setting up an ELVs management system. Clear definitions are necessary. Not all stakeholders may be willing to voluntarily become a responsible part of the system, so the definition, role and obligations of each stakeholder need to be clearly laid out in the legislation. In order to optimize the various processes, it is important to clearly define the responsibilities of vehicle owners, government agencies, vehicle dealerships and service centers, collection and recycling facilities and other stakeholders. Also, establishment of legally binding definitions on how to distinguish used vehicles from ELVs.

Moving forward to being regulated, it is expected that the Project Countries can change the playing field. Thus, the different stakeholders involved in the regulated management of ELVs will assume responsibilities and internalize the environmental and social costs to enhance the ESM of ELVs.

Experience shows as well, that proper ELVs management systems require the involvement of all stakeholders: government authorities, producers/dealerships, consumers, dismantling facilities -authorized and informal ones too-, remanufacturing facilities, second-hand markets, landfills facilities, civil society, among others. They should all participate and be involved in any policy making process from the very beginning. Thus, ELVs management includes all related activities and material, financial, and information flows between and among the ELVs network entities.

At this point it is worth mentioning the Antigua and Barbuda's EMobility Project, as a good example of putting in place adequate frameworks, in the case, to promote use of fuel-efficient vehicles and reducing fossil fuel dependency. Antigua and Barbuda is one of the countries to benefit with the new Global Environment Facility (GEF) global e-mobility program. The program is aimed to help governments establish supportive policies to enable technology transfer, private sector engagement, and access to commercial finance for the introduction of fleets of electric vehicles. Within this framework the country has begun to pilot electric mobility projects, collecting data and capturing lessons learned for upscaling nationally and across the region. Key transferrable outcomes expected include reducing fossil fuel dependencies by transitioning local fleets to Electric vehicles; opportunities for coupling electric vehicles with renewable energy installations; transferrable feasibility assessment outcomes; approaches for mitigation environmental and social risks of new electric vehicle technologies; and best practices for full life cycle assessments and decommissioning of non-compliant fossil fuel vehicles.[119]

Beyond the strategies deployed by each country to establish appropriate policy frameworks, particular attention should be paid to the overlap of outputs and outcomes that may occur. Without undermining the autonomy of each country to sanction its standards, it is suggested that BCRC will develop proper mechanisms to access to synergies, preventing from o

a. Extended Producer Responsibility (EPR) Approach

[119] [119] "Request for Expression of Interest (EOI)For the Supply of Electric Buses and Charging Stations". Antigua and Barbuda, Department of Environment.
https://caricom.org/wp-content/uploads/Emobility-EOI.pdf . Accessed, June 2020.

The EPR approach is one of the most extended schemes for ESM of different special waste streams as ELVs. It is an environmental strategy that makes the manufacturer or importer of a product responsible for the product he introduces in the market from the design stage until the post consumer stage. The producer / importer is responsible through the entire life cycle of the product. Manufacturers should reduce the overall environmental footprint of their products by reducing the use of toxic and hazardous substances; increasing the use of recycled constituents; enhancing the ease of disassembly; between other measures. Considering that in the Project Countries cars are being imported and there is no manufacturing industry, the accomplishment of better environmental standards could be putted in place by bans in the importation regarding vehicle emission standards or fuel use.

EPR can be managed either individually or collectively. Individual producer responsibility (IPR) means that the producer (manufacturer or importer) takes responsibility individually for its own products throughout the entire life cycle including the collection and 'end-of- life management' through a take back or any other system. Collective Producer Responsibility is when a number of producers, manufacturers, importers and other stakeholders come together and establish an organization to take collective responsibility for the end-of-life management of products manufactured or imported. Such organizations are often called the Producer Responsibility Organization (PRO). They function on behalf of producers and are responsible for collection and channelization of end-of-life products for environmentally sound recycling.

Besides EPR there exist a number of other approaches (shared responsibility, product stewardship, etc.) that are characterized by varying degrees and nuances of producer responsibility. A country's approach ultimately depends on the characteristics of the stakeholders in the production, service, recycling and waste industries; on the existing regulatory framework; and on other specifications. [120]

In some European countries the producer responsibility principle obliges car manufacturers and importers to take back ELVs free of charge, even though in the Netherlands, a vehicle's first owner pays a recycling fee to the manufacturer, seller, or importer from whom he purchases the car.

In Korea, producers and importers are held responsible for the use of hazardous substances, recyclability of materials, ELV collection and information exchange. They are legally required to provide technical support to scrap dealers and ELVs recyclers and to pay for costs if they exceed the benefit of recycling. The respective provisions are laid out in Korea's 2008 Act for Resource Recycling of Electrical and Electronic Equipment and Vehicles (U.S. Environmental Protection Agency 2013). Before this Act, Korea employed an EPR approach in its waste management policy. With the 2008 Act this EPR approach has been developed into an "Integrated Product Policy" that introduced a so called "eco- assurance system". This eco-assurance system follows a two-sided approach to product responsibility, including both preventive actions (environmentally friendly design and manufacture of products) and follow up management (environmentally sound waste management) [121].

[120]Guidelines for Environmental Sound Management of end of life vehicles in India (2016:20) http://164.100.107.13/upload/Latest/Latest_153_Final_Report_on_ELV_Guidelines_December_2016.pdf Accessed, May 2020

[121] Guidelines for Environmental Sound Management of end of life vehicles in India (2016:21) http://164.100.107.13/upload/Latest/Latest_153_Final_Report_on_ELV_Guidelines_December_2016.pdf Accessed, May 2020

Within EPR schemes the definition of the producer is very important, and even more in the Project Countries, were there is no car manufacturing industry. The attempt to place legal responsibility on an overseas manufacturer will be problematic from an enforcement perspective, therefore is more appropriate that the importer of the product takes on the responsibility of the manufacturer in the country of importation.

Considering a significant quantity of used products is imported, it would be appropriate to include used product within the scope of the definition, in order to ensure that the importer takes responsibility for the ELV and does not rely on importers of new product to take responsibility for all used products.

As mentioned already, the establishment of EPR-based legislation should be carried out through consultation with all involved stakeholders to ensure that its implementation is feasible in the local context. It is highly recommended that, once the legislation is in force, review meetings with stakeholders are held regularly to identify and address barriers, challenges and improvements. This could be done through the establishment of an ELV Advisory Council.

b. Establishing an ELV Fund

The operation of the ELV system will need to be financially supported to ensure effective and sustainable operation.

For islands, such as the Project Countries, the recycling is more difficult and the abandoned vehicle problem is especially serious due to the absence of local ELV treatment business and high shipment fees in removing the ELVs. Several studies were conducted on the impact of ELVs in small islands reporting of the problem of abandoned vehicles in Pacific Ocean Island's countries[122] because of the additional cost of the marine transportation of ELVs. Studies revealed that the smallness, remoteness and scatteredness of these island countries make the scrapping and recycling business unprofitable.

Thus, it is of critical importance that ELVs regulations clearly describe who is responsible for financing which element of the collection and recycling system, and how costs will be allocated to individual stakeholders to ensure fair collection and allocation of finances according to best available technologies. An establishment of an ELV fund would serve for these purposes. This fund would collect fees and levies related to ELVs to finance their management. Such instruments could be Advance Recycling Fee (ARF), fee for disposal or ELV levies, paid by importers or users. Collected funds could be used to finance subsidize treatment or transport.

Under the policy of Environmental Protection Administration (EPA) of Taiwan, a certificated dismantling company can get subsidies by conducting the environmental pretreatment, which includes removing oil, tires, battery and coolant. Recycling Fund Management Board (RFMB) for the establishment for the ELV recycling system in Taiwan was established to provide strong economic incentives to further increase the recycling rate in some specific areas of the country, such as in its island communities or rural areas.

[122] Shioji, H. Abandoned vehicles problem in Pacific Ocean islands countries. In Gerpisa Colloquium; The Gerpisa Blog: Paris, France, 2018.

In the countries with legislation on ELV recycling systems, only Japan, a country with many island communities, has the special strategy for ELV treatment in small islands. Japan has successfully operated "Remote Islands Supporting Program," which started in 2005 to deal with the abandoned vehicle problem. This program supports the removal of the ELVs from remote island territories to Japan Main Island and supports up to 80% of the total transportation fee. This supporting program was proven to have decreased the abandoned vehicle number in the island areas of Japan[123].

On the other hand, ELVs management practices, beyond any regulation, adopted a market led approach, in the sense that treatment of ELVs prior to public intervention is determined by the purely commercial costs and benefits associated with the treatment. Since ELVs consist of more than 70 % iron, these have been traditionally traded as a valuable secondary resource, and their recycling has been conducted autonomously based on market mechanisms. When designing the system and considering the strong weight in the economic model that the ferrous scrap price has, measures that could be activated when there is a downturn in the ferrous scrap price to avoid the ELV recycling system malfunction should be included. In this sense, the ELV fund could play key role.

c. Collection system.

Regarding the collection of ELV, an essential part of the ELV management scheme, there are different models of organization according to the conditions of the country or the region. A deeper assessment at each Project Country needs to be conducted to design the most adequate collection system. Following, a set of different implementation schemes is presented for providing policy makers with possible approaches.

In most of the systems the last owner of the vehicle has a central role. The initial step of the system usually begins with the transfer of the ELV to a designated treatment facility where the treatment process starts (de-pollution-dismantling-recycling). In most of European countries, with an EPR system in place, a network of authorized treatment facilities (ATFs) are in place and the last owner of the vehicle is obliged to deliver the car to one of these centers, usually free of charge. In Taiwan, the legal framework provides for two different modes of ELV collection. First, there is a financial reward scheme in place to encourage citizens to voluntarily turn in their ELV after having it de-registered. Secondly, the environmental police authority is entitled to remove deserted ELVs on roadsides. Collection points for ELVs are service stations and car dealers.[124] In China, the collection of ELVs is organized via around 800 "take back stations" that are spread in bigger cities around China. Car owners usually sell their cars to these take back stations, with the price calculations being based on the car's metallic content and the current scrap metal market price.[125]

d. Licensing of storage, treatment and disposal facilities, in compliance to Environmental and health standards.

The regulation must enable the setup of an efficient ELVs management system that enhances depollution, dismantling and shredding processes for optimal resource recovery, and proper

[123] Hiratsuka, J.; Sato, N.; Yoshida, H. Current status and future perspectives in end-of-life vehicle recycling in Japan. J. Mater. Cycles Waste Manag. **2014**, 16, 21–30.

[124] Guidelines for Environmental Sound Management of end of life vehicles in India (2016)

[125] Guidelines for Environmental Sound Management of end of life vehicles in India (2016:20) http://164.100.107.13/upload/Latest/Latest_153_Final_Report_on_ELV_Guidelines_December_2016.pdf Accessed, May 2020

management of non-valuable/hazardous waste. It is important that regulations require that all collection points, dismantling and shredding plants must be licensed or in compliance with national regulations to receive, manage, store, dismantle and recycle ELVs. As in the de-pollution process (sometime depollution and dismantling are being carried out together and identified as dismantling) removed materials may either be explosive or corrosive, this phase must follow strict health and safety rules and contamination of the environment must be prevented. This includes storing hazardous components and materials separately and providing adequate training for employees.

Several countries that engage in ELV practices have inadequate health and safety measures for workers employed in such facilities. For instance, in the process of de-pollution and dismantling of ELVs having labelling policies / sharing information on hazardous substance embedded in ELVs would be helpful.

An initial step could be to pass guidelines for the ESM of ELVs, until binding legislation is approved. The guidelines for environmentally sound management of End- Of - Life Vehicles (ELVs)[126] published by the Central Pollution Control Board (CPCB), Government of India, are a good example since, thought they are not binding, they provide guidance for proper handling of ELVs at every stage.

e. Informal Sector

Since there is no legislation for ELVs management or formal processes established, due to the high value contained in ELVs, there is a large presence of informal sector engaged in ELV handling and dismantling in the Project Countries. Informal recyclers have basic technical know-how and years of experience and should be absorbed in the formal setup, resulting in more adequate practices. The absence of a formal system of treatment for the extended period has conditioned many persons into poor methods of disposal, such as burning which contributes to great levels of pollution. It is important that these actors are not further marginalized by the legislation and are provided with incentives and options to become part of the system, through organization and gradual formalization with appropriate training. Failing to address the informal sector can lead to severe difficulties in channeling waste streams to the formal sector, as the informal sector can treat waste at a more competitive price due to substandard treatment.

f. Ensuring data availability and improvement of registration and de-registration procedures.

Data availability should be ensured to put in place proper management schemes. Many countries cannot always provide the export and import data for used automobiles from their trade statistics. This is because there is no distinct way of disaggregating used vehicles in the country statistics. Often, used and new vehicles are recorded in a similar manner and there is no way to disaggregate. This presents a problem in that it is difficult to put in place fiscal measures targeted at reducing used vehicle imports.

[126] Guidelines for Environmentally Sound Facilities for Handling, Processing and Recycling of End-of- Life Vehicles (ELV), Central Pollution Control Board, Ministry of Environment, Forest & Climate Change, Government of India, Parivesh Bhawan, East Arjun Nagar, 2019.
http://www.mpcb.gov.in/sites/default/files/standing_orders/Guidelines_Handling_Processing_and_Recycling_ELV_26092019_0.pdf

The need of a MoU, or a similar collaboration instrument, between customs and governmental waste managers is identified as an opportunity to facilitate an open access to updated valuable information. During the project implementation phase, the generation of a regular report on vehicles and spare parts entering the countries, differentiating new from used and informing quantities as well as value and weigh, would provide waste managers with important information for designing and implementing ELVs management programs.

It is well proved in public policies that a solid information system always enforces and improves any strategy or plan. Enough and efficient information is central for the evaluation and reformulation of any public program. Thus, at least the following measures should be promoted:

- A strong mechanism for traceability of vehicles from production/importation until deregistration and treatment should be in place.
- Trade statistics should be available to policymakers disaggregating vehicles sold, imported and exported per year and type, distinguishing export and import data for used automobiles. Other relevant information is: Age, Origin, Weight, Emission limits, fuel quality, Technology used.
- Vehicles ownership / vehicles deregistered, per year and per type, detailing their age.
- Vehicle stocks.

On the other hand, it was assessed that there is no formal procedure for the deregistration of vehicles in the Project Countries. It is recommended to use clean and common definitions for `registration´, `de-registration´ `temporary de-registration´ `suspension´, `cancellation of the registration´ and `permanent cancellation of the registration´. Also, the requirement of deregistration should be legally enforced linked to the need to present a Certificate of Destruction (CoD) and enable the competent authorities to keep track of the vehicles missing. It should be noted that the number deregistered cars in a country need not necessarily equal the number of ELVs as not every deregistered car is declared an ELV. Deregistered automobiles can also include cars prepared for export, cars used within private sites and cars that are illegally dumped as waste.

In practice, there are different approaches for deregistration across the EU member states. While in most countries deregistration takes place when a car owner wishes to dispose of its vehicle, however in few countries deregistration is compulsory every time the ownership of the car changes (e.g. Austria).

In most countries deregistration of the vehicle is done by the authorities or agencies that register the vehicles for plying on road. The deregistered vehicles are removed from the road and no further road tax is paid.

When the deregistered vehicles are accepted as ELVs for recycling, the recycling company carries out the recycling procedures and at the end of it provides a CoD which completes the disposal of the vehicle. In the EU the certificate is issued to the holder/owner of the vehicle when it is transferred to an ATF. Also, in the EU, the presentation of a CoD is a condition for the deregistration of an ELV.

In Taiwan, de-registration traditionally only required the car owner to hand over the car's license plate to a Motor Vehicle Service Station (MVSS). As the ELV was thereafter still considered to be the owner's property, there were no mechanisms in place to monitor the subsequent use of the ELV. This led to low ELV recycling rates. A recent amendment to Taiwan's Waste Act now obliges car owners to hand in their ELV to a legal recycling operator.

The recycling operator then issues a certificate that is considered a required document for deregistering a car at the MVSS.[127]

To improve the efficiency of the notifications on CoDs it is recommended to establish the obligation to ATFs and collection points to submit electronic notifications to the registration authorities if a CoD is issued.

A tax to be charged to the vehicle owner as long as the vehicle is registered can be set up as an incentive for a vehicle owner to de-register a vehicle, in order to stop paying it, and also, it will allow the authorities to have better tracking of the de registered vehicles.

Greece implemented a circulation tax to vehicles which are registered as active. The basis of the tax is to charge the uses of the public road by vehicles. At the United Kingdom the car owner is responsible for the vehicle and is liable to pay taxes until a certificate of destruction is produced. In in other countries this tax is applied and known as the registration fee or motor tax.

3. Scrappage programs

Many European countries had introduced large-scale scrappage programs as an economic stimulus to increase market demand in the industrial sector. These programs can be government or industry budget based. They were installed to promote the replacement of old vehicles with modern vehicles. They generally have the dual aim of stimulating the automobile industry and removing inefficient, more polluting, vehicles from the road.

Austrian government has introduced a scrapping incentive scheme to support new car demand. The program was funded equally by the government and the car industry. The overall budget for the program was €45 million. The budget was thus enough to incentivize the purchase of 30,000 new cars—approximately 10% of Austria's "normal" market volume. The old car had to be scrapped with documented evidence and had to be at least 13 years old before scrapping and it also had to be roadworthy as evidenced by a valid technical inspection certificate.

Cyprus introduced a couple of Plans for Withdrawal and Replacement of Old Cars. The aim was to promote the correct management of old cars by authorized dismantlers. The program promoted the withdrawal of cars over 15 years old and also provided financial support for the replacement of old cars with new ones, if the owner wished to buy a new car. The two plans were financed by the government and combined they received 13,602 applications, totaling €11.3 million in grants. Overall, the scrapping schemes cost the state a total of €19.6 million. However, according to the government, the cost is considered minimal compared with the program's benefits in terms of road safety and reduction in pollution.

Portugal implemented several scrapping that increased their scope. The first scrapping scheme was first established in 2001 originally as an ELV program, and in 2007 it was increased the incentive available for scrapping an older car. At that point the scheme started to become more successful. In 2009, the age thresholds were lowered which also brought more vehicles into the scheme. In 2009 the scheme introduced an upper CO_2 threshold of 140g/km for the

[127] Guidelines for Environmental Sound Management of end of life vehicles in India (2016:14) http://164.100.107.13/upload/Latest/Latest_153_Final_Report_on_ELV_Guidelines_December_2016.pdf Accessed, May 2020

new car that is purchased. The purpose of the schemes is to rejuvenate the car park. The addition of a CO_2 threshold in 2009 makes it clear that CO_2 reduction is now also an objective. During 2009 a total of 41.735 units were registered, of which 33.804 vehicles were passenger cars, and 7,931 vehicles were LCV. The average weighted CO_2 of new passenger cars purchased under the scheme in 2009 was 126.6g/km; this was a distinct improvement from the 134.7g/km in 2008 and 135.7g/km in 2007.

4. Treatment facilities

The capacity required to treat collected ELVs has to be installed, taking in consideration existing infrastructure. In this sense, two main approaches are possible and their feasibility should further be assessed during the Project Execution Phase, with the involvement and guidance of a regional roundtable of ELVs policy-makers and key stakeholders:

- A national approach: one comprehensive facility which has a depolluting unit, dismantling facility, recycling space, and, possibly, shredding machinery set up at each Project Country; or
- A regional approach: a comprehensive larger facility with depolluting unit, dismantling facility, recycling space, and shredding machinery set up at one or some Country(ies) acting as regional hub, receiving ELVs from other countries of the Caribbean. If the local treatment is not feasible, the direct removal of the ELV as a whole vehicle can make recycling possible. Treatment in a bigger economy usually means higher recycling and recovery rate. Considering from the aspect of environmental protection, this may be the most straightforward solution of the accumulated material problem. The main difficulties for this strategy are the high transportation cost, the legislative barriers and the fact that the hub country would have to deal with the residual hazardous waste and for these, adequate disposal operations (e.g. to treat POPs) are to be in place.

Recognizing the important role of the provisions of the Basel Convention in addressing transboundary shipments of hazardous materials, efficient ELV recycling solutions in line with BET and BAP may require a regional approach instead of a national approach. At the national level, it may not be possible to generate and collect sufficient volumes to make the installation and operation of holistic treatment facilities economically, while economies of scale could be encouraged if a regional approach is implemented.

Such an approach might require special consideration for transboundary movements of ELVs routed to the regional hub within the national and regional legal frameworks for ELV management. In order to avoid operational issues when determining transboundary flows, it is recommended that the distinction between hazardous and non-hazardous ELV waste is clearly defined in the legislation (following provisions in the Basel Convention).

In either case, the proper technologies have to be installed in each ATF according to the degree of depollution, dismantling or shredding taking place. After the shredding process, dense media can be separated from the light ASR, or Shredder Light Fraction (SLF), using an air classifier. Magnetic separation can then be used to remove the ferrous fraction, non-ferrous materials, and plastics. Materials that can be recycled are then exported to manufacturers. The remaining light and heavy ASR fractions are then sent to energy recovery and landfills. Specific attention should be paid to the light ASR fraction as it may be contaminated with POPs. ASR may be incinerated and, in such cases, incineration should take place in facilities that practice ESM. If incineration is not available, ASR may also be disposed of in a controlled (engineered)

landfill. To reduce potential emissions, which may include POPs released from materials that were not properly removed during depollution, systems for dust suppression (e.g. wet shredding) or dust collection (e.g. cyclones) should be considered.

As a mid-term outcome, the regularization of existing downstream handlers / informal scrap iron dealer is important and a low hanging opportunity to action. This would improve substantially good practices and reduce the environmental and health risks associated with improper disposal of ELV.

5. Design and implement proper enforcement mechanisms.

Without enforcement, stakeholders (e.g. dismantlers, recyclers, and importers) who comply with environmental, health, and safety standards may be at a financial and operational disadvantage compared to companies that do not comply (free-riders). Effective monitoring and enforcement of EPR legislation across the country is essential to create a level playing field for all companies and limit free-riding; without it, total failure of the legislation may occur. Effective enforcement depends on adequate monitoring and surveillance of dismantlers, recycler, and producer/importers activity, as well as communication and collaboration among different stakeholders. For instance, regular exchange with stakeholders from the private sector can help to identify free-riders, remaining challenges, and possible solutions.

When monitoring EPR-based legislation, identification and registration of importers, in individual or collective collection schemes, is essential. PROs or individual importers should report on the contracting of service providers, the network of dismantling and treatment facilities. This information needs to be verified independently.

It is also necessary to know the annual quantities of ELV treated. ELVs being treated in illegal facilities have direct negative environmental, health and economic impacts. Most countries carried out repressive action against illegal treatment and/or have intensified controls on ELV. Developing inspection campaigns for the vehicle maintenance, repair, dismantling and shredding sector should be done.

Portugal has successfully reduced the illegal treatment of ELVs through a package of measures, including an annual road tax, a scrappage incentive program, increased taxation and a national plan for the eradication of illegal scrapping. It has also considerably increased the number of authorized treatment facilities. In the United Kingdom, the Environment Agency launched a coordinated national campaign to tackle illegal ELVs and scrap metal sites. It introduced harsh penalties, as a result of which about half of the illegal sites closed or were brought into regulation within 12 months. Denmark addresses the trade and illegal treatment of ELVs by paying a premium that only the last registered owner can receive. Other countries, like Greece, carry out deep control campaigns and inspections to discourage illegal treatment facilities.

On the other hand, enforcing that MEAs provisions are being complied with is of extreme relevance, particularly Basel and Stockholm Convention in regards to the management, disposal and export of POPs containing waste and hazardous waste resulting from the dismantling and depollution processes.

Clear incentives / sanctions can facilitate enforcement and help send a strong signal to stakeholders. Incentives should be enough to motivate stakeholders to take the extra measures needed for compliance. Sanctions should be enough to present a greater financial or reputational risk from non-compliance than the benefits gained.

Incentives could be a premium payment when a CoD is issued, funded by public Budget or funded by a deposit system. Such a deposit system is established in Denmark. Sanctions can include penalties or revoking the right of a producer/importer or PRO to operate or fines for illegal dismantling, for selling an ELV to illegal dismantlers, and for dealers dealing with dismantled (used) spare parts from non-authorized facilities.

Prosecutors and judges may need capacity building to bring legal force to sanctions. National and especially local public authorities may lack the resources and staff to implement enforcement actions. Thus, national regulatory authorities need to provide targeted information, guidance, and training.

ANNEXES

ANNEX A: SURVEY FOR NATIONAL STAKEHOLDERS

Follow the survey sent to National Stakeholders of the Project Countries

Questionnaire sent to Governments

Name: Position: Organisation: email:

1) Do you have local production of (i) vehicles and/or (ii) its constituents/parts in your country or are they mainly imported?

   a. Indicate quantities of locally manufactured and imported (i) vehicles and/or (ii) its constituents/parts per year, if available.

   b. If imported, please provide an approximation on how many primary importers and third party dealers make the main business of (i) vehicles and/or (ii) its constituents/parts?

2) Does your country allow imports (i) used vehicles or of (ii) used constituents/parts? Yes / No

   a. If yes, please indicate whether any requirements are required for import e.g. certificate of origin, maximum year of manufacture, others.

   b. Indicate quantities per year if available

   c. What are the major countries (i) used vehicles or (ii) used constituents/parts are imported from?

3) Do you keep a national registry of vehicles in use and/or of end-of-life vehicles? If so, please provide, as far as possible, information concerning the procedure for registration and deregistration of vehicles, the latest statistics available and a contact to reach out to from the agency responsible for the registry.

4) Do you have any estimation of the lifespan of vehicles in your country? Please indicate source of information or method used in case of estimation.

5) Please provide, if available, an estimation of ELVs generated per year in your country (clarify if info provided is in units or tons). Please indicate source of information or method used in case of estimation.

6) Is there a formal process established for collection of ELVs? If so, please explain it.

7) If there are no formal processes or regulations for ELVs management, please briefly explain how ELVs are usually handled at your country.

8) Do you ensure Companies or government agencies have any specific regulations for handling their ELVs? If so, please explain it.

9) Are ELVs being recycled in your country? If so, please provide available information to describe the activities being developed e.g. quantities, existence of depollution and dismantling activities and procedures, relevance of second hand markets, destination of recovered materials, if these are governmental activities or private sector initiatives. Provide contacts if available.

10) Is there an informal sector involved in ELVs recycling in your country? If so, please provide available information e.g. number of people involved, destination of the material recovered, available information regarding health statistics.

11) Please indicate the main disposal treatments used for ELVs in your country. Indicate quantities per year if available.

12) Which would be the main challenges and priorities you can identify at your country for establishing an ELVs management system?

13) Do you identify abandoning of ELVs or illegal dumpling as serious problems in your country? Are there any known stockpiles?

14) Does your Country have any regulations or formal processes in place related to ELVs management? If so, please explain them. What types of vehicles are addressed?

15) According to the current legal framework at your country, which type of legislations are needed to put in force an ELVs management system (Law, Decree, other)?

16) Which would you consider would be the main pros and cons of implementing a National versus a Regional[128] ELVs management approach?

	National ELVs Management Approach	Regional ELVs Management Approach
PROS		
CONS		

17) Which would you consider would be the main pros and cons of implementing an Extended Producer Responsibility (EPR) system[129] on ELVs in your country?

[128] The EPR system is coordinated among several countries of the region e.g. ELVs collected at different countries would be processed at one country that would act as a regional hub.

[129] EPR (Extended Producer Responsibility) instruments aim at making producers/importers responsible for the impacts on health and the environment of the products they put on the market.

PROS:

_____
_____
_____

CONS:

_____
_____
_____

Questionnaire sent to Treatment facilities / Recyclers

Name: **Position:** **Organization:** **Email:**

1) Please provide a brief description of your business regarding end-of-life vehicles (ELVs) management.

2) Are there any regulations or formal process established for collection and/or management of ELVs? If so, please explain it.

3) Does your operation require a governmental permit to operate? Do you receive environmental audits from the authorities? If so, please indicate an approximate frequency.

4) Indicate, if available, estimated quantities or percentages of ELV received and treated per year, detailing, as far as possible, a) type of car: 4-wheels, 2-wheels, cars, trucks, etc.; b) origin: abandoned vehicles, household owners, insurance companies, public sector, other; c) average age of vehicles received per type. Please clarify if info provided is in units or tonnes. Please indicate source of information or method used in case of estimation.

Type of vehicle	Estimated quantity received/treated	Origin/Source of vehicle (e.g. abandoned vehicles, household owners, insurance companies, public sector, other)	Average age. Less than 10 years old / Between 10 – 15 years old / More than 15 years old
Cars (including SUVs)			
Trucks			
Other (***)			

5) In the reception of an ELV, would you say you usually receive a complete ELV or some parts of it are usually missing? Is there an acceptance criteria applied?

6) Please describe the process applied at your facility, from the moment of reception of the ELV up to the moment of disposal or commercialization of obtained materials, specifying the sub-products and materials obtained. Please describe technology applied at each stage (e.g. manual dismantling, depollution[130] techniques, crushing, shredding).

[130] According to European Directive on ELV **(2000/53/EC DIRECTIVE)** Depollution is one of the activities carried out in the treatment process, together with dismantling, shearing, shredding, and any other operation carried out for the recovery and/or disposal of the ELV and its components. In particular treatment operations for depollution of ELV includes: a) removal of batteries and liquified gas tanks; b) removal or neutralisation of potential explosive components, (e.g. air bags); c) removal and separate collection and storage of fuel, motor oil, transmission oil, gearbox oil, hydraulic oil, cooling liquids,

7) If depollution is taking place, please indicate: the types of streams treated, the process applied to each one, environmental and health safeguards, estimated annual quantities obtained, destination given, legislation or standards applied. If it is possible, indicate estimated costs for this stage of the treatment.

Materials / waste streams obtained after depollution	Storage procedures applied. Indicate if these products are stored in special areas. Please indicate average time of storage.	Environmental and health safeguards implemented.	Estimated annual quantities in tonnes.	Final destination
Batteries				
Air bags				
Mechanical oils in general (fuel, motor oil, hydraulic oil, gearbox oil, among others)				
Refrigerant gases				
Components containing mercury				
Tires				
Plastics				

antifreeze, brake fluids, air-conditioning system fluids and any other fluid contained in the ELV, unless they are necessary for the re-use of the parts concerned and; d) removal, as far as feasible, of all components identified as containing mercury. As a conclusion, the recycling process of ELV's starts with depollution and dismantling processes. The depollution processes are the removal in the first place of hazardous substances such as lead batteries, mechanical oils and refrigerant gases.

Glass				
Fabrics				

8) If possible, indicate types, amounts or percentages and destinations of sub products / materials obtained per type per year. Please clarify if info provided is in units or tons. Please indicate, in case you export the materials obtained, if Basel Convention procedures[131] are applied.

9) In case shredding is carried out, please indicate estimated annual amounts obtained and final destination of Auto shredder residue ASR[132].

10) Indicate estimated quantities, treatment and destination given to the hazardous waste generated throughout the process.

11) Could you indicate, while safeguarding confidential business information, whether the income statement is positive / whether the operation as a whole is cost effective? If possible, please describe briefly the sources of income of your business: you collect a fee for treating vehicles, you have governmental aid, you pay users for receiving their ELVs, the earnings of the selling of the obtained materials finance the operation, other. If possible, provide figures and numbers. Do you consider there's some part of the process that could improve your profitability? If so, which instrument or measure you consider should be adapted.

12) Please describe briefly your operational capacity: inform how many operators / employees you have. If possible, indicate the type of activity carried out by each: e.g. dismantlers, reception, shedder operator, administrative, general manager.

---

[131] Controlling transboundary movements of hazardous and other wastes is a corner stone of the Basel Convention. Parties to the Basel Convention have the overall obligation to ensure that transboundary movements of hazardous and other wastes are minimized and that any such movement is conducted in a manner which will protect human health and the environment. In addition to these general obligations, the Convention provides that transboundary movements can only take place if certain conditions are met and if they are in accordance with certain procedures.
http://www.basel.int/Implementation/Controllingtransboundarymovements/Overview/tabid/4325/Default.aspx

[132] The shredding of automobiles results in a mixture of ferrous metal, non-ferrous metal (e.g. alloys of copper and aluminium) and shredder waste, called **automotive shredder residue** or **automobile shredder residue** (ASR). ASR consists of glass, fibber, rubber, automobile liquids, plastics and dirt. ASR is in Europe classified as hazardous waste. Trends nowadays are to limit current landfilling practices and impose an increased efficiency of the recovery and recycling of ELVs.

Specific attention should be paid to plastics as these may be contaminated with Persistent Organic Pollutants (POPs). ASR may be incinerated, and, in such cases, incineration should take place in facilities that practice ESM. If incineration is not available, ASR may also be disposed of in a controlled (engineered) landfill.

13) Please describe briefly the layout indicating total and sector´s surfaces of your facility: surface dedicated to reception, to treatment, storage of received ELVs and its capacity, storage for sub-products ELVs and its capacity, for hazardous wastes ELVs and its capacity, administration, others.

14) Please indicate the storage capacity, for received ELVs and obtained sub-products, materials and wastes. Which would you say is the average time each of this are stored before treatment, sales or disposal?

15) According to your infrastructure and operational capacity, how many tonnes or vehicles are you capable to treat per month/year? Please inform the actual idle capacity at your facility.

16) Is deregistration of vehicles legally required at your country? If so, is your company authorized to deregister vehicles? If yes, could you establish the procedure used. If the deregistration process is not carried out at your facility, could you could indicate whether the final consumer is required to provide proof of deregistration before admitting the ELV.

17) Do you know if there is an informal sector involved in ELVs recycling in your country? If so, could you please describe, to your knowledge, how the informal sector operates? What kind of material they manage, how they get it and what is the destination?

18) Do you identify abandoning of ELV or illegal dumpling as serious problems in your country?

19) What would be the main challenges, opportunities and priorities to your business with the establishment of a formal, nation-wide ELVs management system?

20) Which would you consider would be the main pros and cons of implementing an Extended Producer Responsibility (EPR) system[133] on ELVs in your country?

21) Which would you consider would be the main pros and cons of implementing a National versus a Regional[134] ELVs management approach?

	National ELVs Management Approach	**Regional ELVs Management Approach**
PROS		
CONS		

[133] EPR (Extended Producer Responsibility) instruments aim at making producers/importers responsible for the impacts on health and the environment of the products they put on the market.

[134] The EPR system is coordinated among several countries of the region e.g. ELVs collected at different countries would be processed at one country that would act as a regional hub.

Questionnaire sent to Importers

Name:
Position:
Organization:
Email:

1) Please provide a brief description of your business.

2) Which countries of the Caribbean Region do you currently have import/dealership operations?

3) Are you a direct importer of (a) new vehicles, and/or (b) used vehicles?

4) Please complete the table below as far as possible:

Type of vehicle	Estimated units imported	Estimated units sold	Origins of Imports	Average weight per unit	Average lifespan	Average age range
	NEW VEHICLES					
Cars (including SUVs)						
Motorcycles						
Trucks						
Other (***)						
	USED VEHICLES					
Cars (including SUVs)						
Motorcycles						
Trucks						
Other (***)						

Note: if you operate in more than one country, please provide the information discriminated per country.

5) Is there a restriction on the age of used vehicles which can be imported in your countries of operation? If so, please indicate it. If there is no limit, which would be the implications that setting a limit may have on your operations?

6) Are you aware of any formal process established for the collection and/or management of end-of-life vehicles (ELVs)? If so, please explain it.

7) Is deregistration of vehicles legally required in your country? If so, is your company authorized to deregister vehicles? If yes, could you detail the procedure used.

8) Please indicate if your company is involved is some part of the management of ELVs or end of life of vehicle components, e.g. if you collect or accept ELVs and send them to recyclers / treatment facilities.

9) Do you know if there is an informal sector involved in ELVs recycling in your country? If so, could you please describe, to your knowledge, how the informal sector operates? What kind of materials do they manage, how do they get it and what is the destination?

10) Do you identify abandoning of ELVs or illegal dumping as serious problems in your country?

11) What would be the main challenges, opportunities and priorities to your business with the establishment of a formal, nation-wide ELVs management system?

12) What would you consider to be the main pros and cons of implementing an Extended Producer Responsibility (EPR) system[135] on ELVs in your country?

[135] EPR (Extended Producer Responsibility) instruments aim at making producers/importers responsible for the impacts on health and the environment of the products they put on the market. EPR systems have helped to increase recycling and collection rates, as well as generating financial resources to pay for these activities. Among the most accepted classification of EPR instruments are the following two categories: (i) take back systems and (ii) Economic and trade-based instruments (these include measures such as deposit-refund schemes and Advanced Disposal Fees (ADF)). If a take-back system is to be implemented, even in combination with other EPR instruments, a key definition is the governance model to implement. This may be, among others, governmentally-run or privately-run (by establishing a single or competing Producer Responsibility Organizations (PROs)). PROs are set up, financed and organized by the industry sector to manage the wastes of the products they putted on the market. In the Government-run model the State plays the leading role and producers are only financially responsible for the costs of waste collection and treatment.

13) What would you consider to be the main pros and cons of implementing a National versus a Regional[136] ELVs management approach?

	National ELVs Management Approach	Regional ELVs Management Approach
PROS		
CONS		

[136] The EPR system is coordinated among several countries of the region e.g. ELVs collected at different countries would be processed at one country that would act as a regional hub.

ANNEX B: BENCHMARK OF COUNTRIES LIFESPAN

Follow the benchmark of other countries lifespan.

Country	Average lifespan PV	Year	Source	Web
United Kingdom	8	2018	ACEA, National statistics	http://www.aut.fi/en/statistics/international_statistics/average_age_of_passenger_cars_in_some_european_countries
Average European Union	11.1	2018	ACEA, National statistics	https://www.acea.be/statistics/article/average-age-of-the-eu-motor-vehicle-fleet-by-vehicle-type
New Zaeland	14.4	2017	Ministry of Transportation, New Zaeland	https://www.transport.govt.nz/mot-resources/transport-dashboard/2-road-transport/rd025-average-vehicle-fleet-age-years/
Greece	15.7	2018	ACEA, National statistics	http://www.aut.fi/en/statistics/international_statistics/average_age_of_passenger_cars_in_some_european_countries
Hungary	15.7	2018	ACEA, National statistics	http://www.aut.fi/en/statistics/international_statistics/average_age_of_passenger_cars_in_some_european_countries
Romania	16.3	2018	ACEA, National statistics	http://www.aut.fi/en/statistics/international_statistics/average_age_of_passenger_cars_in_some_european_countries
Estonia	16.7	2018	ACEA, National statistics	http://www.aut.fi/en/statistics/international_statistics/average_age_of_passenger_cars_in_some_european_countries
Luthuania	16.9	2018	ACEA, National statistics	http://www.aut.fi/en/statistics/international_statistics/average_age_of_passenger_cars_in_some_european_countries
Kinmen	18	2018	Ministry of Transportation and Communications, Taiwan.	http://www.motc.gov.tw/en/

Appendix 12 – Communication strategy from project 10266

GEF ISLANDS and related Sustainable Development Goals:

Executive Summary

Programme context

- The $450 million GEF ISLANDS programme supports 27 Small Islands Developing States (SIDS) in the Caribbean, Indian Ocean and Pacific Ocean to sustainably develop without a build-up of toxic and hazardous substances in their territories. The programme will prevent the release of over 23,000 metric tons of toxic chemicals and more than 185,000 metric tons of marine litter.
- Due to their small size and narrow resource bases, SIDS are import-dependent economies. As such, the quantities and variety of imported products are increasing and generating different types of hazardous and toxic wastes, that SIDS do not have the technical capacity to address alone. Waste volumes are also increasing due to changing consumption patterns, and the disposal of non-biodegradable materials, industrial and agricultural chemicals pose an increasing challenge to the islands.

22.

Communications context

- Although they are at different stages, all SIDS share a similar development trajectory. But because of their remoteness and the absence of mechanisms or platforms for sharing resources, they lack opportunities to cooperate and learn from each other's experiences to improve chemicals and wastes management. In the past, many (un)successful initiatives were developed on chemicals and wastes across SIDS countries; however, they all failed to share and learn from experiences and resources, thus their contribution to the common knowledge was never effective.
- GEF ISLANDS Communication Strategy guides global and regional to create long lasting cooperation among SIDS. The vision of the programme is to advance collaboration on chemicals and waste problems by improving global information sharing; create knowledge products that build capacity, engage audiences and close information gaps; and grow sustainability awareness and change behaviours on chemicals and waste.

Recommendations

- GEF ISLANDS will promote behavioural values such as: think solutions, deliver quality, act local and think global, sharing information and taking responsibility, welcome diversity, and work with integrity.
- GEF ISLANDS will leverage the learning from each regional project and facilitate continued stakeholder engagement at national and international level. Knowledge will be managed through a web-based platform to facilitate exchange between SIDS. It will use existing knowledge and capacity for training in each region and combine it with the establishment of distance learning materials and courses for use across regions.
- GEF ISLANDS knowledge management process will share information and build capacity, whereas its communication process will change behaviours and raise awareness. Technical products will be gathered in a digital system for retrieval and storing of information, and media products will be shared through channels like websites, social media and other media.
- Building a global chemicals and waste community of practice will improve the visibility of the GEF ISLANDS knowledge products and creating digital platforms will establish the global recognition of the GEF ISLANDS programme.

Activities

- The activities will focus on defining key knowledge products from outputs and deliverables. The knowledge will be published on the SAICM Knowledge Platform – assuming it is operational in advance of child project inceptions – and disseminated to key stakeholders.
- An additional activity will include the development of a simple and coherent global indicators framework that distinguishes between outputs and impacts, creates linkages across international agreements and is supported by a reporting scheme, facilitating measurement of progress towards managing chemicals and wastes.
- In particular, the GEF ISLANDS programme will:
    - Outline a GEF ISLANDS brand manual summarizing visual identity guidelines, FAQs, core brand assets, boilerplate text, plus GEF ISLANDS social media and digital channels.
    - Produce knowledge products such as: databases, publications, visual material.
    - Create global, regional and national communications campaigns per year.
    - Integrate with communication items such as: video/animation, a digital brochure, a set of infographics.
    - Develop digital platforms such as: a cloud-based intranet, the GEF ISLANDS website.

Outputs

- GEF ISLANDS brand manual and brand assets (logos, colours, infographics, communication templates).
- Knowledge products such as: databases, publications, visual material.
- Global, regional and national communications campaigns per year.
- Communication items such as: video/animation, a digital brochure, a set of infographics.
- Digital platforms such as: a cloud-based intranet, the GEF ISLANDS website.
- Media engagement through the GEF ISLANDS digital platforms and the IA and EA's social media (Facebook, Instagram, YouTube, Twitter and LinkedIn).

Table of Contents

A (DRAFT) COMMUNICATION STRATEGY

Section 1 - Where are we now?

23.

24. *1 Purpose of this Communications Strategy*

25.

26. The ultimate aim of this communication strategy is to guide global and regional communication of the GEF ISLANDS chemicals and waste programme. Written during programme preparation, this strategy outlines activities to be delivered by the KMCC child project, which IETC will execute. Communication objectives steer KMCC activities and regional child projects in their quest to achieve ISLANDS programme objectives. Discussions about internal and external communications were held with Implementing and Executing Agencies (Annex 1). This document is intended for the use of implementing and executing partners contributing to child projects under the GEF ISLANDS Programme. This includes BCRC Caribbean, FAO, IADB, SPREP, UNDP, and UNEP.

27.

Organisations designing and delivering ISLANDS

- UN Environment Programme (UNEP)
- InterAmerican Development Bank (IADB)
- International Environment Technology Centre (IETC)
- Food and Agricultural Organisation (FAO) of the United Nations,
- United Nations Development (UNDP),
- Basel Regional Centre for the Caribbean (BCRC)
- Secretariat of the Pacific Regional Environment Programme (SPREP).

28. *1.2 Background*

29.

30. ISLANDS consists of five child projects designed by Implementing Agencies (IAs) and delivered by Executing Agencies (EAs). Four of the child projects have a regional focus; two focus on nine countries in the Caribbean, the Indian Ocean regional child incorporates four countries and 14 countries are participating in the Pacific Islands regional child. The KMCC child is an overarching project with a global focus.

31.

32. Table 1 set sets out all organisations and countries involved in ISLANDS child projects.

Table 1 – ISLANDS Programme child projects and participating countries

ISLANDS Child Project		IA	EA	Outcomes
Global: Knowledge Management, Communication and Coordination (KMCC)		United Nations Environment Programme	International Environmental Technology Centre, UNEP	Package, store, capture and disseminate Knowledge Products that improve technical capacity for safely managing chemicals and waste.
Caribbean: Antigua &Bermuda, Barbados, Belize, Dominican Republic, Guyana, St Kitts &Nevis, St Lucia, Trinidad and Tobago	Incubat or CP	International American Development Bank	Basel Convention Regional Centre for the Caribbean	Recycling: Increase from 20% to 45%; EPR: Increase activities from 0 to 5; Electronics management: Reduce PBDE by 40%, Waste: Reduce UPOPs 35% by 2025, reduce penta-BDE 40%; Mercury: End import/export by 2025; POPs: By 2025, 100% eliminate PCBs, reduce PFOS by 80%; Agriculture: Reduce highly hazardous pesticides.
	Regional CP	United Nations Environment Programme Food and Agricultural Agency (FAO) of the United Nations	Basel Convention Regional Centre for the Caribbean	
Indian Ocean: Union of Comoros, Maldives, Mauritius, Seychelles		United Nations Development Programme	United Nations Development Programme	Individual country targets: improving waste management including hazardous waste (PCBs, POPs), build greener supply chains, reduce marine litter and mercury.
Pacific CP: Cook Islands, Fiji, FSM, Kiribati, Marshall Islands, Nauru, Niue, Palau, PNG, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu		United Nations Environment Programme	Secretariat of the Pacific Regional Environment Programme (SPREP)	Recycling: Improve regionally from 47% to 75%; EPR: Increase oil activities from 0% to 10%; E-waste: Increase EPR activities from 0 to 8; Waste collection: Increase user pays systems from 9% to 14%.

1.3 Challenges and opportunities

The overarching objective of ISLANDS is to support SIDS to enter a safe chemical development pathway. This will be done through strengthening their ability to control the flow of chemicals, products and materials into their territories, unlocking resources for long term management and integrated chemicals and waste management in SIDS.

On a per capita basis, waste generation in SIDS is high and continues to rise. The ISLANDS SIDS are also import-dependent economies, have limited land resources and high population densities. It is these combined pressures and barriers that the ISLANDS Programme seeks to address. See Annex 2 for more information about the operating context and challenges to consider when developing ISLANDS communications.

Risks of harmful chemicals and waste in SIDS

1. Public health problems
2. Waste of precious resources
3. Damage to fragile ecosystems
4. Increasing pollution levels in
   1. places that rely on a clean environment for tourism
5. Disposal of toxic waste in landfill
   2. which is dangerous because of
3. rising sea levels and threat from natural disaster

1.4 ISLANDS Programme Unique Selling Point (USP)

ISLANDS is pioneering a new approach by putting in place a global SIDS chemicals and waste programme that provides international steer and oversight of three regional SIDS projects. This international structure and coordination means that the KMCC will influence the consistent design and production of ISLANDS Knowledge Products which will narrow the current SIDS chemical and waste information gap.

Efficiently and effectively managing knowledge globally, through sharing and growing a SIDS chemicals and waste community of practice is what makes the ISLANDS programme unique. A global approach promotes efficient exchange of knowledge and experience across regions that would be more difficult with regional-only interventions.

Section 2 – Where do we want to be?

33.

34. *2.1 Overarching ISLANDS Programme objectives*

To enable SIDS to develop more sustainably, the overarching objectives of ISLANDS are to:

- Prevent the build-up of materials and chemicals in the environment that contain POPS and Mercury and other harmful chemicals in SIDS; and
- Soundly manage and dispose of existing harmful chemicals and materials in SIDS.

35.

36. *2.2 Core ISLANDS (brand) promise and personality*

37.

38. ISLANDS will improve chemicals and waste management through targeted interventions in each of the 27 countries. Through five child Projects, the Programme aims to achieve the following Global Environmental Benefits:

39.

40. **Table 2.** Global Environmental Benefits that ISLANDS will deliver

41. Core indicators	42. Target
. Area of marine habitat under improved practices (excluding protected areas) (Hectares)	. 185,400 ton of plastic pollution prevented
. Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products (metric tons of toxic chemicals reduced)	656 metric tons of toxic chemicals reduced 23,236 tons of products, material etc. that the project is addressing, 38 metric tons of mercury (Hg) avoided
. Reduction, avoidance of emissions of POPs to air from point and non-point sources (grams of toxic equivalent gTEQ)	47. 197gTEQ
. Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment	3,680,047 (50% male, 50% female) .

50. The ISLANDS brand is a combination of the name, logo, symbols, design, packaging and performance. This includes the perceptions and associations that come to mind when people think about the programme. Brand personality is different to values that frame working culture (see 2.3); the latter reinforce brand personality and have a broader aim to create the right operating culture.

51. Brand personality succinctly summarises the spirit of a project, programme or organisation, it involves giving human characteristics to a brand (or project) to provide clear differentiation. What combination of human qualities form the ISLANDS band personality? Table 3 outlines ISLANDS' key characteristics and corresponding behaviours.

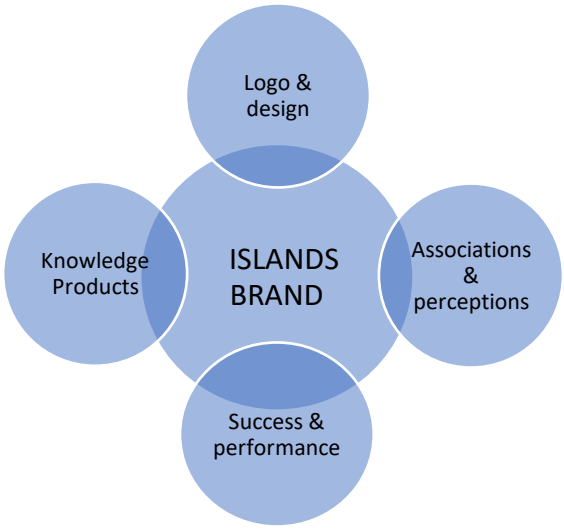


Table 3. Values that define the ISLANDS (brand) personality

Characteristic	Behaviour
Enterprising	Seeking to achieve something new by focussing on solutions. Pioneering new approaches to tackle complex problems.
Collaborative	Listening, finding synergies, positively and productively working together across territories to achieve outcomes.
Influential	Providing expertise, authoritative information and resources. Putting in place persuasive solutions that significantly improve sustainability in management of toxic chemicals and waste.

2.3 ISLANDS working culture

ISLANDS is ambitious in what it seeks to achieve and diverse in the people, places and projects that make up the overall programme. Different organisations are executing independent initiatives that contribute to the overall brand promise.

Each organisation has different working cultures that are affected by hierarchy, policies, processes and each country's distinctive national and local culture; all these factors will influence *how* people deliver work. Therefore, a set of working values outlining a high performing but inclusive culture has been defined to underpin ISLANDS. This sets out expectations, helps to harmonise ways of working, inspires collaboration, problem solving and independent thinking across a wide geographical network over a period of five years.

Draft Programme values can be seen in table 4 on the next page. Recommendations about how these values could be embedded and implemented are set out in Annex 3.

Five reasons to have Programme values

Working values are about not just what people do but *how* they do it. A set of values defining ISLANDS working culture can help:

1. People understand how to deliver a project in the *right way*
2. Improve ways of working and foster a shared team spirit
3. Set a clear and coherent framework for behaviour
4. Establish confidence among external stakeholders
5. Set expectations about what good practice looks like

Table 4: List of ISLANDS behavioural values to frame GEF ISLANDS working culture

52. Value	53. What does it mean?	54. What does good look like?	55. And, not so good?
56. **57. Think solutions**	• Fully understanding and anticipating problems yet being practical and optimistic about a remedy. • Focusing on opportunities to achieve ISLANDS aims. • Carefully considering how to find the right solution.	• Taking a 'can do' approach. • Persevering through difficulty. • Sharing learning constructively, even when mistakes have been made.	• Using negative reasons as an excuse to ignore a problem. • Waiting for others to provide solutions. • Avoiding difficulty.
Deliver quality **58.**	• Taking pride in delivering excellent service and high-quality work. • Striving to exceed expectations, understanding barriers to success. • Being straightforward and communicating clearly when dealing with others.	• Sharing best practice and encouraging others to do so. • Presenting complex information clearly. • Developing collaborative, positive and supportive working relationships.	• Producing incomplete work which is late and lacks quality. • Working relationships are not always constructive. • Not sharing information which might be helpful to others.
59. **60. Act local, think global**	• Thinking beyond borders because the global advancement of better solutions for managing toxic chemicals and waste is central to ISLANDS. • Developing a wide network of people who are working to solve related issues. • Embracing a broad approach.	• Thinking about how a problem affects people beyond the immediate locality. • Considering how a C&W solution is relevant elsewhere. • Making time to collaborate with relevant people in other territories.	• Limited thinking and not building links with groups tackling similar issues. • Not asking, 'What can we do and who can we work with to solve this'? • Not talking with other donor agencies or spotting duplications.
Sharing information & taking responsibility **1.** **62.**	• Using initiative. Taking responsibility for sharing information and knowledge nationally, regionally and globally. • Admitting when things have not worked well. • Good quality teamwork. Communicating regularly with ISLANDS team members, productively contributing to meetings.	• Making an effort to understand why an activity didn't work. Not blaming others. • Proactively sharing information, contributing productively to the team. • Dealing constructively with negative feedback.	• Blaming others. • Walking away from a tricky problem. • Denying involvement when a project is not going well or not speaking up about a problem early enough. • Not sharing information or supporting the wider ISLANDS team.
63. **4. Welcome** **5. diversity**	• Respecting everyone, whatever their background. • Developing productive and positive working relationships. • Embracing differences.	• Developing positive relationships with everyone collaborating on ISLANDS. • Valuing contributions from everyone. • Welcoming different perspectives.	• Acting negatively toward others due to differences. • Not taking responsibility. • Not engaging in self-reflection when problems arise with other people.
66. **67. Work with integrity**	• Being open and honest. • Understanding that without trust, working relationships don't flourish. • Treating others as you wish to be dealt with.	• Earning the respect of others. • Being reliable. • Delivering what you say you will when you say you will.	• Not being open or honest. • Doing something which you think isn't right. • Telling people what they want to hear, rather than what you really think.

68. *2.4 Communication vision, objectives and evaluation*

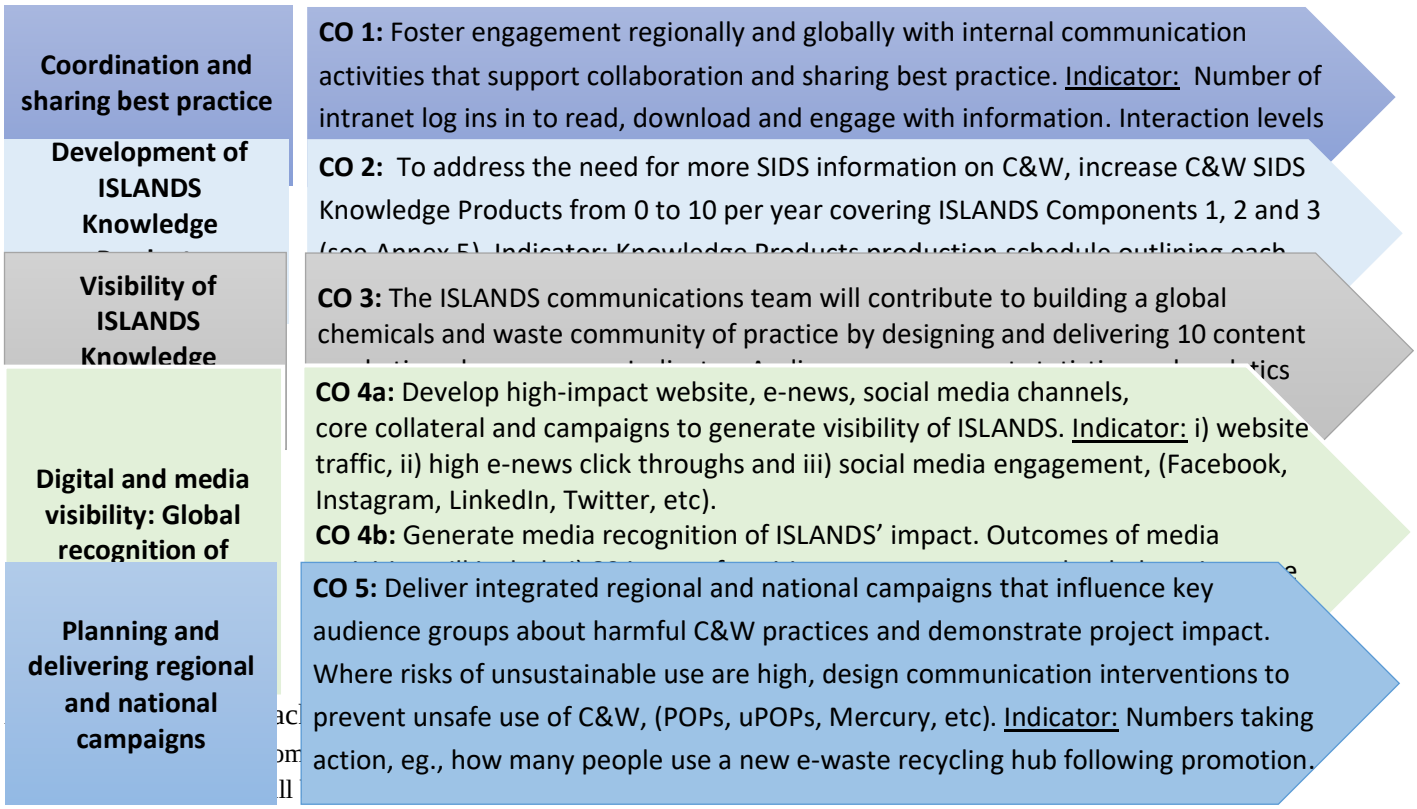
69.

70. To achieve ISLANDS overall programme objectives, two child projects in the Caribbean, one in the Indian Ocean and one in the Pacific Islands will execute activities under four components (described in in Annex 5). The regional projects will develop Knowledge Products as part of Component 4. The KMCC is responsible for generating, capturing and sharing these assets.

71. This strategy seeks to facilitate and enhance the execution of ISLANDS, by setting out a harmonized approach to communication that is consistent with these core programme components. The ISLANDS communication vision (see box, above) will support the delivery of these outcomes with SMART (Specific, Measurable, Achievable, Relevant and Timed) **Communication Objectives (CO)**:

GEF ISLANDS Communication Vision:

1. Advance collaboration on chemicals and waste problems by improving global information sharing.
2. Create Knowledge Products that build capacity, engage audiences and close information gaps.
3. Grow chemical and waste sustainability awareness and behaviours to deliver ISLANDS recognition and Global Environmental Benefits.



iii) *How* communication activities need to be delivered
iv) *When* and *where* activities need to take place
v) What good looks like
vi) Other activities supporting each communication objective.

For definitions of internal and external communication and how they apply to GEF ISLANDS see Annex 4.

2.5 Gender considerations

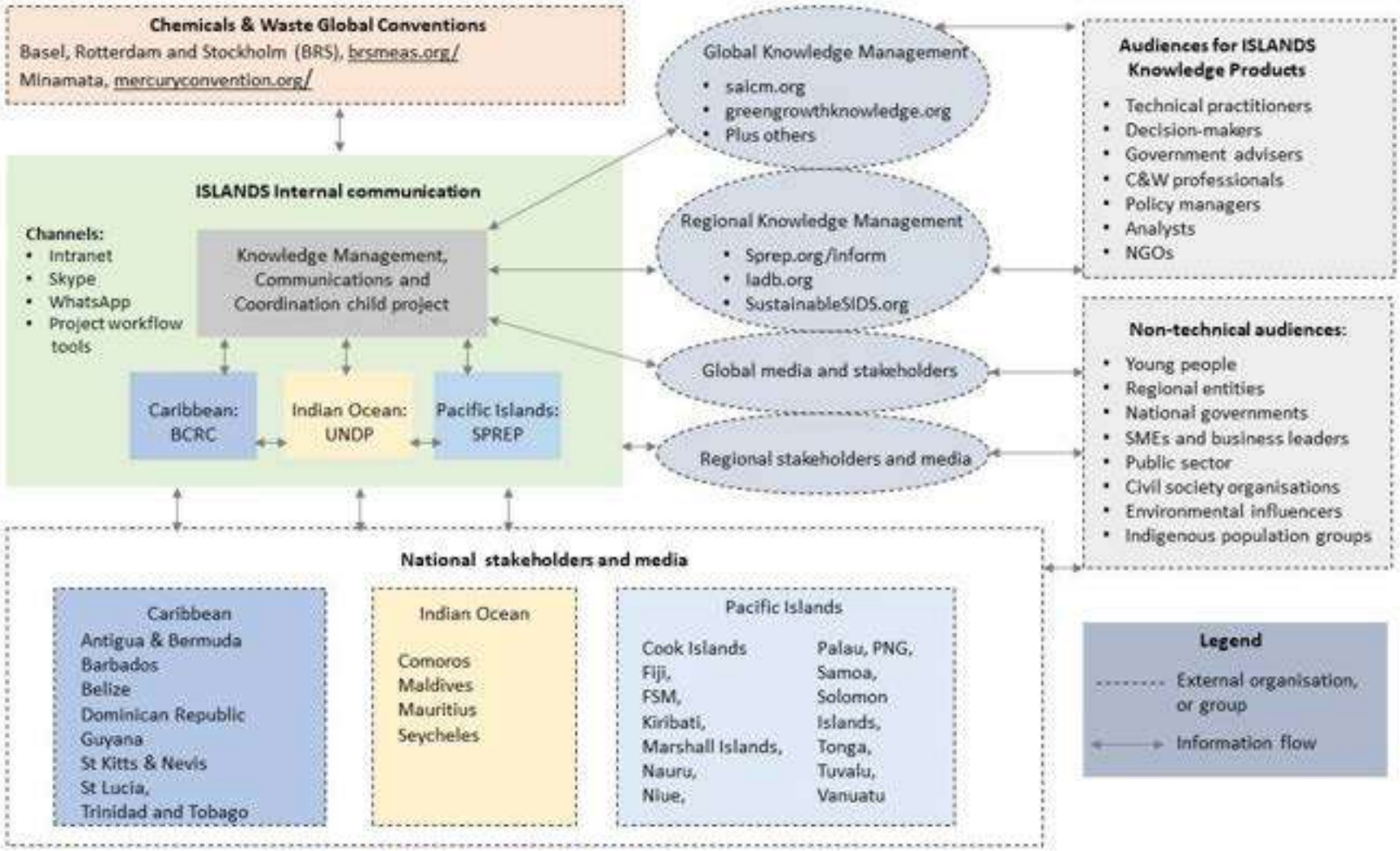
The structure of the waste sector reinforces normative gender roles and this is the product of attitudes and stereotypes of men and women.

GEF ISLANDS will take a gender mainstreaming approach to ensure child project activities, either: i) do not reinforce existing gender inequalities (that is, are **Gender Neutral**); or, ii) attempt to redress existing gender inequalities (that is, are **Gender Sensitive**); or, iii) attempt to re-define women and men's gender roles and relations (**Gender Positive / Transformative**).

As a minimum standard, all ISLANDS communication materials must be gender neutral; an attempt should be made to include both men and women in a gender sensitive way. ISLANDS communications leads need to embrace gender mainstreaming in chemicals and waste by looking at and understanding resources supporting this work.[60] Annually, ISLANDS will run a chemical awareness campaign supporting International Women's Day (table 13).

[60] GEF (2018). Guidance to Advance Gender Equality in GEF Projects and Programs and UNDP (2017). MAINSTREAMING GENDER INTO UNDP-GEF PROJECTS ON CHEMICALS AND WASTE

Diagram 1. ISLANDS Internal and External Communication information flows



Section 3 – How do we get there? Communicating ISLANDS

This section explains how ISLANDS key communication objectives will be achieved through communication focus areas:

i) Collaboration, coordination and sharing best practice (CO 1),
ii) Developing Knowledge Products (CO 2),
iii) Visibility of ISLANDS Knowledge Products (CO 3),
iv) Digital and media presence: Recognition and visibility of ISLANDS work on C&W (CO 4a and CO 4b),
v) Planning and delivering regional and national (behaviour change) communication campaigns (CO 5).

Each communication objective supports the overarching programme aim to, 'prevent the build-up of materials and chemicals in SIDS, and to manage and dispose of existing harmful chemicals and materials in SIDS'.

3.1 Setting up and resourcing the ISLANDS communications team

The GEF ISLANDS communications team will consist of:

- A communications lead (Global Head of Communications, or 'global communications lead') who sits within the KMCC and coordinates the three regional communications managers/officers. This person should hold a postgraduate communications qualification or have at least 10 years of international communication experience, including successful management of budgets, agencies and remote, virtual teams.

- The global communications lead reports to the ISLANDS Programme Steering Committee (PSC), which includes all IAs and EAs and oversees: communication budgets; approval of Knowledge Products; achievement against communication objectives; communications team operation; and information governance (privacy and security of ISLANDS technology platforms and data relating to team members).

- Each of the three ISLANDS regional communications leads should have at least 7 years' development communication experience within the regions they serve, and a hold postgraduate qualification in communications or related discipline. Communications team members would benefit from a journalistic or publication development background and have good video and audio production skills. The communications leads will need an ability to turn complex information into compelling stories, Knowledge Products and other online content.

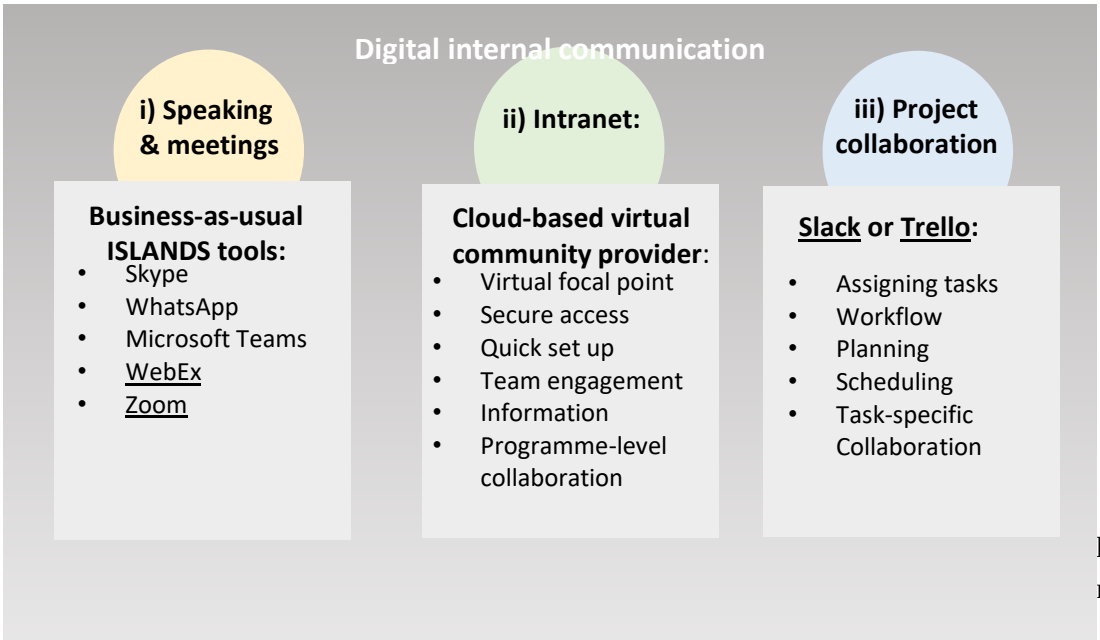
3.2 Tools for enabling ISLANDS internal communication

This section sets out communication and coordination necessary to run the KMCC and three regional projects, including tools for supporting efficient and effective working. Due to the remoteness of the 27 participating countries, a large part of internal communication will take place via online channels. These fall into three areas, (i) tools to enable day-to-day communication, namely speaking and meetings, (ii) a globally accessible, cloud-based intranet which will host essential documents and enable global and regional coordination, (iii) tools for specific project collaboration.

i) Speaking and meetings. IAs and EAs are already using tools listed in diagram 2 to communicate across various environmental and development projects in remote SIDS locations. As Skype and WhatsApp are regularly used for hosting regional meetings and day-to-day conversations, these tools will continue to provide the basis for ISLANDS internal regional communication. Recommendations are provided about effective use of these tools in Annex 6.

Microsoft Teams is used by UN Environment Programme and the Basel Convention Regional Centre for the Caribbean and this collaboration platform is slowly replacing Skype for Business. If Microsoft reduce investment, this could potentially undermine Skype's future effectiveness. Teams is a powerful tool but over-relying on one platform to collaborate risks excluding team members who don't have access. WebEx is also a useful tool for connecting with workers in remote locations and will be used as a back-up for running large meetings when Skype or WhatsApp aren't accessible to everyone. WebEx is an effective tool for internal training and delivering webinars, webex.com/. Free versions available.

Diagram 2. Internal communication tools



ii) l team ration, research. Table 5 sets out key functions and content. These functions are available within Microsoft Teams but not all ISLANDS team members have access and this creates the need for a globally accessible platform. If UNEP is unable to set up a platform which can be accessed by all ISLANDS team members, including individual contractors, a cloud-based intranet provider of globally accessible virtual communities will host the ISLANDS intranet, for example, My Hub: https://www.myhubintranet.com, Same Page, https://www.samepage.io/or **iNovem,** www.inovem.com. Subject to IT policies of lead agencies, it would be possible to quickly and easily set up an ISLANDS intranet. Free trials are available.

iii) Project-specific collaboration. The ISLANDS communication team would benefit from using project-specific, web-based workflow collaboration tools such as Slack or Trello. Free versions are available but sharing documents is not recommended unless paying for a subscription due to Intellectual Property considerations. Both are compatible with Apple, Windows and Linux operating systems. Carefully check privacy terms and conditions when using free versions of collaboration platforms, including Google Documents, another useful tool for joint creation and development of digital documents.

Table 5. ISLANDS intranet, content and capabilities

ISLANDS intranet (platform to be provided by cloud-based supplier)	
Intranet content	• Strategy documents, project and programme information • ISLANDS brand assets (logos, infographics, communication templates etc) • Images and illustrations • ISLANDS processes, policies and guidance documents • Location information for team members and projects • Meeting documents
Communication, coordination &	• A calendar tool to schedule global and regional meetings • Ability to create different folders for storing and sharing global and regional work

collaboration function	• Ability to upload, create and access different content and documents • Message exchange • Organise surveys which can be used internally or externally to research or gain feedback from ISLANDS team and/or stakeholders

3.3 How ISLANDS team members will work together

The previous section describes digital tools that will be used by ISLANDS team members to coordinate and conduct work. This section sets out more information about internal communication activities necessary for effective collaboration and global information sharing.

Table 6. Communications Objective 1 and activities

Communications focus area	**Internal communication, collaboration, coordination and sharing best practice**
Communications Objective 1 (CO 1)	**CO 1:** Foster greater engagement at regional and global levels through a series of ongoing internal communication activities that support collaboration and sharing of best practice. Indicator: Number of team intranet log ins in to read, download and engage with information. Also, interaction levels between teams via intranet.
Activity	Regular internal communication activities that include meetings and intranet use.
What	**Regional project meetings:** • When regional projects launch from June 2020, weekly within-region team meetings will take place in the Caribbean, Indian Ocean and Pacific Islands. These meetings will be the main forum for exchange for each of the regional and national projects on progress. All regional team members will contribute. **Global meetings:** • Once a month, a global KMCC meeting will take place which all regional team members will join. This is an opportunity for regional projects to exchange ideas, share success and progress, hear updates from the PSC and communications team. Progress of ISLANDS Knowledge Products will be a standing item. **Global Communications Network:** • The main monthly forum for the ISLANDS communication team to plan activities and share ideas. Communications leads from external organisations, including Implementing and Executing Agencies, will be invited to contribute when appropriate, for example, communications leads from IAs or donor agencies that are leading global communication on chemicals and waste. The GCN will cover: (i) Success and progress, (ii) planning and coordination of all internal and external communication, (iii) External communication opportunities. This meeting is an opportunity to build communication links with key organisations relevant to the ISLANDS programme, for example, BRS, SAICM or the Minamata Convention on Mercury. For potential contacts at IAs, EAs and other entities, see section 3.8, table 14. **ISLANDS intranet:** • Once a cloud-based intranet provider has been selected, the global communications lead with support of regional teams will set up and maintain the ISLANDS intranet. Initial set up will involve uploading key ISLANDS policy and strategy documents and providing an induction to team members. The intranet must be live and ready to use by June 2020 when the ISLANDS regional projects launch.
Who	• See above.
When	• See above.
Where	• All meetings will take place via Skype or WebEx.

What good looks like:	**ISLANDS meetings.** All meetings, whether regional, global or national will be regularly attended and team members will speak freely about successes and challenges and feel supported. **ISLANDS intranet.** Team members see this as a vital channel for internal communication and regularly use it for coordination, communication and planning.
Other activities supporting CO 1	• **Internal e-news:** A quarterly e-news for ISLANDS team members. This will include personal, project and programme updates. Microsoft Sway will be used to produce dynamic e-news content. Example: http://bit.ly/unep-results-nl4 • **Smaller meetings:** One-to-one conversations and smaller group meetings between team members about progress of individuals, activities or projects. • **Embedding ISLANDS values:** See section 2.3 and Annex 3.

3.4 Developing ISLANDS Knowledge Products

Outputs such as databases, publications, visual material such as maps are classified as Knowledge Products and outcomes such as awareness raising, information sharing, and capacity building all classified as Knowledge Services. For GEF definitions of key Knowledge Management terms, see Annex 7.

Within this communication strategy, Knowledge Products refers to i) Knowledge Publications for technical audiences and ii) Thought Leadership publications intended for a broader, non-technical audience.

CO 2 and CO 3 describe communication objectives and activities that will support coordination, capture, storage and dissemination of Knowledge Products. Diagram 3 sets out links between Knowledge Management and communication activities within the context of the ISLANDS programme. Topics for ISLANDS Knowledge Products are described in table 8. Where possible, these will link to themes that are threaded through global and regional communication campaigns (see CO 4 and CO 5).

Existing Knowledge Hubs relevant to ISLANDS*

1. **GEF publication website section**
   https://www.thegef.org/publications
   https://issuu.com/thegef
2. **UN Environment Programme**
   http://wedocs.unep.org/handle/20.500.11822/7419
3. **IETC resources**
   https://www.unenvironment.org/ietc/resources
4. **IADB**
   https://publications.iadb.org/en?locale-attribute=en
5. **SAICM**
   http://www.saicm.org/Resources/Publications/tabid/5507/language/en-US/Default.aspx
6. **Green Growth Knowledge Partnership**
5. https://www.greengrowthknowledge.org/resources
   7. **GESAMP (Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection)**
6. http://www.gesamp.org/publications
7.
8. *see diagram 1 for regional Knowledge Hubs
9.

Table 7. Communications Objective 2 and activities

Communications focus area	Developing Knowledge Products
Communications Objective 2 (CO2)	**CO 2:** To address the need for more SIDS information on C&W, increase the amount of quality C&W SIDS Knowledge Products from 0 to 10 per year covering ISLANDS Components 1, 2 and 3 (see Annex 2). Indicator: Knowledge Product production schedule outlining each stage of publication development; number of published Knowledge Products posted to the ISLANDS website, SAICM Knowledge Hub and other Knowledge Management Platforms.
Activity	Creating and producing a pipeline of ISLANDS Knowledge Products.
What	• Two types of ISLANDS Knowledge Products: i) ISLANDS technical publications. Audience: Decision makers, academics, chemical and waste technical professionals and practitioners working in the field, both globally and regionally. ii) Thought Leadership, non-technical. Audience: Journalists, policy makers, opinion leaders, environmental influencers, bloggers, general public. • ISLANDS Knowledge Products aim to add new insights about barriers to, and solutions for sound management of C&W in SIDS. Table 8 outlines topics and formats. • A production schedule will set out a timeline for publishing all global and regional Knowledge Products.

Who	• KMCC communications lead, creative agencies and regional communication team working with EAs and project leads to research, design and produce standalone and linked sets of Knowledge Products.
When	• Create a publishing schedule during early stages of KMCC execution.
Where (publishing)	• Technical Knowledge Products: Publish on different regional and global Knowledge Management platforms such as SAICM and others detailed in diagram 1. • ISLANDS Thought Leadership (non-technical): Publish on Issuu, a magazine publishing platform that convers flat PDFs to flippable, easy-to-read files. It is then possible to embed each Issuu link within a short internet story on the ISLANDS website.
How	• Regional communication leads will liaise ISLANDS national and regional projects to collect material for Knowledge Products and then work with the global communications lead to collate, prepare and package content. The global communications lead will ensure that Knowledge Products have a consistent structure and design. • All ISLANDS Knowledge Products will have a contemporary look using core Programme colours and brand elements. A creative agency will design Knowledge Products (see visual identity guidelines, Annex 8, particularly the note on colour). An ISLANDS suite of digital Knowledge Products will have a short and succinct collective name (for example, 'ISLANDS Insights').
What good looks like	• A useful starting point for developing ISLANDS Knowledge Products is IETC's SIDS Waste Management Outlook (February, 2019), published at: https://www.unenvironment.org/ietc/node/44 • See table 9. 
Other activities supporting CO 2	• As ISLANDS develops, training webinars that link to different Knowledge Products (for example, how to design and implement sustainable waste management technology) will be made available. These can be hosted via the ISLANDS or SAICM websites and recordings can also be stored there. • Meetings will be hosted on the sidelines of key chemicals and waste meetings (including but not limited to BRS and Minamata COPS and SAICM meetings). • Building a C&W community of practice on SAICM where professionals can engage in online discussion about technical and policy issues. CO 3 also contributes to this.

Table 8. ISLANDS Knowledge Products, topics and formats

Themes/ topics	**Knowledge Product formats**	
	Technical publications	Thought Leadership (non-technical)
• Management of hazardous chemicals • Extended Producer Responsibility (EPR) • Electronics management (reducing PBDE) • Elimination of mercury • Persistent Organic Pollutants (POPs) • Reduction of highly hazardous pesticides (HHPs) used in agriculture • Developing legislation that enables sustainable management of C&W • 4R approaches	• Policy overviews • Technical case studies • Evaluations • Resource toolkits • Manuals • Guidelines and guidance notes • Datasets • Databases • Maps	• Research reports: Qualitative and quantitative • Strategy documents • Insights papers: Best practice national, regional or global • Non-technical case studies • Infographics • Perspectives papers on C&W themes and topics

Table 9. Existing Knowledge Products Relevant to ISLANDS

A Selection of Knowledge Publications Relevant to the ISLANDS Programme Produced by Partner Entities (from 2017)

1. **SIDS chemicals and waste publications**
   - IETC: SIDS Waste Management Outlook (Feb., 2019), https://www.unenvironment.org/ietc/node/44

2. **SIDS publications**
   - FAO: FAO's Work with Small Islands Developing States (2019), http://www.fao.org/3/ca5170en/CA5170EN.pdf
   - GEF: Small Islands Developing States and the GEF: Building Lasting Partnerships (2018), https://www.thegef.org/publications/small-island-developing-states-and-gef-building-lasting-partnerships
   - IADB: A Blue Urban Agenda: Adapting to Climate Change in the Coastal Cities of Caribbean and Pacific Small Island Developing States (2017): https://publications.iadb.org/en/blue-urban-agenda-adapting-climate-change-coastal-cities-caribbean-and-pacific-small-island

3. **Chemicals and Waste publications**
   - FAO: Report of the 45th Session of GESAMP (2019): http://www.fao.org/3/ca6099en/CA6099EN.pdf
   - IETC: Africa Waste Management Outlook (2018), http://wedocs.unep.org/handle/20.500.11822/25514
   - SAICM: Understanding Chemicals in Products, Policy Brief (2019) http://www.saicm.org/Portals/12/Documents/EPI/CiP_policy_brief_Nov2019.pdf
   - UNDP: Sound Chemicals for Waste Management for Sustainable Development (April, 2019), https://www.undp.org/content/undp/en/home/librarypage/environment-energy/chemicals_management/POPS2019.html
   - UN Environment: Global Chemicals Outlook (April, 2019): https://wedocs.unep.org/bitstream/handle/20.500.11822/28113/GCOII.pdf?sequence=1&isAllowed=y (supporting resources for Global Chemicals Outlook): https://www.unenvironment.org/explore-topics/chemicals-waste/what-we-do/policy-and-governance/global-chemicals-outlook

     UN Environment: Global Mercury Assessment Technical Background report (2018), https://www.unenvironment.org/resources/publication/global-mercury-assessment-technical-background-report
     UN Environment: Reducing Mercury Use in Artisanal and Small Scale Gold Mining https://www.unenvironment.org/resources/case-study/reducing-mercury-use-artisanal-gold-mining-practical-guide

3.5 Visibility of ISLANDS Knowledge Products

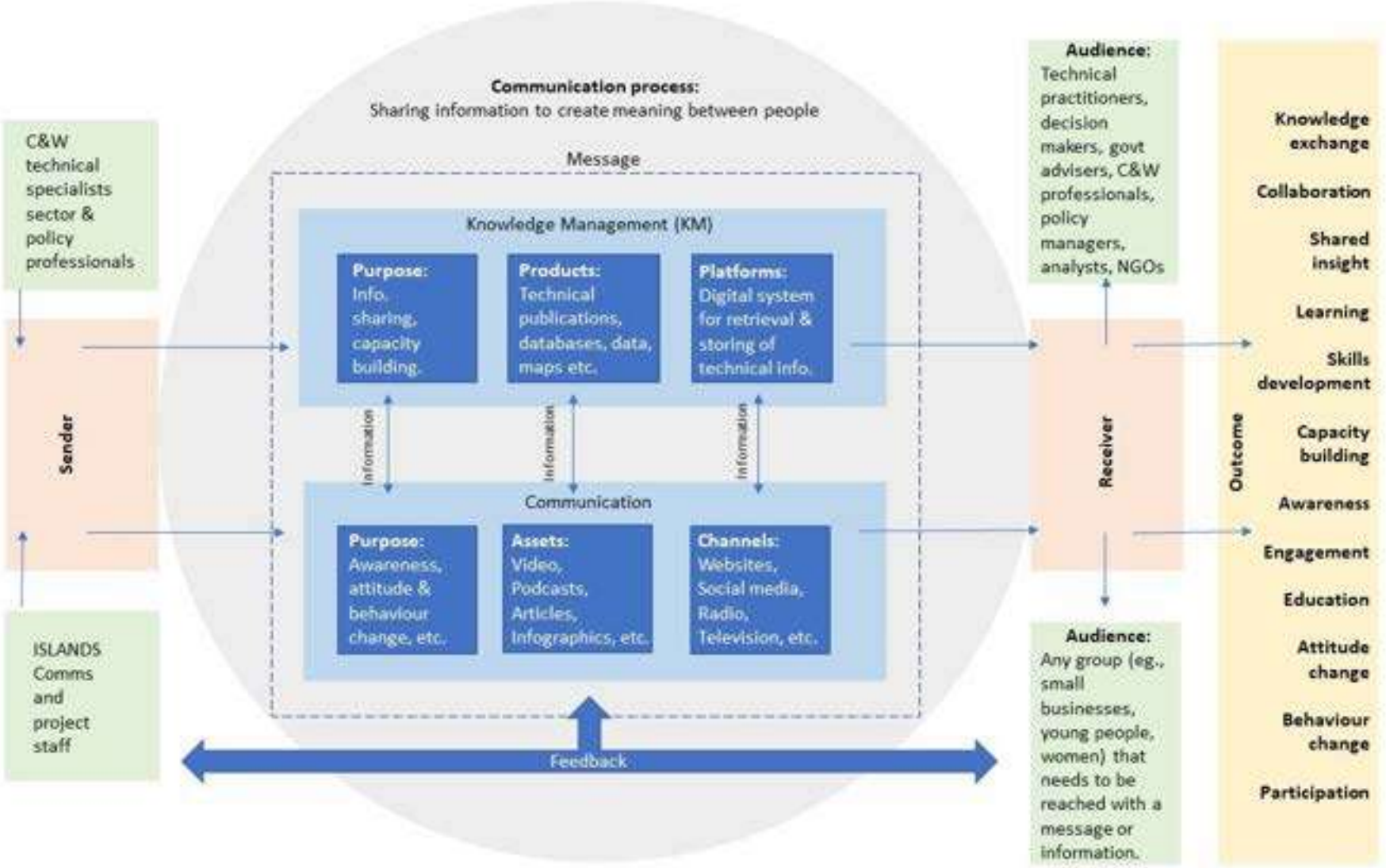
All too often, production of digital publications takes place without careful consideration of how this content will be used to reach and influence key audiences. This is why it is essential to include a specific objective on Knowledge Product visibility. Table 10 sets out activities to support this objective. Considerations about how to reach and influence audiences for each Knowledge Product will be baked into each stage of the production process.

Table 10. Communications Objective 3 and activities

Focus area	Visibility of ISLANDS Knowledge Products
Communications Objective 3 (CO 3)	The ISLANDS communications team will **contribute to building a global chemicals and waste community of practice** by designing and delivering 10 content marketing plans per year that outline how to distribute and promote each ISLANDS Knowledge Asset and related Knowledge Services, to stimulate audience engagement via the ISLANDS website and SAICM Knowledge Hub.
Activity	Promoting and distributing ISLANDS Knowledge Products to engage audiences and encourage discussion on online knowledge hubs.
What	• Promotion of ISLANDS Knowledge Products will aim to generate healthy levels of audience engagement by securing two-way online interactions. The ISLANDS communications team will actively market each Knowledge Product to help create a global community of practice for SIDS. • Content marketing plans detail how each Knowledge Product will be promoted to different audiences and must include relevant success metrics (e.g. number of downloads of a Knowledge Asset from SAICM). Knowledge Products and all supporting promotional material need to be proactively marketed or there is a risk of failing to reach the intended audience. For example, a video promoting the SIDS Waste Management Outlook was produced but viewing figures are low: youtube.com/watch?v=polAo_vXdQM. This is good content can be re-purposed for ISLANDS, subject to copyright.
Who	• The communications team is responsible for producing content marketing plans for each Knowledge Product.
When	• Devising content marketing plans needs to start early in the development of each Knowledge Product so that 'snackable' elements (such as infographics, graphs, quotes, pictures etc) can be 'designed in' and subsequently used to distribute and promote content. Publishing, distribution and promotion dates will be contained within the Knowledge Products production and publishing schedule.
Where	• Content marketing plans will be updated and stored on the ISLANDS intranet and be accessible to the whole communication team.
How	• Regional communication leads will work with national activity leads. They will collect professional quality photos and upload them to the ISLANDS intranet (and tag them using key words, see Annex 8). Project images will be needed for publication development and content marketing.
What good looks like	• Content marketing will lead to two-way online engagement and stimulation of discussion about SIDS chemicals and waste issues because it will centre around finding answers to pressing topics concerning chemicals and waste, for example, 'How can we safely eliminate mercury'?, or 'E-waste: what are the biggest problems and best solutions?' • The golden rule for content marketing is 'produce once, use many times' and this will apply to 'snackable' content marketing elements that each Knowledge Product will contain. For example, an infographic about mercury reduction could be designed into a Knowledge Product or Thought Leadership publication and then parts can be broken down to form different elements of a media relations and social marketing campaign. Each content marketing plan and supporting material will contain clear URL links back to the ISLANDS or SAICM website to help build website engagement.
Other activities supporting	• Training webinars: These will be part of ISLANDS Knowledge Products (for example, how to design and implement successful e-waste initiatives) and can be hosted via the ISLANDS or

CO 3	SAICM website and recordings can subsequently be actively promoted to increase website traffic. • Ongoing promotion of the SAICM community of practice to ensure that relevant C&W technical audiences know about and use this Knowledge Service.

Diagram 3. Links between ISLANDS Knowledge Management and Communication



3.6 External recognition - ISLANDS digital and media presence

The previous Communications Objectives focus on internal communication and engagement activities and also development and promotion of ISLANDS Knowledge Products.

Improving knowledge about the risks of hazardous chemicals and waste by closing information gaps is central to the purpose of ISLANDS. There is also a huge communication need and enormous potential for ISLANDS to secure high-profile recognition of emerging chemical and waste issues. The key tools to achieve this are a (i) simple website, (ii) social media, (iii) images, (iv) core collateral, (v) media relations. The following sections sets out a rationale for using each of these tools.

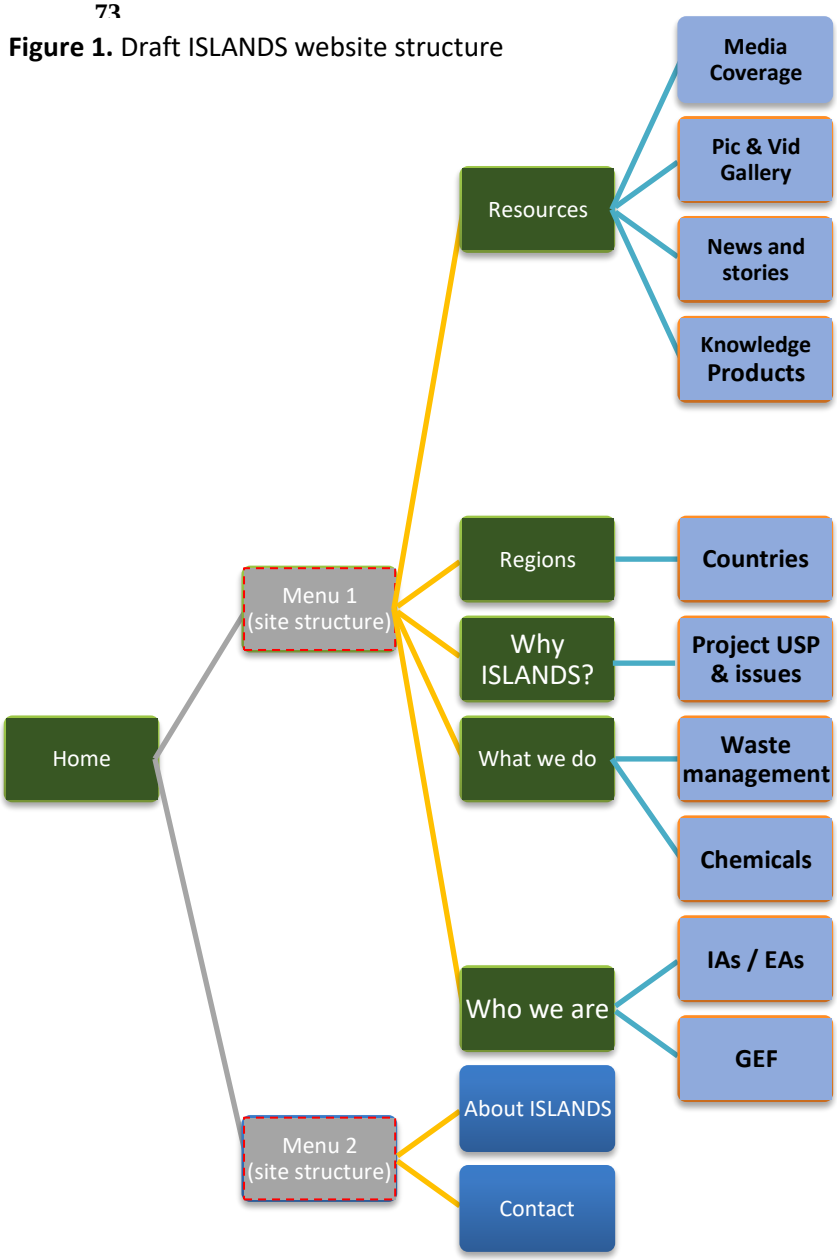
Objectives for digital visibility (CO 4a) are set out in Table 11 and objectives for media visibility and recognition (CO 4b) are set out in Table 13.

(i) ISLANDS website

72.

73

Figure 1. Draft ISLANDS website structure



Why does ISLANDS need a website?

Providing better *global* solutions for improving chemicals and waste is fundamental to ISLANDS.

A website is therefore a strategically essential and vital tool for communicating clearly, visibly and in a compelling manner.

Websites are easy and inexpensive to set up but for a global programme like ISLANDS, there are costs of not having one:

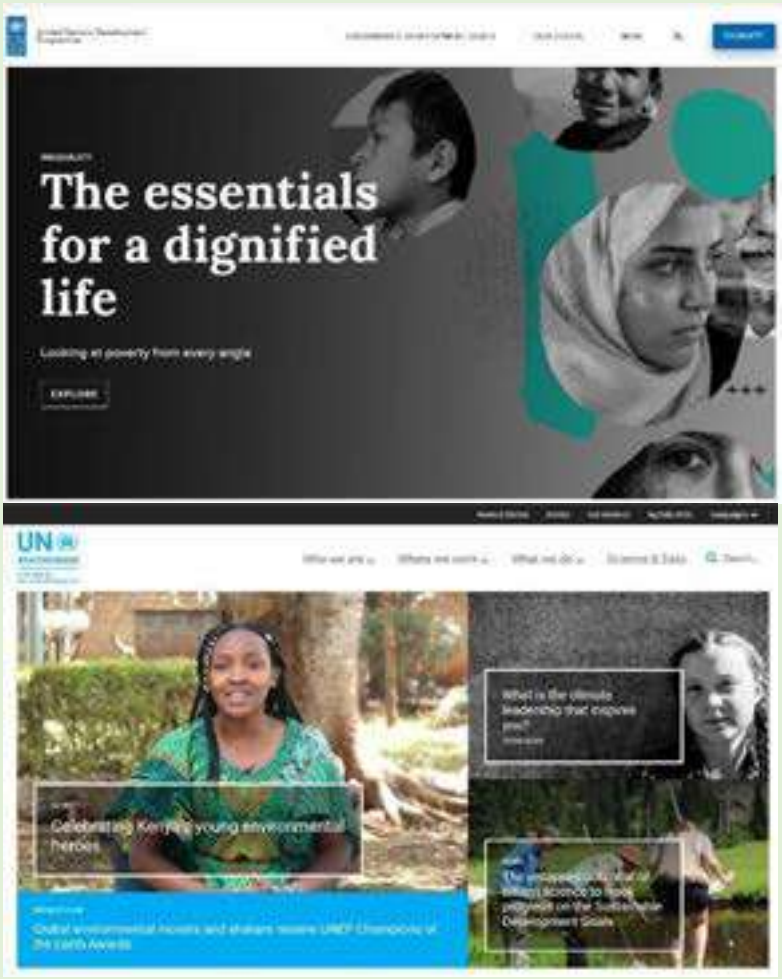
(i) Without a website, the impact, successes and Knowledge Products ISLANDS produces will be less visible.

(ii) Non-participating countries will not benefit from clear signposting.

(iii) The ISLANDS team will waste time handling general enquiries for project information.

(iv) A website is also an efficient tool for media relations which is an important part of ISLANDS global campaigns.

Figure 2. ISLANDS website mock-up



ISLANDS partner organisation websites

Implementing and Executing Agencies:

FAO
fao.org/home/en/
IADB
iadb.org/en
IETC
unenvironment.org/ietc
SPREP
sprep.org/
UN Environment
unenvironment.org/
UNDP
undp.org/

Other entities:

BRS conventions
brsmeas.org/
Minamata convention
http://www.mercuryconvention.org/
SAICM
http://www.saicm.org/

(ii) Social media

All IAs and EAs delivering GEF ISLANDS have a significant social media presence which represents potential for ISLANDS content to be shared via these channels; this in turn can drive visitor traffic to the ISLANDS website and the SAICM Knowledge Hub. See Annex 9 for a full breakdown of key metrics and engagement levels of major social media sites (Facebook, Instagram, YouTube, Twitter and LinkedIn) for each IA and EA. A short summary follows:

UNDP: A strong social media presence with more than 1,300,000 people following the English-language Facebook page, and 1,400,000 following the Twitter channel. The national web pages for the four Indian Ocean UNDP offices point back to the main UNDP Facebook and Twitter feed. UNDP also has a strong LinkedIn presence with 874,000 people following the English page.

UNEP: On social media, the strongest engagement for UNEP is via Instagram, which 1.2 million people are following, Twitter has 931,000 followers.

IADB: The bank is present on all key social media channels, with the biggest presence on LinkedIn with 332,025 followers on Spanish-language LinkedIn page. Facebook and Twitter channels are both in English and have more than 85,000 and 48,000 followers respectively.

FAO: FAO globally has a strong social media presence particularly on Facebook with 1.5 million people following the page.

SPREP: In terms of social media, SPREP has presence on Twitter with 6,257 followers and Facebook with 59,000 followers.

BCRC: Presence on key social media channels, for example, with videos on YouTube detailing the work of the organisation.

(iii) Images

One picture is worth a thousand words. Quality images hugely increase engagement across internal and external communications and are needed for publications, presentations, social media posts, etc. Images (pictures, photos, illustrations, GIFS) are essential for all ISLANDS communication (website content, articles etc) and campaigns. ISLANDS will create a programme-specific image bank. Where copyright allows, ISLANDS should have access to existing GEF and UNEP imagebanks. New images can be inexpensively purchased from suitable stock-image websites. These should relate to chemical and waste issues and SIDS territories. For high profile campaigns, photographers can also be commissioned to produce images. Free illustrations (with attribution) are available from https://www.glazestock.com/ or files can be inexpensively purchased. See also GEF Flickr site for reference: https://www.flickr.com/photos/thegef

(iv) Core collateral

See section 3.7 and table 12.

Table 11. Communications Objective 4a and activities

Focus area	Digital visibility: Global recognition of ISLANDS
Communications Objective 4 (CO 4a)	**CO 4a:** Developing digital visibility to include website, social media channels, core communication collateral and campaigns to generate recognition of ISLANDS. Indicator: i) website traffic, ii) high e-news click throughs and iii) social media engagement, (Facebook, Instagram, LinkedIn, Twitter).
Activity	Establishing and maintaining ISLANDS digital presence via a website, social media and compelling communications campaigns.
What	• **Website:** Set up, develop and maintain an engaging ISLANDS website. URL to be purchased. ISLANDS global communications lead will control site content and upload process. Systems will be determined by where and how the site is hosted, preferably a child site linked to UNEP. • **Core collateral:** Produce compelling ISLANDS-branded communications collateral (see table 12). • **Social media:** Set up, develop and maintain engaging social media channels. • **Integrated media and communication campaigns:** Planning creative, theme-based global media and communication campaigns to generate engagement and recognition (links with CO 4 b).
Who	• Global Head of Communications and ISLANDS regional communication leads
When	• Core collateral, website and social media channels to be ready for ISLANDS promotion from April / May 2020. • Integrated media and communication campaigns to run from May 2020.
Where	• Core collateral: To be hosted on ISLANDS website • Social media: Facebook, Instagram, Twitter, LinkedIn
How	• Website: Secure URL and develop site using website builder Wix or develop child site within www.unenvironment.org. • Core collateral: Global Communications lead to brief creative agency on each item required and liaise with Programme Steering Committee for sign-off. • Social media: Develop social media pages for the entire ISLANDS programme which regional leads contribute to. • Integrated media and communication campaigns: Proactive campaigns are to be planned around global-level opportunities (see CO 4b) but these should also be integrated with regional and national campaigns and marketing of Knowledge Products (See Communications Objective 3 and 5).
What good looks like:	• Core collateral (see table 12 for examples):
Other activities supporting CO 4a	• Global e-news for stakeholders that links back to ISLANDS website content. • Arts and the environment, media and communication opportunities**:** ○ Arts and environment, competitions and awards: Launch a new competition or encourage audience participation with existing art and environment initiatives for example: www.greenhealthcarewaste-photos.org/, https://www.ciwem.org/awards/environmental-photographer-of-the-year

	○ Spoken word: To build on creative and story-telling traditions in the Caribbean and Pacific, ISLANDS will evaluate the possibility for a global campaign or competition on the theme of pollution involving well known and respected poets and writers who have regional links, example initiatives and useful websites :https://www.poetryfoundation.org/collections/142017/pacific-islander-poetry-and-culture-5913874061754, https://ypn.poetrysociety.org.uk/poetry-opportunities/ Community and enterprise: https://www.equatorinitiative.org/equator-prize/

3.7 Recommendations on core ISLANDS communications collateral

The table below sets out key collateral for ISLANDS external communication; by being beautifully designed and relevant to audiences, these items will influence, empower and engage. Item design will enable each piece to be used for many purposes across many channels. For example, on the ISLANDS website, in emails and e-news to stakeholders and a wide variety of audience groups, embedded in presentations, used to support events and media relations activity.

During KMCC preparation, the communications lead should develop key collateral in collaboration with a creative agency. Costs for these items are set out in the draft ISLANDS communications budget in Annex 10. Table 12 provides an overview of ISLANDS core communication material.

Table 12. ISLANDS core communication collateral

Core ISLANDS communications toolkit (owned assets)			
Asset type	Notes	Purpose	When
Short programme video (or animation)	An inexpensive but professionally-produced, compelling video (or animation) of **no more than 90 seconds** which sets C&W issues, risks, key messages. **Must contain ISLANDS website address and CTA**. Good examples for inspiration: • https://www.youtube.com/watch?v=-rUiw-wElw4 • https://www.youtube.com/watch?v=tNCnCEIfnkA • https://www.youtube.com/watch?time_continue=5&v=yzTYAXxrzkc	To showcase and clearly explain ISLANDS in a way which excites and engages key audiences globally, regionally and nationally.	Jan 2020 to March, 2020
Digital programme brochure	An inexpensive but professionally-produced ISLANDS flyer which sets out key information. Good example: https://www.thegef.org/sites/default/files/events/GEF_GOLD_flyer.pdf	To showcase and clearly explain ISLANDS in a way which excites and engages key audiences globally, and regionally.	Jan.to Feb., 2020
ISLANDS branded chemical and waste infographics	A full set of ISLANDS branded infographics covering all chemicals the programme seeks to prevent, safely manage and dispose of. There is potential to re-purpose content from IETC's recently-produced SIDS Chemicals and Waste Outlook (2019). Good examples:	Infographics can be used on all web-based communication channels, embedded in blog posts, used in paper and online newspapers, edited into professionally produced videos.	Jan. to March, 2020

	https://wedocs.unep.org/bitstream/handle/20.500.11822/8476/-Lead_[Infographic]-2016lead_main_infographic.pdf.pdf?sequence=2&amp%3BisAllowed=		
Various templates for communication items and Knowledge Products	Necessary ISLANDS branded items include, Knowledge Product templates, digital leaflet templates which leave space for text that can be tailored for different activities and audiences, advert templates and PowerPoint templates, etc.	Templates with the same ISLANDS branding are required for a variety of external communication activities. Producing templates with an overarching visual identity will create impact, consistency and coherent presentation.	Jan. to March 2020
Podcast development TBC	A quarterly C&W podcast embedded within the ISLANDS website, introducing issues, stories, news, interviews and updates. Cheap to produce and podcasts can be easily listened to on many platforms. Interviews can be conducted globally and captured with call recording software. Link to UN FAO podcasts: https://soundcloud.com/unfao	Regularly produced compelling content telling ISLANDS stories, news and updates. A dedicated podcast would bring human voices to chemical awareness, build an audience and engage influencers.	From year 2.

(v) Media relations

Global, regional and national media is a significant key audience for ISLANDS. The communications team will work with the media to secure recognition of programme successes, impact and to improve chemicals and waste management awareness. Table 13 sets out Communication Objective 4b and supporting media relations activities.

Along with opportunities for having ISLANDS content shared on social media, and in relevant sections of implementing agency websites, ISLANDS communication leads will need to liaise with communication representatives from IAs and EAs on media planning and approval of press releases prior to distribution. Names of key media representatives from implementing and executing agencies can be found in section 3.8. Media and communication representatives from IAs and EAs will be regularly invited by the ISLANDS communications lead to speak with the wider communications team during ISLANDS Global Communications Network meetings; this will facilitate cross-agency media planning once ISLANDS is operating (see table 6).

Table 13. Media visibility and recognition, Communications Objective 4b.

Focus area	Media visibility: Global recognition of ISLANDS
Communications Objective 4b (CO 4b)	**CO 4b:** Generating media recognition of ISLANDS' impact. Outcomes of media activities will include i) 80 items of positive media coverage per year that help to improve awareness and adoption of sustainable C&W and behaviours. Indicator: 20 positive news articles about ISLANDS in global, regional and national target media per quarter.
Activity	Developing a proactive and reactive media campaign plan
What	• **Media lists:** Target media lists to be drawn up using media contacts from media departments at IAs and EAs. • **Media plans to support communication campaigns:** Regional communications team when they join from June 2020 will be responsible for regional and national media mapping. SPREP and BCRC will already have journalist contacts in each country and these will inform media work done by the ISLANDS regional communications team. Likewise, UNDP's national communication officers in the country offices for Comoros, Maldives, Mauritius and Seychelles can inform ISLANDS Indian Ocean regional communications lead. • **Media sensitisation workshops (regional and national):** Chemicals and waste management issues can be complex to convey to external media. To generate understanding and relationship building with journalists, ISLANDS regional communications teams will organise media sensitisation workshops from June 2020 with the aim of both exposing the issues the programme aims to address. • **Writing and distributing press releases:** This will be done as part of proactive media campaigns to promote regional and national projects. • **Media briefing kits:** These will be produced to support proactive media campaigns.
Who	• Global communication lead and regional communications team • Globally, target media might include but not be limited to world news channels such as CNN, BBC World, RFI, NHK World, etc. The global communications lead for the KMCC will draw up target lists when they are recruited into the role.
When and where	• Intensive communications planning will take place as soon as the communications team have been recruited. Campaigns and content developed under CO 3, CO 4a, CO 4b and CO 5 should be linked to ensure all external communications are integrated. The KMCC will develop resources and then work to tailor those materials to regional requirements. • Positive news coverage should appear in target media titles.

How	• Integrated media and communication campaigns: Proactive campaigns are to be planned around opportunities at a global level but these should also be integrated with regional and national campaigns and marketing of Knowledge Products (See Communications Objective 3 and 5). Target media lists to be drawn up using media contacts from UNEP, UNDP and the UN's Food and Agricultural Organisations.
What good looks like:	• An example of influential global media coverage highlighting problems for SIDS of unsafe waste management: https://on.ft.com/35V6s2H
Other activities supporting CO 4b	The following environmental days will run during 2020 and each year after (check online as dates may change). These are great opportunities for ISLANDS integrated communication and media events: International Women's Day, 8 March 2020. C&W gender awareness. 4. • Every year for International Women's day, an integrated ISLANDS, global, regional and national chemicals and waste campaign will raise awareness of key gender issues. Each of these campaigns will be built around an overarching question such as: How do toxic chemicals affect women in SIDS? How does poor waste management harm women? What do mothers need to know about harmful chemicals? Content can be created for different online channels using existing UN resources. Influential spokespeople will conduct media interviews. 5. United Nations World Health Day, 7 April 2020. 6. • Media relations opportunity for chemical awareness. Health is a broad topic and each year an ISLANDS campaign will focus on one specific issue and question that is most relevant to personal health and chemicals and waste in SIDS. For World Health Day in 2021, ISLANDS has the opportunity to launch a Thought Leadership publication on the topic of C&W and health. This will contain relevant content which can be used across many communications channels and in global, regional and national media. 7. World Environment Day, 5 June 2020, worldenvironmentday.global/?xv=1&c=1 8. • Build global and regional media campaign around the launch of the regional child projects. Media interviews and promotion of projects that are to be funded. 9. World Oceans Day, 8 June. 10. • Media opportunity for ISLANDS to highlight plight of SIDS and preventative actions being taken to prevent harm from C&W. 11. International Day of the World's Indigenous People (IP), August 9 2020. 12. • Highlight stories from ISLANDS about how IP are working with the programme to help put in place better C&W solutions. 13. World Tourism Day, 27 September 2020. 14. • An opportunity for highlighting how tourism can benefit or blight SIDS depending on how C&W is handled. 15. International Day for Natural Disaster Reduction, 14 October. 16. • Opportunity to highlight C&W projects to protect by safeguarding hazardous waste in natural disasters. 17. E-waste Day, 14 October 18. Lead in Paint Week, 20 to 26 October

3.8 Quality assurance procedures (QA) for Knowledge Products & external communications

89. Consistency is fundamental for helping to ensure that ISLANDS messages reach the right audiences, in the right way, at the right time. ISLANDS brand expression and visual identity guidelines are outlined in Annex 8.

90.

91. All communication tools and templates needed for ISLANDS will be produced by the KMCC and be made available to regional ISLANDS team members through a web-based portal (see section 3.2 on developing a cloud-based ISLANDS intranet). Diagram 4 sets out ISLANDS quality assurance and approval processes for externally distributed content.

92.

The majority of ISLANDS global, externally distributed content (press releases, blog articles, short news stories, Q&A articles, videos, podcasts, social media posts etc.), will form part of an overarching and integrated communications plan. The ISLANDS Global Communications lead with support from the regional team, updates this plan and signs off all external regional communication in partnership with technical and communication representatives from IAs and EAs. The following section outlines key people at IAs and EAs the ISLANDS communication team will liaise with for approval of all external communication items. These contacts could be invited to attend the ISLANDS communication team monthly Global Communication Network meetings (see table 6).

Diagram 4. ISLANDS Quality Assurance: External Communication Production and Approval Process

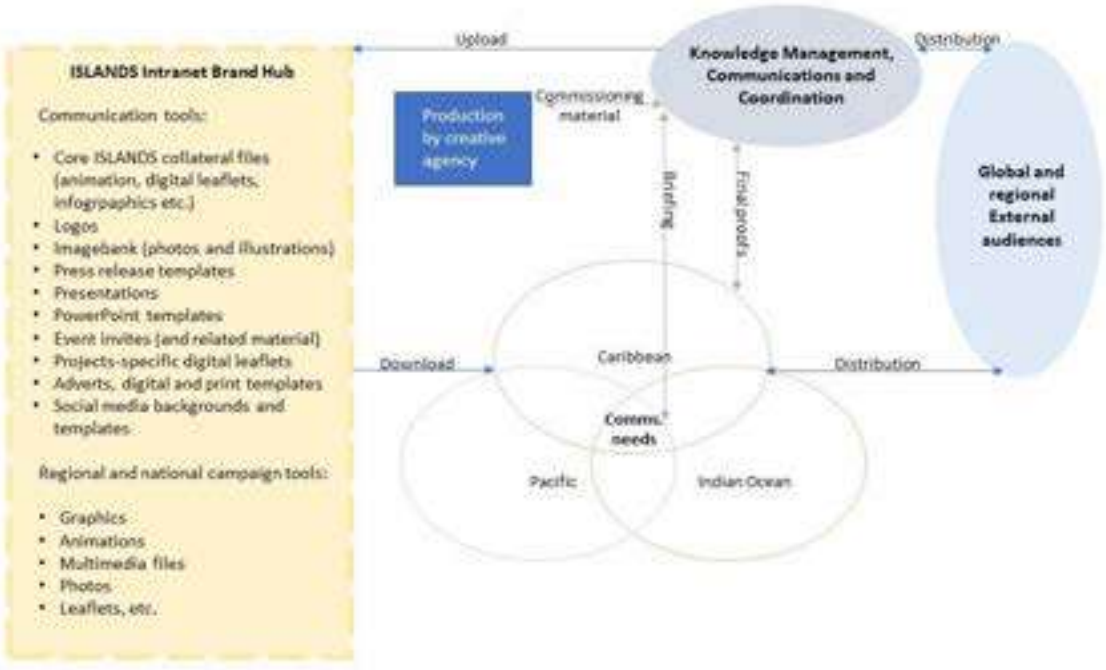


Table 14. Processes for approval and distribution of ISLANDS external communication

GEF	
Communication staff capacity	Limited capacity at GEF Secretariat in Washington DC: Head of Communication: Robert Bisset Senior Communication Officer: Christian Hofer Communication Officer: Alua Kennedy Web Producer: Jason Harmala
Process for signing off press releases	1) Approval by programme team (and partners where relevant); 2) Approval by UNEP Task Manager + C&W Portfolio Coordinator (cc UNEP-GEF Coms Coordinator; cc UNEP-GEF Portfolio Manager (Kelly West); Approval by GEF Chemicals and Waste Coordinator Anil Sookdeo 3) Final approval at GEF - Head of Communication Robert Bisset; Senior Communication Officer Christian Hofer 4) Release through GEF channels by Communication Officer Alua Kennedy; Web Producer Jason Harmala

People and process for distributing social media content	1) Contribution by programme team to GEF Communication Officer Alua Kennedy; Web Producer: Jason Harmala 2) Packaging, scheduling and release by GEF Communication Officer Alua Kennedy; Web Producer: Jason Harmala
Process for contributing to the GEF website	1) Contribution of approved content by programme team // UNEP to GEF Communication Officer Alua Kennedy; Web Producer: Jason Harmala 2) Packaging, scheduling and release by GEF Communication Officer Alua Kennedy; Web Producer: Jason Harmala
Publishing potential and opportunities for ISLANDS content	1) Press releases through GEF global channels 2) Stories through GEF global website (English only) 3) Photo, infographic and video posts via GEF social media channels (Linkedin, FB only) 4) Video via GEF YouTube channel 5) Content amplification through monthly GEF email newsletter 6) Inclusion in GEF global fora and events
UNEP, IA	
Communication staff capacity	ISLANDS Programme Coordination Unit: Coms Coordinator – Nick Greenfield (Nairobi) UNEP-GEF C&W: Coms Focal Point - Irene Galan (Nairobi) DCPI – Dept. Communication & Public Information: Corporate coms lead – inc. Media, Web, Social Media, and Campaigns/Advocacy units (Nairobi) UNEP Economy Division: Information Officer - Solange Montillaud-Joyel (Paris)
Process for signing off press releases	1) Approval by programme team (and partners where relevant); 2) Approval by UNEP Task Manager + C&W Portfolio Coordinator (Kevin Helps); 3) Approval by UNE-GEF Coms Coordinator (Nick), cc UNEP-GEF Portfolio Manager (Kelly West); 4) Final edit and release through UNEP channels by DCPI Media Unit (Keisha Rukikaire – Head of Media)
People and process for distributing social media content	1) Contribution by programme team to Irene Galan, cc Nick Greenfield 2) Packaging, scheduling and release by DCPI Social Media Unit (Head of Social Media - David Cole)
Process for contributing to the global UNEP website	1) Contribution by programme team to Irene Galan, cc Nick Greenfield for quality control, packaging, initial edit; 2) Approval by UNEP Task Manager + C&W Portfolio Coordinator (Kevin Helps); cc GEF Portfolio Manager (Kelly West); 3) Irene Galan/Nick Greenfield to pass on to Editorial Coordinator (Anna Manikowska) cc Head of Digital (Nancy Groves) for final edit and publication scheduling
Publishing potential and opportunities for ISLANDS content	1) Press releases through UNEP global channels (global; regional offices – Asia-Pacific; Africa; Latin America & Caribbean) 2) Stories and interactives through UNEP global website (translations via regional sites – French, Spanish, Swahili, Chinese, Arabic – where relevant). Note preference is for human interest and topical stories – programme milestones and workshops are not considered news 3) Photo, infographic and video posts via global social media channels (Instagram leading in terms of engagement at present) 4) Video via UNEP YouTube channel 5) Content amplification through global, regional and division email newsletters 6) Inclusion in UNEP global fora and events
Food and Agriculture Organisation (FAO) United Nations, IA	
Communication staff capacity	Limited. All external communications referencing FAO and their contribution to the Caribbean regional child project must be formerly approved by the technical officer. A minimum of 14 days must be allowed for reviewing communications material. Send all approval requests to: Oxana Perminova, Agricultural Officer, Plant Production and Protection Division Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, 00153, Italy, T: +390657055696, E: Oxana.Perminova@fao.org.

<table>
<tr><td>Process for signing off press releases</td><td>Send to the responsible technical officer at FAO, Oxana.Perminova@fao.org who will internally agree the release with FAO. Allow plenty of time for approval</td></tr>
<tr><td>People and process for distributing social media content</td><td>Same process for press release approval.</td></tr>
<tr><td>Process for contributing to the FAO website</td><td>Same process for press release approval.</td></tr>
<tr><td>Publishing potential and opportunities for ISLANDS content</td><td>• ISLANDS regional communications lead to liaise with Oxana Perminova to discuss ideas and opportunities for publicising FAO's contribution to the Caribbean regional child project.
• Pesticide Awareness week is not an FAO initiative, it is led by the Coordinating Group of Pesticide Control Boards of the Caribbean (CGPC). If the ISLANDS regional communications lead wishes to pick up this opportunity, Oxana Perminova will be able to facilitate introductions.</td></tr>
<tr><td colspan="2">United Nations Development Programme, IA and EA</td></tr>
<tr><td>Communication staff capacity</td><td>UNDP has one regional office in Comoros and one in the Maldives. One country office serves both Mauritius and Seychelles (in Port Louis, Mauritius). Each of these Indian Ocean UNDP offices has a communications officer that the ISLANDS regional communications officer can liaise with re. publishing programme material.</td></tr>
<tr><td>Process for signing off press releases</td><td>Approval must be provided by UNDP's focal point for ISLANDS:

Anliyat Mze Ahmed Abdallah — UNDP Comoros — anlia.mzeahmed@undp.org
Ahmed Mohamed Shihab — UNDP Maldives — ahmed.shihab@undp.org
Satyajeet Ramchurn — UNDP Mauritius — satyajeet.ramchurn@undp.org
Roland Alcindor — UNDP Seychelles — roland.alcindor@undp.org

The following programme leads must also be consulted on ISLANDS external communication items:
Maksim Surkov — Programme Specialist, MPU/Chemicals — UNDP Istanbul Regional Hub — maksim.surkov@undp.org
Etienne Gonin — Programme Analyst, MPU/Chemicals — UNDP Istanbul Regional Hub — etienne.gonin@undp.org
Selimcan Azizoglu — Project Coordinator, MPU/Chemicals — UNDP Istanbul Regional Hub — selimcan.azizoglu@undp.org
Christine Wellington Moore — Programme Adviser, MPU/Chemicals — UNDP Bangkok Regional Hub — christine.wellingtonmoore@undp.org</td></tr>
<tr><td>People and process for distributing social media content</td><td>Once content is approved and signed off by contacts outlined above, liaise with UNDP's national communications officer in Comoros, Maldives and Mauritius and Seychelles.</td></tr>
<tr><td>Process for contributing to the UNDP website / national pages</td><td>Once content is approved and signed off by contacts outlined above, liaise with UNDP's national communications officer in Comoros, Maldives and Mauritius and Seychelles.</td></tr>
</table>

Publishing potential and opportunities for ISLANDS content	UNDP website content on chemicals and waste is hosted on undp.org and divides into 'news', 'stories', 'blogs' and 'publications': https://www.undp.org/content/undp/en/home/2030-agenda-for-sustainable-development/planet/environment-and-natural-capital/chemicals-and-waste-management.html ISLANDS press releases and other online content items could potentially be edited for the 'news' section of the national office web pages, subject to approval by UNDP's global and regional communications department UNDP's GEF team has been using a digital publishing platform called Exposure which makes great use of photos to add impact to a story or blog post. This example illustrates is a story about a UNDP initiative in Zambia tackling medical waste problems: https://undpinzambia.exposure.co/tackling-zambias-medical-waste-problem
InterAmerican Development Bank (IADB), IA	
Communication staff capacity	Limited.
Process for signing off press releases	For technical approval about the ISLANDS incubator facilitiy in the Caribbean, all content must be approved by Napoleao Dequech Neto, International American Development Bank. Email: ndequech@iadb.org For IADB's communications approval of ISLANDS press releases: Mateo Santos Lequerica (communications), MATEOS@iadb.org
People and process for distributing social media content	For technical approval about the ISLANDS incubator facilitiy in the Caribbean, all content must be approved by Napoleao Dequech Neto, International American Development Bank. Email: ndequech@iadb.org For IADB's communications approval of ISLANDS digital content which mentions the incubator facility, contact Maria Fernanda Rodriguez Polini (website): MPOLINI@IADB.ORG
Process for contributing to the IADB website	For technical approval about the ISLANDS incubator facilitiy in the Caribbean, all content must be approved by Napoleao Dequech Neto, International American Development Bank. Email: ndequech@iadb.org For IADB's communications approval of ISLANDS digital content which mentions the incubator facility, contact Maria Fernanda Rodriguez Polini (website): MPOLINI@IADB.ORG
Publishing potential and opportunities for ISLANDS content	The bank does not have a specific department or division that deals with chemicals and waste, therefore, any potential communications highlighting the ISLANDS incubator would be through the lens of one of IADB's focus areas. For example, digital content about the incubator project could link to topics listed in the 'Engage' section (which can be reached via the front page of IADB's website). IADB topics relevant to ISLANDS would be 'environment, climate change and safeguards', 'urban development and housing', 'water and sanitation', or 'science, technology and innovation'. The IADB blog 'Caribbean development trends' might also be an opportunity for communicating the incubator facility via a short article attributed to an IADB staff member.
Secretariat of the Pacific Regional Environment Programme (SPREP), EA	
Communication staff capacity	Limited. SPREP has a small communications and outreach team which is responsible for overseeing all environmental communications for the Pacific Islands.
Process for signing off press releases	Once ISLANDS press releases have been given technical approval for external distribution by UNEP(see UNEP approval processes outlined), SPREP's Media, Communications and Outreach Officer Nanette Woonton will need to prior approve ISLANDS press releases. E: nanettew@sprep.org.
People and process for distributing social media content	As above.
Process for contributing to the SPRE website	As above.

Publishing potential and opportunities for ISLANDS content	Four key environmental focus areas for SPREP include waste management and pollution control, environmental governance, climate change resilience, plus islands and ocean ecosystems. Liaise with SPREP'S communications and outreach team for opportunities to publish on SPREP'S website.
BCRC, EA	
Communication staff capacity	No dedicated communications function.
Process for signing off press releases	Prior to receiving technical approval from UNEP for press releases, Jewel Batchasingh, Director, Director (Ag.) must approve all press releases about the Caribbean regional project. E: jewel.batchasingh@bcrc-caribbean.org
People and process for distributing social media content	As above.
Process for contributing to the IADB website	As above.
Publishing potential and opportunities for ISLANDS content	BCRC have recently updated their website. The Caribbean regional communications lead must liaise with Jewel Batchasingh, Director, Director (Ag.) about how to publish ISLANDS content on BCRC's website and social media channels.
OTHER ENTITIES	
Secretariat of the Basel, Rotterdam and Stockholm (BRS) Conventions	
Key contact and opportunities	Charles Avis, Public Information Officer, BRS Secretariat, Geneva, Switzerland: charles.avis@brsmeas.org. This is the main contact at BRS to discuss publishing opportunities for Knowledge Products or communications content for ISLANDS participating countries which are also a member of the three BRS Conventions. Although BRS mainly produce technical content, there is some good, older content that is not time sensitive that could be re-purposed or re-used on ISLANDS communications channels.
Minamata Convention on Mercury	
Key contact and opportunities	Anna Garcia Sans, Communications and Knowledge Management Officer, Minamata Convention on Mercury, Geneva, Switzerland: E-mail: anna.garcia@un.org This is the main contact for brainstorming ideas and discussing publishing opportunities for Knowledge Products or communications content for ISLANDS participating countries which are also a member of the Minamata Convention.
Strategic Approach to International Chemicals Management (SAICM)	
Key contact and opportunities	Eduardo Caldera-Petit, Programme Management Officer, UN Environnent Programme Email: eduardo.calderapetit@un.org This is the main contact at SAICM to discuss publishing opportunities and how GEF ISLANDS Knowledge Products relate to SAICM's Emerging Policy Issues (EPIs). A template has been developed for SAICM policy briefs which will also appear on the new website (live from March 2020). Example of policy brief on EPI chemicals in products: http://www.saicm.org/Portals/12/Documents/EPI/CiP_policy_brief_Nov2019.pdf

Section 4 – Planning tools for effective regional communication

When the regional child projects launch in the Caribbean, Indian Ocean and Pacific Islands in June 2020, the ISLANDS regional communications team will be in place. This section contains information and tools that will support their work to tailor ISLANDS communications planning, resources and campaigns to regional and national needs.

ISLANDS regional communications will (i) disseminate external information that publicises the impact of ISLANDS in participating countries, (ii) in partnership with ISLANDS global communications lead, plan and target resources where there are high risks of unsafe use of chemicals and waste, and devise appropriate behaviour change campaigns.

From June 2020, team-building sessions for the ISLANDS communication team will utilise the tools that follow to help plan and shape regional communications. Table 15 sets out objectives and activities relating to the planning and design of regional communications. The following sections also outline tools that can be used to help achieve these objectives.

Table 15. Regional and national communications

Focus area	**Planning and delivering regional and national communication**
Communications Objective 5 (CO 5)	**CO 5:** Deliver integrated regional and national campaigns that influence key audience groups about harmful C&W practices and demonstrate project impact. Where risks of unsustainable use are high, design communication interventions to prevent unsafe use of C&W, (POPs, uPOPs, Mercury, etc). Indicator: Numbers taking action, eg., how many people use a new e-waste recycling hub following promotion.
Activity	Planning and delivery of regional communications
What	• Production of integrated regional and national communications plans that outline activities, topics, themes and, where necessary, behaviour change interventions which link to the overarching global communications plan and ISLANDS programme objective.
Who	• Global communications lead working in partnership with regional communications team.
When and where	• Face-to-face planning session when regional communication leads are recruited and in place from May /June 2020, and then ongoing during Global Communication Network meetings. Planning to begin a month before launch of regional child projects.
What good looks like	• A set of linked communications campaigns that support delivery and communicate impact of regional and national projects and priorities. Campaigns will be built around asking questions about chemicals and waste to make topics relevant and encourage online discussion. To ensure that campaigns are integrated, these will link to questions being used to guide Knowledge Product content marketing (CO 3). • By consulting with national project leads, the regional communications team will produce communications plans outlining behaviour change initiatives that target unsafe practices involving chemicals and waste management. For example, a national communications plan for Comoros might outline activities necessary to prevent groups burning waste by educating people about the dangers.
Other activities supporting CO 5	• Regional communications leads add content to quarterly global ISLANDS e-news updating stakeholders (or produce short briefings integrated within e-news owned by other regional C&W programmes, for example, Pacific Islands PacWaste Plus e-news). Team will consider using

	Microsoft Sway to produce dynamic external e-news content. Example: http://bit.ly/unep-results-nl4. E-news content links to ISLANDS website. • Regional 'story' pages to be developed on the ISLANDS website about national projects or issues. Publishing platform Exposure can be used to develop editorial-style stories which can be embedded within the ISLANDS website and then included within in press releases. Good example illustrating this approach: https://undpinzambia.exposure.co/tackling-zambias-medical-waste-problem • ISLANDS regional communication leads will produce a regional and national issues forward planner including information about forthcoming campaigns led by donor agencies, regional bodies and other entities who might be communicating about C&W. This help to avoid duplication and ensure that ISLANDS messages are planned around other environmental communication.

4.1 Key messages, target audiences and channels

Key messages simplify complex information and consistently outline important points. A set of ISLANDS key messages per audience is set out in Annex 11. Drafting of these took place during the design of regional child projects. This set of key messages, therefore, provides a starting point from which the ISLANDS communications team will further define audiences that are important to the regional child projects.

Establishing a richer picture of priority audiences will take place in planning sessions to be held by the ISLANDS communications team from June 2020. With input from the regional Executing Agencies (Basel Convention Regional Centre for the Caribbean, UNDP and SPREP) the regional communications leads will further develop information about regional channels and audiences.

By closely understanding the communication needs of each national ISLANDS project, the regional communications team can decide on appropriate calls to action and necessary behaviour change communications (see section 4.3).

4.2 Communication procedures for events

Over the five-year duration of ISLANDS, regional communication leads will be required to plan and organise events for different purposes. A brief outline follows which can guide ISLANDS event planning:

i) Pre-event: Begin event planning no later than six weeks before the scheduled date. Event invites need to be designed and sent, and the attendance of high-profile people must be confirmed at the earliest opportunity. Events and group meetings are useful to help build support, overcome barriers to implementing an initiative or to generate publicity for officially launching new facilities and projects.

ii) On the day: Speeches, presentations, audio-visual content, media relations, interviews and briefing sheets and press releases, brochures;

iii) Post-event: Utilise influential people to act as spokespeople (but make sure that they are carefully briefed and can reliably and consistently communicate ISLANDS key messages). Immediately follow up an event with information and awareness campaigns to build knowledge and, if necessary, model behaviour change. Media relations to provide follow-up reporting, pictures and recognition.

4.3 Devising regional and national campaigns: Regional baseline

Integrated communications campaigns are short and focussed periods of activity using multiple communication channels to distribute content that aims to achieve a specific objective (for example, influence, persuasion, changing attitudes). National communications campaigns might be necessary to communicate the impact of an ISLANDS project, or to change attitudes and prevent risky use of toxic chemicals.

Intensive communications planning before the June 2020 launch of the Caribbean, Indian Ocean and Pacific Island regional child projects will avoid duplication, identify priorities, requirements, resources, campaign themes and questions.

When devising new chemicals and waste awareness campaigns, it is important to build a picture of previous communication activity to understand what worked well. The following tables outline information which is relevant to communications in each of the three regions.

Table 16. Caribbean regional information

Caribbean	
Executing Agency	Basel Convention Regional Centre for the Caribbean, https://www.bcrc-caribbean.org/ Communication agencies develop campaign tools but there is no dedicated communication function.
Participating countries	Antigua & Bermuda, Barbados, Belize, Dominican Republic, Guyana, St Kitts & Nevis, St Lucia, Trinidad and Tobago.
Languages	Spanish is spoken in the Dominican Republic. All other countries are English speaking.
Internet access	Smart phone penetration is approximately 70% in the Caribbean region.
Channels	Information can be provided by Basel Convention Regional Centre for the Caribbean to help build a more detailed picture of regional channels when devising campaigns.
Recent chemical awareness communication work	POPs campaign: • Basel Convention Regional Centre for the Caribbean were running a POPs campaign during October /November 2019. Creative includes short animation videos, a spoken word narration competition. Lesson plans developed for students and teachers and a campaign app for use on mobile phones. Target audiences included pregnant women, young people and farmers. Basel Convention Regional Centre for the Caribbean does not have dedicated communication staff and POPs campaign materials were developed by the Arthur Lok Jack School of Business. Participating countries will be provided with a toolkit and national governments are then responsible for distributing materials. • POPs campaign tools will be available for key audiences to access via smartphones on BCRC's website, Instagram, Facebook and YouTube. Mercury awareness: • Communications work on the Minamata Convention led by BCRC used video collateral but evaluation revealed animations would be a more effective and popular format for future work.
Notes	Government relations: • Government ministries of Caribbean countries are heavily burdened with large work portfolios and limited human resources. Therefore, to secure involvement for communication-related events or activities, it is important to plan ahead and secure commitment early in a process.

Table 17. Pacific Islands regional information

Pacific Islands	
Executing Agency	SPREP, https://www.sprep.org/ SPREP has a small communications and outreach team.
Participating countries	Cook Islands, Fiji, FSM, Kiribati, Marshall Islands, Nauru, Niue, Palau, PNG, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu.
Languages	English and French are official languages but country-level communication needs to be in the national language. SPREP work with member countries on translation as some nations don't have terminology for mainstream environmental concepts such as climate

	change; the issue needs to be explained in two to three sentences, not two words. All translation needs to go through an official language commission.
Internet access	• Smart phone penetration is high enough for government agencies to use cell phone warnings for disaster management. • WiFi availability needs to be considered during communication and campaign planning because access is very expensive in some Pacific Island countries. In some countries, Facebook is free depending on the mobile service provider.
Channels	• Information can be provided by SPREP to help build a more detailed picture of specific channels when devising campaigns. • Multimedia and broadcast: When producing videos, the aim will be to gauge the interest of as many people as possible because production is very expensive and because bandwidth can be very low. It is more effective to pay for advertising on national television stations. Radio remains the number one medium across the Pacific islands and every country has their own radio station, FM stations are popular with younger stations, AM more popular among older listeners. It is law in most Pacific countries for Parliament to broadcast all government sessions which generate high levels of listener engagement.
Recent chemical awareness communication work	The following campaigns have contributed to environmental awareness across the Pacific: • uPOPs: In 2018, SPREP ran a uPOPs Prevention and Chemical Awareness: Considerations for Awareness-Raising Campaign. Activities are outlined here: 94. https://www.sprep.org/attachments/Publications/WMPC/uPOPs-awareness-campaigns-manual.pdf • In 2013, a clean Pacific regional campaign ran different initiatives across the Pacific ISLANDS which are detailed here: https://www.sprep.org/news/clean-pacific-campaign-makes-difference • General chemical awareness: In 2011, SPREP ran a campaign to raise chemical awareness among key audience groups across the region. Although eight years old, some of the content is potentially useful for informing the development of ISLANDS campaigns that might build on work already done. A link to the campaign document can be found here: sprep.org/attachments/Reports/GEFPAS_Pollutant_Awareness_Camapign.pdf.

Table 18: Indian Ocean regional information

Indian Ocean	
Executing Agency	United Nations Development Programme: • UNDP Maldives: https://www.mv.undp.org/ • UNDP Comoros: https://www.km.undp.org/ • UNDP Seychelles and Mauritius: https://www.mu.undp.org
Participating countries	Comoros, Maldives, Mauritius and Seychelles
Languages	English is widely spoken in Maldives, Mauritius and Seychelles. Official languages in Comoros are French, Comorian and Arabic. Creole is also widely spoken in Mauritius and the Seychelles.
Internet access	High smart phone penetration. Most difficult access in Comoros as communications infrastructure isn't as developed.
Channels	• More information can be supplied by local offices about the best channels to reach key audiences.

Recent chemical awareness communication work	• UNDP offices each have a communication officer who are able to visit project sites to take pictures etc. Check local offices for recent C&W campaign details. • UNDP chemical and waste management information: https://www.undp.org/content/undp/en/home/2030-agenda-for-sustainable-development/planet/environment-and-natural-capital/chemicals-and-waste-management.html • UNDP's global SIDS lead: https://mobile.twitter.com/riadmeddeb
Notes	Note on Comoros: • Comoros could benefit from special attention in terms of communications. • Comoros is made up of three major islands and it is possible for ISLANDS to demonstrate major improvements in approaches to handling chemicals and waste. Burning rubbish is common and waste management is problematic from collection through to the treatment. There is potential to produce before and after case studies on chemicals and waste initiatives which could be included within ISLANDS Knowledge Products. • Government relations: Comoros has a very high proportion of political parties per person and the Presidency rotates between the three islands. There were a high number of political coups in the 1990s but recent years have seen more peace and stability. Despite complexities, there is a strong political will to change waste management in Comoros. The negative impacts of pollution are obvious.

4.4 Designing campaign messages: emotions and behaviour change

Invoking emotion is necessary to create action in environmental communication. This section provides an overview of key concepts to consider when creating communication materials that might seek to change attitudes and behaviour toward chemicals and waste.

Emotion such as fear, guilt and humour can be used to form or change attitudes and to stimulate behavioural intention. However, emotional appeals in advertising and communications content such as animation and videos need to be carefully applied or there is a risk of backfire effects, meaning that a piece of communication creates an avoidant response in an audience.

Pre-testing campaign messages on key audiences, for example through focus groups prior to distribution, is highly recommended to understand how a target group is likely to respond. Cultural considerations can shape different responses to emotional appeals. Whatever emotion is used, all communications that ISLANDS produce will contain a clear call to action (CTA), this might be telling people to visit the website, telling them to share information, perform a recommended action etc. Communication without a clear CTA is a missed opportunity to direct audience action.

Fear: Strong fear appeals are commonly used in threat communication for many prevention issues, ranging from public health to climate change. Fear appeals work when receivers of a message believe that the threat is severe enough and that they are susceptible to the risks. It is essential that fear appeals contain strong statements which reinforce a person's self-efficacy (belief that they can perform the recommended action to avoid the threat) and response-efficacy (credible evidence that the recommended course of action is effective). When these two elements are used well in threat-based communication, someone receiving a fear appeal message is more likely to engage in a cognitive response and mentally process the message. If fear is too strong and efficacy messages are weak, an 'emotional' response might be triggered; this occurs when a person is likely to ignore or avoid the message.

Guilt: Guilt is a private emotional reaction created by a mental appraisal that people have done harm to others, or the environment. Studies have shown that guilt arousal can work well to promote environmental issues for people who have high levels of existing concern, but the appeal might not be an effective tactic for others who do not care about an issue. Before using guilt appeals, it is advisable to build knowledge among an audience to increase awareness levels about why a course of action might be damaging.

Humour and other emotions: In health communication, humour can be used to help soften negative emotions, and essentially soften the blow (e.g. of a fear appeal), however, the effects of humour can be complex and using it badly runs the risk of undermining the seriousness of an issue. A key point to come from persuasion research is that using discrete emotions like fear or humour is less effective than when emotion 'flows' through a public service announcement. For example, moving from fear to shock or from hope to humour can work well. A recent study did reveal that fear followed by hope can be an effective way to stimulate environmental interest and action (Nabi, Gustafson & Jenson, 2018). [61]

Sense-making: Behavioural change may need to be directed at decision-makers in organisations. The concept of sense-making refers to how leaders 'reinterpret and relabel processes in organisations to create meaning through dialogue, and model to redirect change.'[62] An example relevant to ISLANDS might be identifying a leader in an SME who is able to talk to their staff about the positive aspects of a new approach to handling e-waste.

---

[61] Robin Nabi is a leading researcher of humour in threat communication, findings can inform campaigns:
https://www.tandfonline.com/doi/full/10.1080/10410236.2014.1000479
https://www.tandfonline.com/doi/full/10.1080/03637750701196896
https://onlinelibrary.wiley.com/doi/full/10.1002/cb.389
https://journals.sagepub.com/doi/abs/10.1177/1075547018776019

[62] Planning health promotion programs: An Intervention Mapping Approach (2016), Bartholomew Eldredge et al.

Social norms: People have a deep-seated tendency to conform which stems from education and values that guide how we live and behave. There are two types of norm, (i) what we think the majority of other people do, and (ii) what we think other people approve or disapprove of. An example of a majority norm message used in a public information advert might be: 'Last year 85% of people from Comoros and other Indian Ocean islands stopped burning dangerous waste'. An example of using social approval norms might be: '85% of people from Comoros and other Indian Ocean islands disapprove of burning rubbish because of the dangers it causes to human health.'

To ensure credibility when designing norms messages, statistical information must align with a target group's personal experiences. Always base norms messages on prior research because a local norm, or one that guides a specific group, will be more powerful than a general norm. Always test and research messages with a target audience, through a focus group (or similar consultation exercise) prior to using them in a communications campaign.

Behaviour change: The following questions can be used to identify if behaviour change interventions are needed:

i) Regionally or nationally, which individuals or organisations display risky behaviours in relation to chemicals and waste management?

ii) Describe the problem? Does it relate to component 1) Preventing the future build-up of chemicals entering SIDS? 2) Safe management and disposal of existing chemicals, products and materials? 3) Safe management of products entering SIDS?

iii) Elaborate on factors likely to be causing behaviours among group(s) that undermine better C&W management for the specified problem?

iv) Goal setting: With the risk issue described, what are the most desired behaviour change outcomes to help achieve the ISLANDS programme objective?

v) What specific actions will lead to the required behaviour? What do the target audience need to do as a result of the programme? What does the person or group need to do differently to achieve the desired change? When will they do it and where? How can a communications campaign support attitude and behaviour change among the target group?

Once you understand what needs to change, a communications campaign can be devised. The following resources can inform planning:

- https://implementationscience.biomedcentral.com/articles/10.1186/1748-5908-7-38
- http://www.behaviourchangewheel.com/

4.5 Cultural dimensions to consider

ISLANDS is taking place over a wide geographical area defined by territorial remoteness. National cultures will vary within a region and cultural differences are likely to be more pronounced between the three ISLANDS regions of the Caribbean, Indian Ocean and Pacific Islands.

The following section provides an overview of cultural dimensions that is useful for the ISLANDS team to consider during early stages of the programme.

Action point: Early on in the programme, the global communications lead might want to run an internal session on cross cultural communication during one of the monthly KMCC meetings which all ISLANDS team members will attend. The aim of this session would be to provide an overview of different cultural dynamics and inspire conversations between people about how the regions might differ in their approach to implementing projects. The regional communications leads will also consider using this information to spark conversations about within-region differences and similarities during planning meetings.

Hofstede's cultural dimensions:

> "Culture is defined as the collective mental programming of the human mind which distinguishes one group of people from another. This programming influences patterns of thinking which are reflected in the meaning people attach to various aspects of life and which become crystallised in the institutions of a society." – Geert Hofstede

Leading cultural theorist Geert Hofstede's cultural dimensions characterise dominant cultures in society. By surveying more than 100,000 IBM employees from 50 countries across three geographical regions, Hofstede found that data clustered around four 'value dimensions' which are explained in table 19. Further research from 23 nations revealed a fifth dimension, 'long-term / short-term orientation'. The World Values Survey has since used data from 93 countries to establish the 'Indulgence / Restraint' dimension.

Hofstede's dimensions are a convenient tool for understanding patterns and structures running through different societies. Applying the dimensions could be useful for understanding why development projects haven't worked. For example, an initiative to deliver training in the Pacific region might have gone to government representatives and not the intended recipients who were chemical and waste workers. Where hierarchy is entrenched there could possibly be a higher risk of training not being cascaded down without carefully designed measures to ensure that this takes place.

Table 19. Summary of Hofstede's six cultural dimensions[63]

Cultural dimension	What it means
Power distance	'Power Distance is the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally.'
Individualism vs collectivism	The degree that people in a country prefer to act as a member of a group or individual: 'Individualism is the extent to which people feel independent, as opposed to being interdependent as members of larger wholes.' Do people define themselves as 'I' or 'We'? This is an important dimension for planning social marketing campaigns and materials need to speak to 'We' where this cultural dimension is high.
Masculinity vs femininity	Female values are described as modest and caring. Male values are described as assertive and competitive. 'This is NOT about individuals, but about expected emotional gender roles. Masculine societies are much more openly gendered than feminine societies.'
Uncertainty avoidance	Rule bound cultures rank high on uncertainty avoidance and tend to be less tolerant of change. Cultures with a low uncertainty avoidance score tend to be more accepting of new challenges, be more accepting of change, more tolerant.
Long term vs short term orientation	This dimension is about change. Cultures with a high long-term orientation index tend to base their decisions on outcomes in the future and find it necessary to plan for the future. Conversely, cultures that rank low in the long-term orientation dimension are based more on fulfilling obligations that will have a more immediate or near-term impact.

See Annex 12 for a country comparison of Dominican Republic, Fiji, Suriname, Trinidad and Tobago. Annex 13 shows a useful diagram for designing communications to encourage SMEs to implement sustainable approaches. For more information and resources:

- Summary information and a country comparison tool: hofstede-insights.com/
- 6D model of national culture with dimension maps of the world: geerthofstede.com

1. [63] Information from hofstede-insights.com/ and geerthofstede.com

Annex 1 – Communications consultation

The main ISLANDS programme documents inform this strategy, and discussions about communications were held with Implementing Agencies and Executing Agencies during programme preparation.

Date	Name	Organisation	Contact
10.09.2019	Nanette Woonton, Media, Comms and Outreach Officer	Secretariat of the Pacific Regional Environment Programme	nanettew@sprep.org
12.09.2019	Jewel Batchasingh, Director, Director (Ag.)	Basel Convention Regional Centre for the Caribbean	jewel.batchasingh@bcrc-caribbean.org
13.09.2019	Oxana Perminova, *Agricultural Officer*	Food & Agricultural Organisation, United Nations	Oxana.Perminova@fao.org
17.09.2019	Claudia Giacovelli, Associate Programme Officer	International Environmental Technology Centre	claudia.giacovelli@un.org
27.09.2019	Napoleao Dequech Neto	International American Development Bank	ndequech@iadb.org
30.09.2019	Etienne Gonin, Programme Analyst	United Nations Development Programme	etienne.gonin@undp.org
16.10.2019	Nicholas Greenfield, ISLANDS Programme Coordination Unit: Coms Coordinator	UN Environment Programme	nicholas.greenfield@un.org
26.11.2019	Charles Avis, UNEP - Secretariat of the Basel, Rotterdam, and Stockholm Conventions	Secretariat of the Basel, Rotterdam and Stockholm Convention (BRS)	charles.avis@brsmeas.org
27.11.2019	Eduardo Caldera Petit, Programme Management Officer Maria Delfina Cuglievan Wiese, Project Management Officers	Strategic Approach to International Chemicals Management (SAICM)	eduardo.calderapetit@un.org delfina.cuglievan@un.org
04.12.2019	Anna Garcia Sans, Communications and Knowledge Management Officer	Secretariat of the Minamata Convention on Mercury	anna.garcia@un.org

Annex 2 – Communication challenges and opportunities

Challenges to consider when developing ISLANDS communications

Challenges	Opportunity
Geographical remoteness	Overcoming physical distance: Encouraging effective collaboration and relationship building within and between regions and participating countries.
Varying levels of internet access and technology tools across 27 SIDS, one of the ISLANDS is still on dial up.	Being innovative, finding the right tools to help deliver objectives and reach all internal and external audiences.
National culture: Different dynamics	Deepening understanding about cultural dynamics and working to enable effective exchange and message acceptance among target groups.
Resistance to sustainable approaches	Understanding barriers to implementing better approaches and devising successful behaviour change methods.
Time pressure	Developing approaches and activities that are sensitive to time-poor and resource-challenged operating environments.
Working silos	Broadening perspectives so that territory does not limit expectations of what can be achieved.
Overlapping funding streams and similar C&W programmes and projects	Effective collaboration with the wider donor community and organisations designing and delivering C&W projects in ISLANDS territories. Initiating conversations, building links, identifying duplication and gaps in communication, particularly with chemical awareness and behaviour change.

Annex 3 – Implementing ISLANDS programme values

Embedding a set of values for a better ISLANDS working culture (see section 2.3 of ISLANDS draft Communication Strategy)

People like to talk about their experiences, especially when things haven't worked well! Harnessing this level of engagement can be very constructive when designing activities around working culture; creating engagement programmes based on listening to what team members say, should be the first step in the process of devising a set of Programme values.

Questionnaires and online focus groups (workshop-style meetings) are two methods that can be used to survey people about their experiences of working on development projects. Collecting such information could help the KMCC project group take the 'cultural temperature' of the programme, particularly in different regions.

If the purpose of work on programme culture is clearly communicated, appropriate and sensitive to time pressures, this can help reduce misperceptions that such activities are non-essential.

If participants from different regions are invited to take part in calls about defining a set of working values, they would need to be clearly briefed; these activities are an opportunity to speak freely, to help identify problems and barriers. Sessions can also be a light-hearted time to reflect.

A set of potential questions to ask is set out below. These are based around the themes of collaboration, problem solving, taking responsibility and purpose which relate to the ISLANDS 'brand personality' values set out in section 2.2. This list of questions is not exhaustive and is intended as a prompt for designing working culture engagement activities:

Culture theme	Questions to ask
95. Collaboration	• What kind of behaviours don't you want to see when working on development projects? • What does treating each other with respect look like? • How can programmes ensure that everyone is listened to? • How safe do people feel in having open conversations? • How good are we at establishing trust between each other? • What is good conflict as opposed to bad conflict? • How can programmes ensure that everyone feels supported?
Problem-solving	• Aside time constraints, what are the barriers to trying out new ideas? • What are common problems with working culture when it comes to trying out new ideas? • Do people feel comfortable trying out new ideas or experimenting with new solutions?
Taking responsibility	• What does it mean practically when someone doesn't take responsibility? • Generally, why do you think people don't take responsibility for their actions? Where does this happen when trying to implement projects? • How can people be encouraged to take responsibility?
Purpose	• How confident are people that change is possible? • How strongly do people believe in the strategy? • How much do people care about the purpose?

Depending on how ISLANDS team members are surveyed, a follow up session might propose a revised list of working values (see table 4). Further meetings or a formal online survey could ask people for feedback, for example, if a workshop-style session is run, the list of values could be provided with the following questions:

- What do each of the values mean locally?
- Are there any differences in regional meaning and application?
- Provide an example of the values in action, applied to a particular project that might have been particularly successful over the course of their career.
- Which three values are most relevant to ISLANDS programme personality: Collaborative, Enterprising, Influential?

Annex 4 – Defining internal and external communication for GEF ISLANDS

ISLANDS internal communication definition:

A two-way exchange of information, knowledge and messages among team members to collaborate, organise, plan and develop all necessary programme activities. The ISLANDS intranet is a core channel for effective internal communication and engagement.

ISLANDS team members are direct employees of lead agencies, IAs or EAs (see table 1), or contractors delivering any part of global or regional ISLANDS child projects.

ISLANDS external communication definition:

A two-way flow of messages, information and knowledge from ISLANDS team members to external global, regional and national audiences to help achieve visibility, recognition and engagement on chemicals and waste issues and ISLANDS projects.

The ISLANDS website, social media pages, owned communication collateral and branded Knowledge Products are crucial channels for external communication.

Key external audiences include: Global media, donors and multilateral agencies, globally influential and regional universities (for example, University of the South Pacific, University of the West Indies), regional stakeholders, national governments, private sector organisations dealing in chemicals and waste, agriculture and manufacturing, waste management and technical experts, women, children, young people, farmers, CSOs, NGOs and the general public.

Annex 5 – ISLANDS components

ISLANDS Programme components

Component	Outcomes
1. Preventing the future build-up chemicals entering SIDS.	Have in place effective mechanisms, such as **global standard setting** applicable to all SIDS in common areas of interest, to control the import of chemicals, and products that lead to the generation of hazardous waste.
2. Safe management and disposal of existing, historically-produced wastes posing an immediate risk to people and natural resources.	By focusing on **national priorities**, **soundly disposing of harmful chemicals** and materials present and/or generated nationally.
3. Promoting systems for future management of waste and chemicals entering SIDS.	By building future resilience to the impact of unavoidable materials, and **working globally, regionally and nationally, adopting and putting into practice 4R approaches,** including increased recovery of resources from waste by adopting the principles of sustainable consumption and production.
4. Sharing knowledge and experience across all regions to address issues common to all SIDS, and to stimulate inter-regional cooperation to combat major global-level challenges posed by waste such as plastics, electronics and other major pollutants.	By putting in place a global and regional framework**, Knowledge Management is improved through better coordination, capturing, storing and dissemination of Knowledge Products and Services** about chemicals and waste problems and solutions described in Component 1, 2 and 3.

Annex 6 – Internal communication tools: Usage recommendations

Recommendations for using ISLANDS group chat apps and collaboration tools:

- Do not use new or lesser-known social media sites for networking and collaboration without first checking with ISLANDS communication leads. It is essential that all project-related interactions are secure and private. There have been cases where chat apps and collaboration tools make conversations searchable and visible on the internet. Privacy and security should be paramount considerations.
- Treat WhatsApp, Skype or Viber (a chat app more commonly used in the Pacific region) and other private or group messenger platforms as you would an email; never say anything that you wouldn't want to be sent to someone else.
- Never make a comment or remark that could cause offence, breach trust, confidentiality or legal requirements and obligations.
- All conversations and comments should stay on-topic and be relevant to the project being discussed
- When speaking about ISLANDS on personal chat apps and social media, treat information – message content, phone numbers, email addresses, any personal data that identifies someone – as personal. Think: How would you want your information to be handled and accessed?

Annex 7 – Knowledge Management definitions

Knowledge Management (KM): the systematic processes, or range of practices, used by organisations to identify, capture, store, create, update, represent, and distribute knowledge for use, awareness and learning across and beyond the organization. GEF STAP views KM as specialized applied science required to add order to intellectual assets and experiences, and notes it is a pre-requisite science for all projects and programs that derive new information or insights that may have future utility. Good KM means the right knowledge, is provided to the KMS (see below)

Knowledge Management Systems (KMS): refers to any kind of IT system that stores and retrieves knowledge, improves collaboration, locates knowledge sources, mines repositories for hidden knowledge, captures and uses knowledge, or in some other way enhances the KM process.

Knowledge Products and Services: refer to outputs such as databases, publications, visual material, maps (all classified as knowledge products) and outcomes such as awareness raising, information sharing, and capacity building (all classified as knowledge services).

Knowledge Products: are the accumulated intellectual resources in the form of information, ideas, learning, understanding, memory, insights, cognitive and technical skills, and capabilities[64].

[64] STAP (2018), Making knowledge for a sustainable future

96.

Annex 8 – Visual identity guidelines

Brand expression: visual identity (logo, colours, templates)

Logo: ISLANDS has come about because several multilateral organisations are providing significant funding and technical expertise to boost sustainable management of toxic chemicals and waste.

Although there are many contributing partners, to keep the ISLANDS' visual identity as clean and bright as possible, it is recommended that the logo mainly consists of the programme name in block capitals in a dark colour with a simple design element that graphically represents a feature that sets the programme apart.

ISLANDS is different because it is an overarching global programme that aims to improve knowledge sharing between regions to enable better management of chemicals and waste. This could be demonstrated in a logo that visually represents the three regions and a connection between them, for example, three connected circles.

Colours:

Use colour carefully and consistently to highlight key visual elements in all of ISLANDS communication tools, templates and publications. Just because something is colourful does not mean that it is an example of good design. The following colours should be core to the ISLANDS programme:

- Turquoise-based blues are distinctive and stand out next to other colours, it is also a colour associated with pristine island beaches.
- Shades of green are a key colour associated with the environment and should be used somewhere in the ISLANDS logo.
- A colour that positively represents chemicals is bright yellow, it can be seen in chemical safety/ warning signs and this makes it relevant for an ISLANDS logo.

Logo descriptor:

An independent logo should be created and a second one could be developed which incorporates a descriptor, a short phrase of three to four words which captures the essence of the ISLANDS programme. Following examples:

#ISLANDS Cleaner chemicals, less waste	#ISLANDS Managing our future	#ISLANDS Safely managing harmful waste
#ISLANDS Together we protect	#ISLANDS Safe chemicals, less waste	#ISLANDS Making harmful waste safe
#ISLANDS Reducing harmful chemicals and waste	#ISLANDS Proud of our environment	#ISLANDS Safe from harm
#ISLANDS Reducing harmful waste	#ISLANDS Safe from harmful waste	#ISLANDS Reducing risky waste

Templates needed for communication materials:

Templates for communication tools	PowerPoint, digital leaflets, press release, Twitter, Facebook and Instagram badges (background template with ISLANDS logo and room for short promotional text), report template, non-technical case study, insights sheet, Q&A interview
Knowledge Products	Covers for research reports, technical reports, format for technical case studies, impact assessments and policy documents.

As ideas about the visual identity for ISLANDS develop, there may be a need for a suite of design icons which can be displayed on content and publications for websites, social media etc. The aim of design icons, part of an ISLANDS sub-brand, would be to provide a common visual thread through cross-cutting chemicals and waste topics (e.g., health waste, e-waste, EPR). These would help to establish a framework for brand identity and improve overall visibility and impact.

Metadata terms for ISLANDS photos:

Hazardous chemicals; waste management; chemicals and waste; reduce; recycle; reuse; SIDS; Caribbean; Pacific Islands; Indian Ocean; environmental protection; marine environment; sea pollution; plastics; impact assessment; pollutants; toxic substances; pollution control; health hazards; biodiversity conservation; Sustainable Development Goals; Antigua & Bermuda; Barbados; Belize; Dominican Republic; Guyana; St Kitts & Nevis; St Lucia; Trinidad and Tobago; Cook Islands; Fiji; FSM; Kiribati; Marshall Islands; Nauru; Niue; Palau; PNG; Samoa; Solomon Islands; Tonga; Tuvalu; Vanuatu; Comoros; Maldives; Mauritius; Seychelles.

Annex 9 – Social media baseline for IAs and EAs

Organisation		Website	Facebook followers	YouTube subscribers	Twitter followers	LinkedIn followers	Instagram followers
Global Environment Facility		www.thegef.org/	60,159	1,580	47,000	N/A	N/A
EAs							
International Environmental Technology Centre (IETC)		www.unenvironment.org/ietc/	See UNEP stats for all social media channels				
Basel Convention Regional Centre for the Caribbean (BCRC)		www.bcrc-caribbean.org/	1,118	5	43	N/A	N/A
Secretariat for the Pacific Regional Environment Programme (SPREP)		www.sprep.org/	59,090	199	6257	N/A	N/A
United Nations Development Programme	Maldives	www.mv.undp.org/	1,304,979	30,400	1.41 million	874,000	400,000
	Comoros	www.km.undp.org/					
	Seychelles & Mauritius	www.mu.undp.org					
IAs							
UNDP, Istanbul		www.undp.org	1,304,979	30,400	1.41 million	874,000	400,000
UN Environment, Nairobi		www.unenvironment.org/	799,820	33,400	931,000	267,145	1.3 million
FAO, Rome		www.Fao.org, regional fao.org/americas/en/	1,501,838	52,800	329,000	411,569	388,000
IADB, Washington		www.iadb.org	85,017	3,170	48,100	332,025	137,000

Annex 10 – Draft budget for global child project

KMCC, comms activity, five year spend (US $)	Option 1	Option 2
ISLANDS intranet hosting from a cloud-based provider	6,000	6,000
Dedicated **ISLANDS website**, development and set up using UN Environment child site	TBC	
Dedicated **ISLANDS website**, development and set up using Wix website builder, including URL purchase		2,000
Email marketing platform (eg Mail Chimp or Lyris), cost TBC	TBC	TBC
Core collateral: (ISLANDS video / animation; digital programme brochure, suite of branded infographics, other assets for to enhance multi-media content)	30, 000	15,000
Photography and images (original commissions to support media relations and stock images for online content)	10,000	5,000
Illustrations. Purchase royalty-free from Blade.com, low cost digital images free with attribution but small cost for standard and premium subscription, rates include source files, no attribution and multiple colourways.	8,400	4,400
Subscription cost of online collaboration tool (e.g. Trello), or similar virtual community TBC.	1,500	
Logo development and other visual identity (e.g. themed icons, design templates)	15,000	5,000
Translation of KM Products and core communication materials	50,000	25,000
KMCC budget for reactive communication	75,000	50,000
Global events, networking, visibility, stakeholder development work	100,000	50,000
Publication development and design: Knowledge Products, research reports, case studies etc	75,000	50,000
External meeting, 2020 TBC	TBC	TBC
Exhibition or meeting space, the 15th meeting of the COP to the Basel Convention, the tenth meeting of the COP to the Rotterdam Convention and the tenth meeting of the COP to the Stockholm Convention, 17-28 May 2021, Nairobi, Kenya	5,500	5,500
Webinars	100,000	75,000
Global comms lead, salary TBC	TBC	TBC
Travel	TBC	TBC
Workshop expenses, accommodation etc	TBC	TBC
Total	**476,400**	**292,900**

Annex 11 – Key messages, audiences and channels (Caribbean, Indian Ocean and Pacific)

1. All audiences:

Overarching key messages:

- Exposure to toxic chemicals and waste poisons people and environments but we can prevent this with better management. ISLANDS is a new, five-year programme that aims to reduce dangerous substances so that Small Island Developing States (SIDS) can develop sustainably, and safely.
- Remote communities in Small Islands Developing States (SIDS) are particularly vulnerable to threats from dangerous chemicals and waste. The Global Environment Facility is funding a network of international organisations to help manage and mitigate problems in 27 SIDS countries across the Caribbean, Indian Ocean and Pacific Islands.
- Improving knowledge about the risks of hazardous chemicals and waste is an important part of ISLANDS.
- Careful handling of toxic chemicals is essential to protect our health. When this doesn't happen, financial costs are high and fragile ecosystems struggle to survive. Tourism only thrives in clean environments and SIDS can create economic value when waste is treated as a properly managed resource.
- Some hazardous pollutants are not yet widely regulated by national and international law.

ISLANDS will help to improve legislation, provide funding and guidance to recycling and waste initiatives. ISLANDS will support projects that reduce toxic chemicals such as Mercury, POPs, PBDE and PCBs and highly hazardous pesticides.

- ISLANDS is calling on governments, private sector and public sector organisations, young people and technical professionals everywhere to collaborate in their efforts to reduce the risks of hazardous chemicals and waste. For information, visit (INSERT ISLANDS URL)

97.

2. National governments (particularly agriculture, environment and health departments)

Who? Senior government officials and representatives, policy makers and advisers, decision makers (and people who influence them), government agencies who handle and manage waste and related services.

What they need to know: Risks of harmful C&W, what ISLANDS aims to achieve, how the project will benefit countries that aren't participating.

Call-to-action (CTA): To be developed and decided by ISLANDS communications team.

Key messages:

- National governments are a valuable part of solutions being put in place by GEF ISLANDS to reduce risks of hazardous chemicals and waste.
- Organisations delivering GEF ISLANDS are working in partnership with governments to improve legislation and benefit economies and society by reducing the import of harmful chemicals and products.
- By creating stronger regional collaboration to better manage harmful chemicals and waste, SIDS can strengthen environmental and economic protection.
- Countries that don't participant can benefit from GEF ISLANDS because valuable lessons will be learned and shared, and regional legislation will be strengthened.
- To protect humans and the environment, working together is vital for the sound management and disposal of harmful chemicals such as POPs, uPOPs and mercury. ISLANDS partner organisations welcome joint collaboration with representatives from health, agriculture and environmental government departments.

Caribbean:

- ISLANDS is being led by the Global Environment Facility (GEF) and delivered in the Caribbean by Basel Convention Regional Centre for the Caribbean who will work with governments to remove harmful substances and products, and reduce risks of harmful chemicals being imported.

- UNEP and IADB are helping to design and fund projects that improve waste management, including e-waste, increase recycling, reduce and eliminate toxic chemicals such as Mercury, POPs, PBDE and PCBs and highly hazardous pesticides.
- Participating Caribbean countries include; Antigua & Bermuda, Barbados, Belize, Dominican Republic, Guyana, St Kitts &Nevis, St Lucia, Trinidad and Tobago. Other Caribbean countries will benefit from ISLANDS because valuable lessons will be learned and shared regionally.
- Nationally and regionally, economically and environmentally, the Caribbean area can benefit from ISLANDS by having better solutions in place for managing chemicals and waste.

98.

Indian Ocean:

- The remoteness of the Indian Ocean SIDS makes the export and logistics of recyclables and hazardous wastes challenging and costly. In partnership with national governments of Comoros, Maldives and Mauritius, ISLANDS is being delivered by United Nations Development Programme in the Indian Ocean and will help to provide solutions to these problems.

Pacific Ocean:

- ISLANDS is being designed and delivered in the Pacific Ocean by United Nations Environment Programme and Secretariat of the Pacific Regional Environment Programme (SPREP). The initiative has been developed, in line with the Pacific Regional Waste and Pollution Management Strategy (2016-2025), and in consultation with countries and regional partners over 2019.
- Participating Pacific Island countries include; Cook Islands, Fiji, FSM, Kiribati, Marshall Islands, Nauru, Niue, Palau, PNG, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu.
- Pacific Island countries have elected priority areas to focus on. E-waste will be dealt with in the Cook Islands, FSM and Solomon Islands. Recycling, landfill management and POPs reduction are national priorities for action in Samoa, Vanuatu, Niue, Tonga, Palau, Nauru and Papua New Guinea. The focus for Kiribati and Tuvalu will be plastics management and used oil will be dealt with in the Marshall Islands.

99.

100. Channels: In addition to building on stakeholder relationships started during project preparation, online and broadcast media should be a priority channel for reaching and influencing government policy. Regional agencies will be able to provide detailed national and regional media lists. Websites for each of the national governments in the ISLANDS programme are as follows:

101.

102. Caribbean: AG:ab.gov.ag/, BZ:belize.gov.bz/, DO: dominicana.gob.do/, GYdpi.gov.gy/, KN: gov.kn/, LC: govt.lc/ SR: gov.sr/, TT: ttconnect.gov.tt

103.

104. Indian Ocean: KM: gouvernement.km, KM: gouvernement.km, MU: m.govmu.org/, SC: egov.sc/

105.

Pacific Islands: CK: ck/govt.htm, FJ: fiji.gov.fj/Home, FSM: fsmgov.org/ngovt, KI: kiribati.gov.ki/, MH: rmiparliament.org, NRU: nauru-news.com/, NU: gov.nu/wb, PW:palaupanfund.org, PNG: parliament.gov.pg/, AS: samoagovt.ws/, SB: mfaet.gov.sb, TO: mic.gov.to, TV: tuvaluaudit.tv, VU: gov.vu/en

106.

3. Regional stakeholders

107. **Who?** Regional agencies and funding bodies

108. **What they need to know:** What ISLANDS is and which organisations are working with the programme

109. **Call-to-action (CTA):** To be developed and decided by ISLANDS communications team.

Key messages:

- Regional cooperation across the Caribbean, Indian Ocean and Pacific Islands on complex chemicals and waste issues saves money and enhances solutions while limiting the future build-up of hazardous chemicals.
- GEF ISLANDS is taking a regional approach to helping SIDS overcome barriers to improved waste and chemicals management by providing technical advice on legislation, regulation, waste management infrastructure and education and awareness about hazardous substances.

110.

Caribbean:

- GEF ISLANDS will complement existing chemicals and waste initiatives and help to fund new projects that improve waste management, including e-waste, increase recycling, reduce and eliminate toxic chemicals such as Mercury, POPs, PBDE and PCBs and highly hazardous pesticides.
- Nine Caribbean countries are set to benefit and regional stakeholders contributed to the development of the Programme.
- ISLANDS is being delivered in the region by Basel Convention Regional Centre for the Caribbean who will be working with local and national partners. UNEP, FAO and IADB are helping to fund the Programme.
- The InterAmerican Development Bank Group (IADB) is funding innovative projects in chemicals and waste management which aim to improve access to finance for public and private sector organisations interested in the sustainable management of chemicals and waste. A pipeline of projects will benefit public and private sectors of participating Caribbean countries. For information, visit (*INSERT URL*)

Indian Ocean:

- ISLANDS is being delivered in the region by the United Nations Development Programme who will be working with local, national and regional partners.

Pacific Ocean:

- ISLANDS is being delivered in the region by SPREP who will be working with local and national partners.

111.

Regional Channels

In addition to relationships which were developed during project preparation, Pan-regional media channels can be used to reach, influence and inform regional Caribbean agencies. Where appropriate, ISLANDS news and updates can also be included in regional e-news and on news feeds of regional partner websites, plus social media channels.

Caribbean regional organisations:caricom.org, crosq.org, cepal.org/en, oecs.org, caribank.org, Global Green Growth Institute, gggi.org/country/caribbean/

Indian Ocean: irena.org, adb.org/j commissionoceanindien.org/, Asia Development Bank (ADB)

Pacific Ocean: theprif.org, spc.int, usp.ac.fj, Global Green Growth Institute in Fiji, Kiribati, Papua New Guinea, Vanuatu, PacWaste Plus

112.

113.

4. Civil Society Orgranisations (CSOs)

114. **Who?** People and organisations in relevant CSOs involved in development or environmental education, awareness and engagement, this target groups also includes NGOs.

115. **What they need to know:** What ISLANDS is and how CSOs can help.

116. **Call-to-action (CTA):** To be developed and decided by ISLANDS communications team.

117.

Key message:

- GEF ISLANDS is seeking to reach vulnerable groups of people who are negatively affected by harmful chemicals and waste across participating countries.
- Through developing a partnership approach, ISLANDS is seeking to deliver innovative solutions that help prevent future build-up of harmful chemicals and waste. Contact ISLANDS partner organization (*INSERT NAME*) for more information about how you can (*delete as appropriate*) get involved / help raise awareness, *INSERT URL*

118.

CSO channels:

Media channels, social media, online hubs for CSOs and NGOs.

5. Private Sector Organisations

119. **Who?** Small and medium-sized enterprises (all sectors) which generate waste, and commercial organisations involved in managing waste, whether that be solid, healthcare, e-waste, packaging companies, suppliers, waste pickers etc.

What they need to know: Benefits of ISLANDS and the value of sustainable C&W waste management.

Key message:

- Waste is a valuable resource when it is managed properly. Private sector organisations can be an important part of the solution by working with ISLANDS partner organisations to create stronger regional collaboration between participating countries to better manage harmful chemicals and waste. For more information, visit *INSERT URL*

Caribbean:

- As part of ISLANDS in the Caribbean, the InterAmerican Development Bank Group (IADB) is funding an innovative chemicals and waste project. By improving access to finance for public and private sector businesses, it is possible to improve the sustainable management of chemicals and waste. A pipeline of projects will benefit public and private sectors of participating Caribbean countries. For information, visit (*INSERT URL*)

Private sector channels:
Business and trade media, business networking organisations and hubs, professional bodies and associations.

6. Young people

120. **Who?** School pupils, under 16s, undergraduate students, anyone under between the ages of 16 to 30.

121. **What they need to know:** Chemical awareness needs to improve as well as general understanding of the risks caused by harmful C&W.

122. **Call-to-action (CTA):** To be developed and decided by ISLANDS communications team.

123.

124. Key message:

125.

- Many organisations around the word are working together to deliver ISLANDS, a new initiative that brings environmental benefits to SIDS by providing solutions to problems caused by hazardous chemicals. Young people are encouraged to find out more about how different chemicals and waste are used in our day-to-day lives, and what activities are taking place nationally to improve waste handling. To find out more, visit (*INSERT URL*)

126.

Channels to reach young people: Social media is key and content needs to engage and encourage participation. Depending on cost of using WiFi locally, some young people might not be able to access the internet as freely as others but the major social media channels (Facebook, Instagram, Twitter, YouTube) are used in all three ISLANDS regions. Drawing up a target list of influential young environmental and development bloggers and 'influencers' in each region and contacting them with information about ISLANDS is a potentially useful way to share project information.

7. Farmers and agricultural organisations

127. **Who?** Farm workers, owners, agricultural manufacturers and suppliers.

128. **What they need to know:** How ISLANDS can benefit them and the risks of highly hazardous pesticides.

129. **Call-to-action (CTA):** To be developed and decided by ISLANDS communications team.

130.

131.

132. Key message:

133.

- Highly hazardous pesticides are poisonous to humans and cause harm to the environment. Safer alternatives are available to use in food production and farming. A new global initiative called ISLANDS can benefit farmers and other agricultural workers by helping to reduce reliance on highly hazardous pesticides. To find out more, visit (*INSERT URL*)

Channels to reach farmers: pacificfarmers.com/, Caribbean Farmers Network (CaFAN), Mauritius = Small Farmers Welfare Fund, sfwf.govmu.org, International Fund for Agricultural Development (IFAD).

8. Women

134. **Who?** All females, particularly young women mothers, and waste pickers

135. **What they need to know:** Risks of harmful chemicals and waste

136. **Call-to-action (CTA):** To be developed and decided by ISLANDS communications team.

137.

Key messages:

- Women and men are vulnerable to harmful chemicals in different ways due to variations in biology, size and physiology.
- Females can be at risk from harmful chemicals when they are pregnant and because of this a child's health might be affected. Women can also be exposed to toxic chemicals found in housecleaning and personal care products. To find out more about how to protect yourself, visit (*INSERT URL*)

9. Audience: Chemicals and waste specialists

138. **Who?** Chemicals and waste practitioners, professionals, decision makers and academics.

What they need to know: What ISLANDS is and how they can benefit.

139. **Call-to-action (CTA):** To be developed and decided by ISLANDS communications team.

Key messages:

- Funded by the Global Environment Facility, ISLANDS is a new chemicals and waste initiative operating across the Caribbean, Indian Ocean and Pacific Islands. ISLANDS aims to provide high quality resources to professionals, practitioners, decision makers, and specialist NGOs.
- ISLANDS aims to prevent the build-up of materials and chemicals in the environment that contain POPS and Mercury and other harmful chemicals in SIDS and soundly manage and dispose of existing harmful chemicals and materials in SIDS. Improving knowledge management about hazardous chemicals and waste is an important part of the project.
- Globally, SIDS will benefit from technical support and funding of new and existing projects.
- If you are keen to know more about ISLANDS, visit (*INSERT URL or CONTACT DETAILS *)

Channels: Online business networks and websites, university networks, professional bodies for waste and chemicals, global and regional Knowledge Management platforms.

10. General public

140. **Who:** Any individual

141. **What they need to know:** What ISLANDS is and who will benefit

142. **Call-to-action (CTA):** To be developed and decided by ISLANDS communications team.

143.

All regions

- Across the world, toxic chemicals and hazardous substances negatively impact people, communities, the economy and tourism, especially in small island developing states.

- ISLANDS is a new, five-year programme led by the Global Environment Facility, that aims to build a model for the sound management of chemicals and waste so that SIDS can sustainably develop without a build-up of dangerous substances.
- 27 countries are participating and will benefit from projects that seek to improve waste management, including e-waste, increase recycling, reduce and eliminate toxic chemicals such as Mercury, POPs, PBDE and PCBs and highly hazardous pesticides.

144.

Channels: Newspapers, television and radio, social media

145.

Annex 12 – Cultural Dimensions

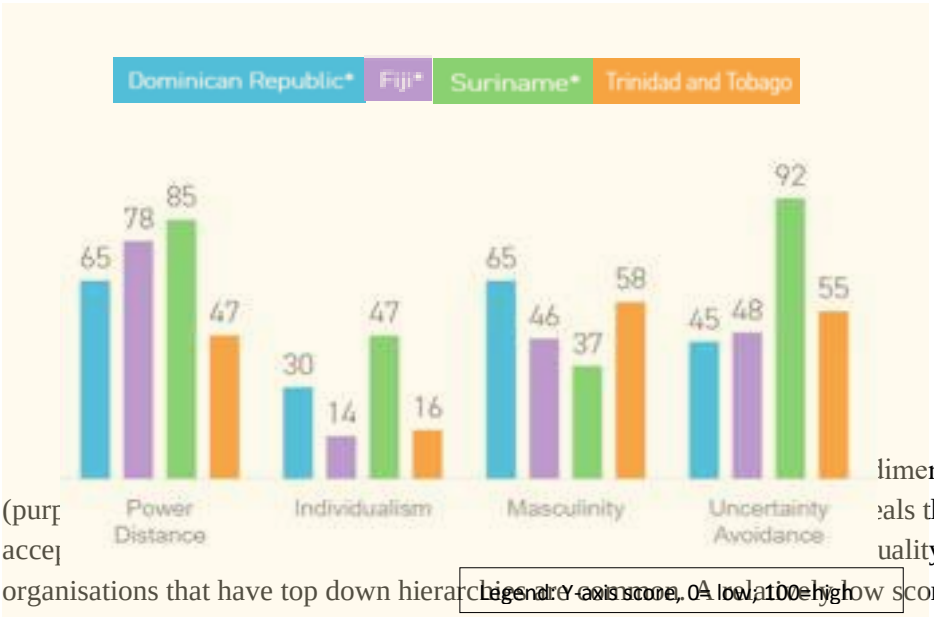
A country comparison of Dominican Republic, Fiji, Suriname, Trinidad and Tobago. Data from:

- More summary information and a country comparison tool: hofstede-insights.com/
- 6D model of national culture with dimension maps of the world: geerthofstede.com

Using the country comparison tool reveals a dearth of data about national culture dimensions for many of the 27 ISLANDS countries. However, a quick analysis shows the following information for one Pacific Island nation, Fiji and three Caribbean countries, Dominican Republic, Suriname and Trinidad and Tobago.

The dimensions scale records scores from 0 to 100. A score of less than 50 means a culture has a low rating on that scale. More than 50 means that the culture score is high for that dimension. For example, a country that scores low on 'Individualism' has stronger collectivist tendencies.

Figure 3. Hofstede's cultural dimension country comparison



limension, as does Fiji (purp eals that people tend to accep uality. Centralized organisations that have top down hierarchies are common. A relatively low score for Trinidad and Tobago signifies that superiors are likely to be more accessible and hierarchy is more about convenience than control. Management attitudes tend to be more informal in Trinidad and Tobago; communication can be direct and participatory.

All the countries register low scores on the 'Individualism' dimension which means that they are more collectivist cultures, Fiji and Trinidad and Tobago strongly so.

Another strong difference can be seen on the 'Uncertainty /Avoidance' dimension where Suriname has a very high score in comparison to the other countries. Data suggests that here people have a strong tendency to avoid uncertainty, there is probably 'an emotional need for rules.' Individual motivation can be heavily based on security, and there is likely to be less tolerance of people who behave in an unorthodox manner. The Dominican Republic scores highest on the 'Masculine' dimension suggesting that work-related achievements are the basis for promotion.

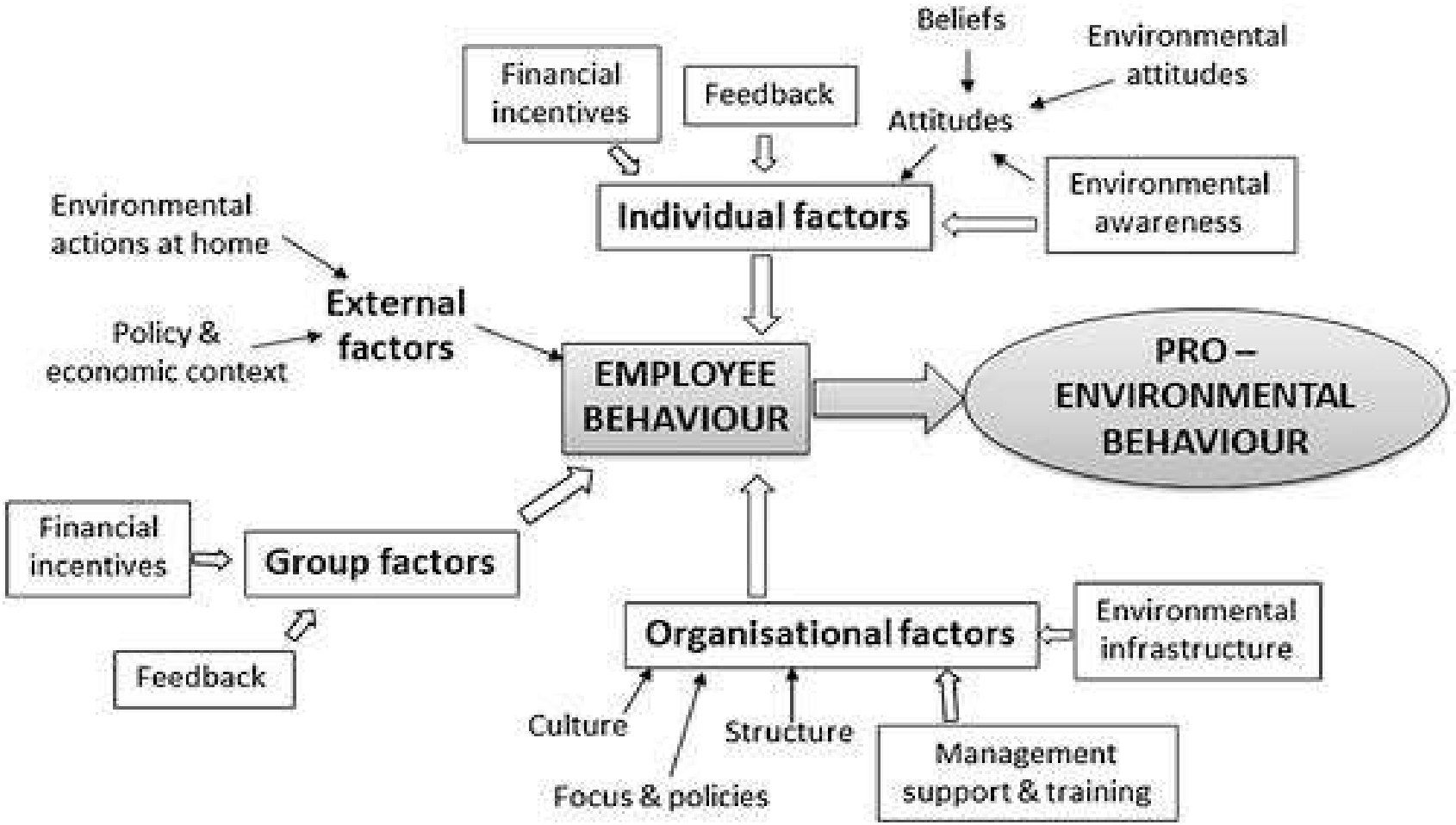
Data on the newest cultural dimension, 'Indulgence' was only available for Trinidad and Tobago which was a high score, meaning that people here can be impulsive and keen to fulfil desire to enjoy life.

Pressure to deliver can give rise 'culture shock' and in these situations there is a greater risk of making assumptions, especially when working through virtual relationships. When people rely on availability heuristics (mental shortcuts) and there is a risk for stereotypes and hidden bias to

influence thinking. Misunderstandings can be common, talking at cross purposes occurs, situations become stressful, conflict arises and targets can be missed or achieved too late.[65]

[65] All information from Geert Hofstede's Country Comparison Tool: hofstede-insights.com/

Annex 13 – Changing Behaviour: Successful Environmental Programmes in the Workplace



Reference: Framework of macro determinants for employee pro-environmental behaviour (e-PEB) (stronger evidence shown by larger arrows or bold text). Young et al. (2013), Changing Behaviour: Successful Environmental Programmes in the Workplace. DOI: https://doi.org/10.1002/bse.1836

Annex 14 – Workplan

GEF ISLANDS - DRAFT COMMUNICATIONS WORKPLAN	2019						
Activity	**N**	**D**	**J**	**F**	**M**	**A**	
Finalise logo development, visual identity (colours, design templates)							
Begin recruiting ISLANDS communications team, KMCC global communications lead							
Start developing ISLANDS website							
Start developing ISLANDS intranet							
Start developing core communications collateral: 90 second programme video / animation, explainer; (ii) digital flyer, (iii) c&w infographics							
Recruit 3 x regional ISLANDS communication managers, write JDs etc.							
Communications team onboard, team building activities and preparation for launch of regional projects							
Begin development of Knowledge Products and supporting materials							
Finalise core communications collateral							
Develop ISLANDS e-news to communicate progress with global and regional stakeholders							
Website testing and go live							
Planning regional communications priorities, resources and activities							
Launch regional child projects							
External communication opportunities 2020							
ISLANDS comms launch TBC. Eg. global media release and update							
Develop guidelines for content creation and usage of social media channels							
International Women's Day, 8 March. Promote ISLANDS work on gender awareness in C&W							
United Nations World Health Day, 7 April. Media relations opportunity for chemical awareness							
World Environment Day, 5 June 2020.							
World Oceans Day, 8 June. Media opportunity for ISLANDS							
International Day of the World's Indigenous People (IP), August 9.							
World Tourism Day, 27 September.							
International Day for Natural Disaster Reduction, 14 October.							