



# REQUEST FOR CEO ENDORSEMENT

**PROJECT TYPE: Full-sized Project**

**TYPE OF TRUST FUND: GEF Trust Fund**

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## PART I: PROJECT INFORMATION

Project Title: Development and Implementation of a Sustainable Management Mechanism for POPs in the Caribbean			
Country(ies):	Antigua and Barbuda (ANU), Barbados (BDOS), Belize (BZE), St Kitts and Nevis (SKN), St. Lucia (SL), St Vincent and the Grenadines (SVG), Suriname (SUR), Trinidad and Tobago (TT)	GEF Project ID: <sup>1</sup>	5558
GEF Agency(ies):	UNIDO (select) (select)	GEF Agency Project ID:	130211
Other Executing Partner(s):	Ministries with responsibility for Environmental Conservation and/or Human Health of participating countries, Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean Region (BCRC-Caribbean)	Submission Date: Resubmission Date:	03/13/2015 05/12/2015
GEF Focal Area (s):	Persistent Organic Pollutants	Project Duration(Months)	60
Name of Parent Program (if applicable): ➤ For SFM/REDD+ <input type="checkbox"/> ➤ For SGP <input type="checkbox"/> ➤ For PPP <input type="checkbox"/>		Project Agency Fee (\$US):	839,706

### A. FOCAL AREA STRATEGY FRAMEWORK<sup>2</sup>

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Grant Amount (\$US)	Co-financing (\$US)
CHEM-1	Outcome 1.3 POPs releases to the environment reduced.	Output 1.3.1 Action plans addressing un-intentionally produced POPs under development and implementation.	GEF TF	4,075,000	9,220,000
CHEM-1	Outcome 1.4 POPs waste prevented, managed, and disposed of, and POPs contaminated sites managed in an environmentally sound manner.	Output 1.4.2 Countries receiving GEF support for environmentally sound management of obsolete pesticides, including POPs.	GEF TF	2,436,500	6,776,000
CHEM-1	Outcome 1.5 Country capacity built to effectively phase out and reduce releases of POPs.	Output 1.5.1 Countries receiving GEF support to build capacity for the implementation of the Stockholm Convention.	GEF TF	1,210,000	2,720,000

<sup>1</sup> Project ID number will be assigned by GEFSEC.

<sup>2</sup> Refer to the [Focal Area Results Framework and LDCF/SCCF Framework](#) when completing Table A.

CHEM-4	Outcome 4.1: NIPs prepared or updated or national implications of new POPs assessed.	Output 4.1.1 Countries receiving GEF support for NIP development.	GEF TF	1,117,500	2,408,103
<b>Total project costs</b>				8,839,000	21,124,103

## B. PROJECT FRAMEWORK

<b>Project Objective: To enable the participating Caribbean countries to reduce and eliminate the threats of POPs</b>						
<b>Project Component</b>	<b>Grant Type</b>	<b>Expected Outcomes</b>	<b>Expected Outputs</b>	<b>Trust Fund</b>	<b>Grant Amount (\$US)</b>	<b>Confirmed Co-financing (\$US)</b>
1. Create the enabling mechanisms in the participating Caribbean countries for the effective implementation of the Stockholm Convention on POPs	TA	Enabling mechanisms developed nationally and regionally for effective implementation of the Stockholm Convention	1.1 Updated NIPs including the conduct of in-country inventories of new POPs added to the Stockholm Convention 1.2 Sound chemicals management mainstreamed into all national policies and plans 1.3 Regional information system available for all countries 1.4 Strong institutional arrangements and structures established to support regional collaborative and cooperative approaches to management of POPs and UPOPs among participating countries.	GEF TF	2,000,000	4,000,000
2. Reduce UPOPs emissions by improving poor waste management practices at landfills	TA	UPOPs emissions reduced by improving poor waste management practices at landfills resulting in improved human health.	2.1 Systems for the collection, recycling and disposal of POPs wastes resulting in better waste management practices implemented at a National level. 2.2 BAT/BEP demonstrated in pilot (existing) landfill facilities.	GEF TF	3,455,000	7,605,000
3. Assess potential contaminated sites to determine the level of contamination by POPs and develop	TA	Contaminated sites identified and remediated	3.1.1 Contaminated sites in selected countries identified, assessed and prioritized for	GEF TF	1,100,000	4,280,000

appropriate remediation strategies			treatment. 3.1.2 Remediation demonstrated in a prioritized contaminated site			
4. Managing and disposing of PCBs	TA	ESM of PCBs established in the countries	4.1 Environmentally sound management (ESM) of PCBs implemented	GEF TF	1,044,000	2,088,000
5. Impact Monitoring and Evaluation	TA	Adherence to project document and achievement of project objectives	5.1 Project impact monitoring system, evaluation of the achieved results and introduction of corrections (as required) 5.2 Dissemination of project related information and results to stakeholders	GEF TF	600,000	1,400,000
Subtotal					8,199,000	19,373,000
Project management Cost (PMC) <sup>3</sup>				GEF TF	640,000	1,751,103
<b>Total project costs</b>					<b>8,839,000</b>	<b>21,124,103</b>

### C. SOURCES OF CONFIRMED CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME (\$)

Please include letters confirming co-financing for the project with this form

Sources of Co-financing	Name of Co-financier (source)	Type of Co-financing	Co-financing Amount (SUS)
National Government	National Solid Waste Management Authority, Antigua and Barbuda	In-kind	5,600,000
National Government	Ministry of the Environment and Drainage, Barbados	In-kind	60,000
National Government	Ministry of Forestry, Fisheries & Sustainable Development, Belize	In-kind	1,762,000
National Government	Solid Waste Management Authority, Belize	In-kind	300,000
National Government	St. Kitts and Nevis Solid Waste Management Corporation	In-kind	1,037,036*
National Government	Ministry of Sustainable Development, Energy, Science and Technology, Saint Lucia	In-kind	195,274
National Government	Ministry of Health, Wellness and the Environment, St Vincent and the Grenadines	In-kind	176,294
National Government	Directorate of Environment, Ministry of Labour, Technological Development and Environment, Suriname	In-kind	389,000

<sup>3</sup> PMC should be charged proportionately to focal areas based on focal area project grant amount in Table D below.

National Government	Ministry of Agriculture, Animal Husbandry and Fisheries, Suriname	In-kind	68,062
National Government	Ministry of the Environment and Water Resources, Trinidad and Tobago	In-kind	16,055
National Government	Solid Waste Management Company Limited	In-kind	10,012,382
GEF Agency	UNIDO	Cash	178,000
GEF Agency	UNIDO	In-kind	250,000
Multi-lateral Agency	BCRC-Caribbean	Cash	250,000
Multi-lateral Agency	BCRC-Caribbean	In-kind	800,000
Private Sector	Greening the Caribbean, Saint Lucia	Cash	30,000
<b>Total Co-financing</b>			<b>21,124,103</b>

\*EC 2.8 M Exchange rate: 1USD = 2.7 ECD

Note: Co-financing figures reflected in the CEO Endorsement document refers only to the amount committed for the relevant activities for each country.

#### D. TRUST FUND RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY<sup>1</sup>

GEF Agency	Type of Trust Fund	Focal Area	Country Name/ Global	(in \$)		
				Grant Amount (a)	Agency Fee (b) <sup>2</sup>	Total c=a+b
UNIDO	GEF TF	Persistent Organic Pollutants	Antigua and Barbuda	1,136,000	107,920	1,243,920
UNIDO	GEF TF	Persistent Organic Pollutants	Barbados	875,000	83,125	958,125
UNIDO	GEF TF	Persistent Organic Pollutants	Belize	1,503,000	142,785	1,645,785
UNIDO	GEF TF	Persistent Organic Pollutants	St Kitts and Nevis	460,000	43,700	503,700
UNIDO	GEF TF	Persistent Organic Pollutants	Saint Lucia	1,136,000	107,920	1,243,920
UNIDO	GEF TF	Persistent Organic Pollutants	St Vincent and the Grenadines	460,000	43,700	503,700
UNIDO	GEF TF	Persistent Organic Pollutants	Suriname	2,009,000	190,855	2,199,855
UNIDO	GEF TF	Persistent Organic Pollutants	Trinidad and Tobago	1,260,000	119,700	1,379,700
<b>Total Grant Resources</b>				<b>8,839,000</b>	<b>839,705</b>	<b>9,678,705</b>

<sup>1</sup> In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table. PMC amount from Table B should be included proportionately to the focal area amount in this table.

<sup>2</sup> Indicate fees related to this project.

#### F. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

Component	Grant Amount (\$)	Cofinancing (\$)	Project Total (\$)
International Consultants	1,832,000	3,664,000	5,496,000
National/Local Consultants	1,090,000	2,180,000	3,270,000

#### G. 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/NPIF Trust Fund).

## PART II: PROJECT JUSTIFICATION

### **A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF<sup>4</sup>**

The information presented in this project document builds on the elements of the PIF. The following revisions were made during the development of the detailed project elements so as to further improve the document.

<b>Project design at PIF</b>	<b>Project design at CEO Endorsement</b>	<b>Justification for the changes</b>
The PIF initially targeted nine (9) countries: Antigua and Barbuda, Bahamas, Barbados, Belize, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Suriname, Trinidad & Tobago.	After subsequent consultations, the Bahamas withdrew from the project as they are still in the process of developing their first NIP.	Bahamas is preparing its first NIP based on an inventory of all 25 POPs conducted as part of their study. Thus, the NIP so produced is expected to be all inclusive and current to 2014. The NIP to be prepared by the Bahamas will not be ready for submission to the Secretariat of the Stockholm Convention prior to the second half of 2015.
At PIF, impact evaluation and monitoring was not reflected.	Impact evaluation and monitoring component was added to the project design as Component No. 5.	Impact evaluation and monitoring component will allow for the monitoring of the impact indicators and attainment of project objectives. This would also ensure that a project monitoring system is in place and dissemination of project related information and lessons learnt are carried out.
<p>Component No 1 of the PIF included the following outputs:</p> <p>1.1.1. National Implementation Plans updated</p> <p>1.1.2. Institutional capacity on SC implementation built/strengthened</p> <p>1.1.3. Legislative framework in each country strengthened and upgraded to allow implementation and compliance with Stockholm Convention.</p> <p>1.1.4. Public awareness programmes built and implemented</p> <p>1.1.5. Information management system for sound chemicals management developed and implemented by trained personnel</p>	<p>Outputs of Component No 1 have been streamlined:</p> <p>1.1: Updated NIPs including the conduct of in-country inventories of new POPs added to the Stockholm Convention</p> <p>1.2 Sound chemicals management mainstreamed into all national policies and plans</p> <p>1.3 Regional information system available for all countries</p>	<p>Modified project design better reflects the initial intention of the stakeholders. Under output 1.2 the project aims to investigate national policies, laws and regulations addressing chemicals and recommend modifications that would allow for comprehensive management of chemicals, This is expected to remove unnecessary legal and institutional duplicity, build coherent regulatory schemes for registration, ban, import, export, use and environmental monitoring of chemicals, particularly POPs. It will further standardize inspection procedures for authorities engaged in enforcement of POPs and chemicals related legislations. GEF grant will be mainly allocated in addressing POPs-related legislations.</p> <p>Output 1.3: chemicals related Regional Information System will be established and maintained at the regional level which is expected to improve the quality of information based decision making at the national levels and would result in significant cost savings. Public awareness programs and tools will also be designed, developed at the regional level and provided for national implementation. These changes in project component No1 will also strengthen and enhance the regional nature of the project.</p>

<sup>4</sup> For questions A.1 –A.7 in Part II, if there are no changes since PIF and if not specifically requested in the review sheet at PIF stage, then no need to respond, please enter “NA” after the respective question.

Overall GEF grant for Component 1 was USD 2.5M	Budget was reduced to USD 2 M	Due to lesser number of countries participating and stronger regional approach of the project the cost of component No 1 was reduced.
Outputs of project component 2 have also been revised. The PIF included the following three outputs: 2.1.1. “Better waste management practices implemented”, 2.1.2. “BAT/BEP demonstrated in a pilot (existing) landfill facility”, 2.1.3. “Elimination of Open Burning in Landfills”.	These outputs have been reformulated. 2.1 Systems for the collection, recycling and disposal of POPs wastes resulting in better waste management practices implemented at a National level. 2.2 BAT/BEP demonstrated in a pilot (existing) landfill facility	The new design better reflects national priorities in POPs management. Output 2.1 would build on the current national activities in establishing and maintaining temporary storage locations for POPs and other hazardous wastes. These stores are in different conditions in the participating countries; in some cases they do not meet international standards. Because there are ongoing projects for removal and disposal of POPs and in the future it is expected that more POPs stocks will be identified, it is important that identified and aggregated stocks are kept in an environmentally sound manner.
Budget of Component No 2 was 3,010,000 US\$ from the GEF with 6,840,000 US\$ co-financing.	Several national baseline projects have been identified at the Regional Validation Workshop held on the 25 September 2014 in Trinidad and Tobago where participating countries have requested that more finances be allocated for these activities. In response to these requests the revised budget lines are as follows:  GEF: 3,505,000 US\$ Co-financing: 7,710,000 US\$	Output 2.2 will include two demonstration projects which have been identified based on the assessment of the national baseline projects and discussions with representatives from participating countries. These demonstration projects, particularly the one in Suriname, are larger in scope and size than what was initially planned at the PIF stage. This is demonstrated by a much stronger baseline project and national commitment therefore the budget for this component has been increased.
Component No 3 of the PIF included one output: “Contaminated sites in selected countries identified, assessed and prioritized for treatment”.	An additional output was included in this project component to further improve project impact. The new output is “Remediation demonstrated in a prioritized contaminated site”	Because GEF Project #5407 will dispose of the aggregated POP stocks in the Caribbean, project countries have expressed their commitment in addressing contaminated sites in this project with higher priority. At the Regional Validation Workshop held on the 25th and 26th September 2014 in Trinidad & Tobago, project stakeholders recommended that contaminated sites related measures should not only select and identify priority contaminated sites and delineate the extent of surface and subsurface soil and groundwater contamination of POPs through the use of numerical modeling as it was planned at the PIF stage, but remediation should be demonstrated in a more comprehensive manner. The improvement in the scope of this project component deeply considers the STAP comments on the PIF.
The budget of Component No 3 in the PIF was as follows:  GEF: 850,000 US\$ Co-financing: 1,700,000 US\$	The budget of this component has been increased to  GEF: 1,050,000 US\$ Co-financing: 3,188,000 US\$	Budget was increased to address this project component in larger scope and in a more coherent and comprehensive manner.
Component No 4 of the PIF included the following outputs:	Consolidated output: 4.1 Environmentally sound management (ESM) of PCBs	The inventory exercise is part of Component 1. The project considers aggregation of previously

<p>4.1.1 Inventory of PCB wastes and stockpiles conducted</p> <p>4.1.2 Consolidation of PCB inventory at secure location and hold for future destruction</p> <p>4.1.3 ESM of PCBs demonstrated</p>	<p>implemented</p>	<p>unidentified PCBs and PCB-containing stocks to a central location as part of ESM of PCBs. Note that this build on the work already done under the GEF Project #5407 in which known quantum of POPs and PCB wastes have been consolidated and prepared for off-island disposal at a certified disposal facility.</p>
<p>The budget of Component No 4 in the PIF was as follows:</p> <p>GEF: 1,750,000 US\$</p> <p>Co-financing: 4,000,000 US\$</p>	<p>The budget of this component has been reduced to</p> <p>GEF: 1,044,000 US\$</p> <p>Co-financing: 2,080,000 US\$</p>	<p>The first preliminary inventories of PCBs in the Caribbean mostly included off-line and phased-out transformers and electrical equipment. The FAO implemented GEF Project #5407 aims to remove and dispose of POPs stocks including these PCB stocks in the Caribbean region.</p> <p>The PCB component of our project (Project #5558) was revised to add value to the FAO-GEF project, and considers the phase-out, aggregation and disposal of new PCB stocks which will be identified through the detailed PCB inventories of the NIP update process.</p> <p>Further, the implementation of environmentally sound management system for PCBs is planned for the relevant sectors in order to avoid further cross-contamination of PCB-free equipment. Because the scope of the revised PCB project component would be mostly for demonstration and thus will be smaller, the budget for this component has been reduced.</p>
<p>St Vincent and the Grenadines were still in the process of developing their first NIPs during the PPG phase of the project.</p>	<p>In output 1.1 SVG will focus on updating the data collected for the first NIP with the new POPs and consequently developing a NIP which addresses all POPs.</p> <p>Under output 1.3 they will participate in all regional workshops and training sessions in order to build the necessary capacity to actively implement the action plans of their updated NIP.</p> <p>SVG will also participate as observer in the demonstration activities under component No 2.</p> <p>No other particular programme is planned for them in the project.</p>	<p>No project funds will be allocated for the development of the first NIP of SVG. The project will only finance the update of the available data with the new POPs and writing the updated NIP.</p> <p>Output 1.3 is important for this country because through information sharing their inadequate capacity to identify and manage potentially contaminated sites and dispose of obsolete POPs stocks in an environmentally sound manner could be overcome at reasonable costs on their own.</p> <p>Component No 2. is particularly important for SVG because poor waste management practices at their landfills contribute to significant UPOPs.</p>

A.1 National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAP BSAPs, national communications, TNAs, NCSA, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.

All the participating countries are parties to the Stockholm Convention on POPs and the project will address the national action plans identified in the respective NIPs. The targeted countries are also parties to the Basel Convention on the Control of Trans boundary Movement of Hazardous Waste and their Disposal, hence the proposed project is consistent and in line with global environmental policies and political commitments of the

countries.

Based on the NIPs of the participating countries, the project is in line with the following national priorities:

- The first NIP of Antigua and Barbuda was published in January 2007 with the following priorities relevant to this project: (a) To dispose of existing POPs pesticide waste; (b) To take appropriate steps to respond to the addition of new chemicals to the list of POPs in the Convention; (c) To maintain and update national inventories of POPs pesticides; (d) To establish administrative procedures by which the importation of PCBs can be controlled/regulated; (e) To conclusively ascertain the presence of PCBs in equipment that has been identified as potentially PCB-containing; (f) For PCB-containing equipment no longer in use, to undertake its disposal in an environmentally sound manner; (g) For PCB-containing equipment still in use, to commence development of plans for phase-out and disposal; (h) To maintain and update national inventories of PCBs; (i) To promote the use of BAT and BEP to reduce emissions of dioxins and furans from waste incinerators; (j) To require the use of BAT and BEP at new facilities likely to generate dioxins and furans; (l) To maintain and update national inventories of dioxins and furans.
- The NIP of Barbados lists exactly the same priorities as the NIP of Antigua and Barbuda.
- The NIP of Belize was published in 2008 with the following priorities relevant to this project: (a) Extended support to the POPs implementation unit at the Department of Environment; (b) Public awareness and training program; (c) Solid waste management program; (d) Medial/hazardous waste management facility; (e) PCB management;
- The NIP of Saint Lucia was published in 2006 with the following priorities relevant to this project: (a) To strengthen and enhance Saint's Lucia's institutional and regulatory framework; (b) To eliminate the importation and use of PCBs and equipment containing PCBs and dispose of PCBs and PCB containing equipment; (c) To reduce or eliminate the releases from unintentional production of POPs; (d) To identify and manage contaminated sites; (e) To develop facilitate and promote a system for information exchange that allows Saint Lucia to be compliant under the SC; (f) To increase awareness of the public on POPs and chemicals, and their related issues.
- The NIP of Saint Kitts and Nevis was submitted to the SC on 29th September 2014, The priorities relevant to this project are as follows: (a) Strengthen institutional and regulatory mechanisms; (b) Take administrative measures to prohibit the import and export of PCBs and PCB-containing equipment; (c) Develop and maintain source inventories and release estimates; (d) To take measures so that wastes are disposed of in an environmentally sound manner; (e) To identify stockpiles, products and articles in use and waste consisting of, containing or contaminated by POPs chemicals; (f) To ensure the management and remediation of stockpiles/waste products in an environmentally sound manner; (g) To increase awareness of the public on POPs.
- The NIP of Suriname from July 2011 lists the following priority areas which are in line with the objectives of the project: (a) Strengthening the coordination between institutions and stakeholders; (b) Institutional and regulatory strengthening measures; (c) Awareness raising, information and education; (d) anage POPs pesticides and PCB stockpiles; (e) Improvement of waste management for reduction of unintentionally-formed POPs and management of new POPs potentially present in current waste streams including household waste; (f) Implementation of BAT/BEP for PCDD/PCDF release reduction; (g) Contaminated site assessment and management.
- The NIP specifically mentions the following among the waste management priority area: "Open waste burning is the most important source of PCDD/PCDF release in Suriname. The country does not have a waste destruction capacity, and therefore, wastes POPs containing need to be exported at high cost.

New POPs (in particular PBDEs and PFOS) can be present in several waste streams (electronic waste, car shredder residues, synthetic carpets, flame retarded or surface treated textiles, furniture, mattresses, etc.). These wastes are currently all deposited in Suriname. Therefore, and considering other contaminants (e.g. heavy metals) in the waste, the lack of waste management presents a serious threat to soil, ground water, and the wider environment. The improvement of waste management is, therefore, of high priority for current and future control of unintentionally-produced POPs release and for the management of new POPs in waste streams in Suriname". The government current 60 million USD investment plan to establish a waste to energy facility provides solid foundation and commitment for the proposed demonstration project.

- The NIP of Trinidad and Tobago has recently been finalized and was submitted officially to the SC on January 22nd, 2015. Priorities of the NIP include: (a) Training of a cadre of professionals in POPs Data-gathering and management; (b) Strengthening existing legislation and enforcement systems as they relate to monitoring of POPs and uPOPs; (c) Assessment and strengthening local environmental and regulatory monitoring and laboratory testing capability for POPs; (d) Encourage the adoption of alternative methods, materials and processes to prevent formulation and release of POPs; (e) Encourage the application of best available practices (BAT) and best environmental practices (BEP) in managing existing and potential sources of POPs and uPOPs; (f) Increase awareness in the general public, industry and government officials about POPs and their risks to human health and the environment, and; (g) Encourage participation by stakeholders in addressing health and environmental effects of POPs and developing appropriate responses to manage human and ecosystem risks from exposure to POPs and uPOPs.

The Caribbean countries are also parties to the Basel Convention on the Control of Trans boundary Movement of Hazardous Waste and their Disposal and the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, hence the proposed project is consistent and in line with global environmental policies and political commitments of the countries.

Other conventions signed on to by the countries are: the International Convention for the Prevention of Pollution from Ships and the 1978 Protocol MARPOL; the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Ozone Depleting Substances, the UN Convention of the Laws of the Seas and the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention)

Goal 7 of the Millennium Development Goals calls for countries to ensure environmental sustainability. Target 7A: Integrate the principles of sustainable development into country policies and programs and reverse loss of environmental resources.

The St. George's Declaration of Principles for Environmental Sustainability in the Organization of East Caribbean States (OECS) where Antigua and Barbuda, Saint Lucia, St. Kitts and Nevis and St. Vincent and Grenadines are member countries, has twenty one (21) principles that guide the development of national goals and targets for environmental sustainability. All the principles of this declaration will be covered by this project specially, Principle 10: Prevent and Control Pollution and Manage Waste.

All of the participating countries are participating in the Strategic Approach to International Chemicals Management (SAICM) Project. SAICM is a policy framework to promote chemical safety around the world. SAICM has as its overall objective the achievement of the sound management of chemicals throughout their life cycle so that, by 2020, chemicals are produced and used in ways that minimize significant adverse impacts on human health and the environment.

#### A.2. GEF focal area and/or fund(s) strategies, eligibility criteria and priorities.

This project is consistent with GEF-5 Chemicals FA Objective CHEM-1 Phase out POPs and reduce POPs releases, Outcome 1.3 POPs releases to the environment reduced, Outcome 1.4 POPs waste prevented, managed, and disposed of, and POPs contaminated sites managed in an environmentally sound manner, Outcome 1.5 Country capacity built to effectively phase out and reduce releases of POPs, and FA Objective CHEM-4, Outcome 4.1: NIPs prepared or updated or national implications of new POPs assessed. The project seeks to bring together all the necessary stakeholders to update the countries POPs inventories and NIPs, improve landfill management practices in order to reduce UPOPs, improve countries' legislative frameworks and human resource capacity to manage POPs, develop management plans for site remediation and assist with PCB disposal. Thus, the project is strongly in line with GEF-5 chemical strategy.

The Stockholm Convention, taking full account of the Programme of Action for the Sustainable Development of Small Island Developing States, adopted in Barbados on 6 May 1994, in its paragraph 5 of Article 12 and paragraph 5 of Article 13 has taken full account of the special situation of small island developing states. The project is in line with these objectives and aims to assist participating countries in an innovative and sustainable manner.

#### A.3 The GEF Agency's comparative advantage:

UNIDO's mandate is inclusive and sustainable industrial development. The organization continuously develops projects and embarks on initiatives on industry-related chemicals management addressing the need for ultimate innovative treatment processes and safe disposal technologies. UNIDO is also committed in developing systems aiming at "closing the loop" of the lifecycle of these chemicals and to prevent pollution at source through engaging both manufacturers and users to take environmental actions in an integrated manner. For the Small Island Developing States (SIDS), UNIDO focuses on the potential of SIDS to pursue sustainable economic development by steadily increasing economic productivity while sustainably managing their environment and human resources.

The organization plays a leading role in the implementation of the Stockholm Convention and is one of the principal agencies assisting developing and transition economy countries to meet their obligations under the Convention. With the support of GEF, UNIDO has assisted more than 50 countries in developing their first National Implementation Plans (NIPs) and is currently assisting around 60 countries to review and update their NIPs covering the 11 new POPs under the SC. The priority actions reflected in the NIPs have enabled UNIDO to address industrialization issues related to the elimination and/or reduction of POPs emissions and releases to the environment.

The current GEF-6 chemical management strategy is anchored on integrated approaches and synergy amongst multilateral environmental agreements (MEAs) to promote sound chemicals management throughout their lifecycles to minimize adverse effects on the global environment and health. UNIDO's policy in project formulation and development, strives to explore this synergy and expand on the opportunities linking the MEAs. The project falls within the comparative advantage of UNIDO as it focuses on the creation of resource efficient POPs management systems. In UNIDO's current portfolio of POPs project, 28% focuses on the delivery of Article 5 obligations to the Stockholm Convention. PCB Management is one of the strong facets of the technical assistance being provided by the organization comprising 45% of its current post-NIP projects.

#### A.4. The baseline project and the problem that it seeks to address:

##### *A.4.1 Overview*

Sound management of chemicals and hazardous wastes is a challenge that has been recognised and addressed to some extent in the Caribbean region. Traditionally, the economies of the Caribbean region have had a strong agricultural base with heavy reliance upon pesticide use. However, in recent times, the regional economies have evolved beyond a high dependency on the agricultural sector to an increased dependency on the tourism, manufacturing and industrial sectors. This advance in tourism, industrial and commercial expansion has allowed for increased levels of consumerism as the economies of the Caribbean islands grew with a congruent improvement in the quality of life.

This economic shift as well as the increased living standards across the region, has resulted in even greater usage of chemicals in the social and economic activities of the Caribbean. These factors have led to the generation of much larger and more complex categories of solid, hazardous and chemical wastes ending up in landfills, many of which are not engineered sanitary landfills but rather are managed dump sites. The end result has been severe impacts from used lead acid battery (ULAB) wastes, electronic wastes, waste lubricating oils, plastics, scrap metals, beverage containers, chemical wastes and others on all spheres of the receiving environment (air, water, ground water, soil, biota) and on human health. Consequently, the environmentally sound management of chemicals and hazardous wastes has become a critical aspect within the national sustainable development agenda of the countries of the Caribbean sub-region given its social, economic and environmental implications.

The region, which is comprised of small island states and territories together with some countries in Central and South America, faces inherent challenges in effectively dealing with hazardous wastes and chemicals, ranging from a lack of financial resources to technical and human resource limitations. Efforts are underway to promote sound chemicals management in accordance with international standards through the use of best available techniques and best environmental practices. In addition, countries are seeking to pursue integrated waste management systems as well as assimilate sound waste and chemicals management into their national sustainable development plans and programmes.

Through the NIP development process, several root causes for the generation of POPs and barriers to convention implementation were documented. One of the major cross-cutting issues was the lack of capacity to manage chemicals, including POPs. These include: outdated legal and regulatory frameworks, lack of human and financial capacity, and low public awareness of the environmental and health hazards associated with POPs and UPOPs. Other problems are poor waste management practices at landfills which contribute to

UPOPs, potentially contaminated sites due to inadequate storage of POPs and other obsolete chemicals, and stockpiles of PCBs and other obsolete chemicals.

All eight (8) countries included in the Project have acquired status of being a Party of the Stockholm Convention. In accordance with Article 7 of the Convention, National Implementation Plans (NIPs) have been developed for seven (7) of these. Trinidad and Tobago completed their NIP and formally transmitted same to the Secretariat of the SC on January 22nd, 2015. On September 29th 2014, SKN submitted their NIP to the Stockholm Convention. St. Vincent and the Grenadines (SVG) have not yet completed their NIP. As such, the completion of the NIP would be the priority area identified for St Vincent and the Grenadines. The other countries require assistance for updating and implementation of their NIPs.

Given the current state of chemicals management in the Caribbean Region, participant countries and the BCRC-Caribbean decided that a regional project would be able to adequately address these shortcomings. This Project, "*Development and Implementation of a Sustainable Management Mechanism for POPs in the Caribbean*" was developed to achieve this and its regional approach and focus will enable collaboration and sharing of resources between participating countries, while ensuring that the same technical services and training activities are imparted equitably and in similar measure to each participant country so that no one country benefits to the detriment of the other.

Some of the initiatives to address sound chemical and waste management in the region have included the assistance of international agencies. These include the Food and Agriculture Organisation (FAO) Technical Assistance for Pesticides Management to Caribbean Countries presently conducted under the European Commission funded project GCP/INT/063/EC as well as national-level activities executed under the Strategic Approach to International Chemicals Management (SAICM) Quick Start Programme (QSP) across the region (e.g. QSP funded project in Barbados). In addition, the BCRC - Caribbean alongside the Regional Centre for Central America and Mexico previously spearheaded the development of a regional strategy for the environmentally sound management of used lead-acid batteries (ULABs) in the Caribbean island states and Central America as well as technical guidelines for the environmentally sound management of ULABs, subsequently adopted by the Basel Convention. Furthermore, several regional capacity-building workshops on topics directly related to the sound management of chemicals and various waste streams have been executed by several actors over the years.

#### A.4.2 Baseline Situation in the Caribbean relevant to Project Components

##### ***Component 1: Create the enabling mechanisms in the Caribbean for effective implementation of the Stockholm Convention on POPs.***

NIPs have been developed and submitted for all countries except St Vincent and the Grenadines which is in the process of developing theirs. The first NIPs of the participant countries have included only the initial twelve POPs. In some cases like in the Suriname NIP, new POPs, which were added to the SC in 2009 by decisions SC-4/10 to SC-4/18, have been mentioned, but the inventory exercise and consequent action plan development of these chemicals are incomplete. At its fifth meeting held from 25 to 29 May 2011, the Conference of the Parties adopted an amendment to Annex A to the Stockholm Convention to list technical endosulfan and its related isomers with a specific exemption (decision SC-5/3). Further, the POPs Review Committee currently evaluates new proposals and makes recommendation to the Conference of the Parties on

listing hexabromocyclododecane, short-chained chlorinated paraffins, chlorinated naphthalenes, hexachlorobutadiene, and pentachlorophenol in accordance with Article 8 of the Convention. With this inclusion further chemicals will probably be added to the SC which will require Parties to update their NIPs by making inventories of these chemicals and developing appropriate actions. SIDS in the Caribbean have very limited expertise and experience in meeting these new obligations under the SC and appropriate technical and financial assistance and sustainable capacity development must be provided for them.

Most of the countries have not met their obligation in developing and submitting the first NIP on time and it is very likely that without the project the NIP updates would also be developed late.

A Caribbean Community (CARICOM)- funded report on the review of the Republic of Guyana's Legislative and Regulatory Framework for the implementation of the Basel, Rotterdam and Stockholm Conventions was done in 2013. The findings of this report would serve as a template for the other countries in the Caribbean Region. This report was commissioned jointly by the CARICOM ACP/MEA Unit and the BCRC-Caribbean and the findings of the study presented to an audience of fourteen of the Caribbean countries at a workshop in Port-of-Spain in July 2013.

#### Antigua and Barbuda

At present there is no specific formal statement regarding a national policy for management of toxic chemicals in Antigua and Barbuda. The country has adopted a national strategy for the management of the environment. The NEMS or National Environmental Management Strategy in its Action Plan 2004-2009, enunciates a vision for the country which reads: 'An Antigua and Barbuda in which all citizens strive to build a nation that treasures the environment and voluntarily acts to ensure the protection, conservation and sustainable use of natural resources. There is no legislation in the country specifically dealing with the management of POPs. The Pesticides Control Act #15 of 1973 provides control of the importation, sale, storage and use of pesticides. The Pesticides and Toxic Chemicals Control Act (Draft) builds on the Pesticides Control Act of 1973 and broadens its scope to toxic chemicals in a more comprehensive manner. The National Solid Waste Management Act (No. 10) of 1995 has been amended in 2004 with hazardous wastes although POPs are not mentioned by name, a number of persistent toxic substances, including PCBs, PBBs, PCTs, and dioxin/furan congeners are included in the list.

#### Barbados

There are two legal instruments specifically intended to facilitate the effective control and management of chemicals in Barbados. These are the Health Services (Control of Drugs) Regulations and the Pesticides Control Act and its accompanying regulations. The Control of Drugs Regulations regulate the import, manufacture, production and distribution of all drugs in Barbados. The Pesticides Control Act is "an Act to provide for the control of the importation, sale, storage and use of pesticides". There are no legal instruments intended to comprehensively control the import, production, sale, storage, use, export and disposal of consumer and industrial chemicals other than pesticides. In the absence of a regulatory framework specifically for the control and management of hazardous and toxic substances, there is no legislation or policy in Barbados governing the import, use or export of PCBs and other industrial chemicals. There is currently no legislative or policy framework in the country through which regulatory action can be taken to reduce emission of air pollutants such as dioxins and furans. In an appraisal of national legislation and policy that could be used to implement the requirements of the Stockholm Convention, the Health Services Act, 1969, Cap. 44 of the Laws of Barbados, and the accompanying Nuisances Regulations could possibly be used to control dioxin and furan releases.

## Belize

The current regulatory framework does not specifically address the POPs issue in Belize either. The Environmental Protection Act, The Public Health Act, Pesticides Control Act as well as certain labor protection regulations generally address management of POPs. In general Belize lacks the analytical capacity to study the impact of some POPs both in the ecosystem components as well as in humans. The regulatory framework is continuously being updated albeit not specifically to manage POPs. Further, Belize aims at applying the Polluter Pays Principle (PPP) to mobilize the economic and financial incentives in tackling the POP emissions. In the overall strategy to accomplish the objective to phase-out POPs according to deadlines in the Convention, Belize has proposed a combination of measures including Government's involvement (regulation reforms and law enforcement efforts), support to local actions, market instruments like subventions and tax-breaks and extensive international cooperation including co-funding. The Pesticide Control Act of 1985 (PCA) grants authority to the Pesticides Control Board (PCB) to control the manufacture, importation, sale, storage, transportation and use of pesticides in Belize.

## St. Kitts and Nevis

At present St Kitts and Nevis has no legislation specifically dealing with management of POPs. The Pesticides and Toxic Chemical Control Act Cap 9.18 of 2009 provides for the regulation and control of the importation, storage, manufacture, sale, transportation, disposal, and use of pesticides and toxic chemicals. Other pieces of legislation only touch on POPs without a proper vision of integrating POPs and other chemicals in the legal framework in a comprehensive manner. A number of institutions have been given legal mandates at varying levels to manage and/or regulate toxic chemicals including POPs, but generally they are under staffed and the enforcement arms are weak. Disposal provisions for hazardous wastes and spent chemicals are insufficient and limited to deep burial and containment at one of two sanitary engineered landfills. A comprehensive inventory of POPs and toxic chemicals in St. Kitts and Nevis is missing.

## Saint Lucia

Historically, the approach to environmental management in Saint Lucia has been ad hoc. There is no overarching environmental legislation guiding environmental management. Mostly various pieces of legislations address environmental and chemicals related matters in a non-coherent manner, where duplicity is also present. In 2004 the National Environmental Policy and National Environmental Strategy have been approved. The Pesticides and Toxic Chemical Control Act (2001) is the most comprehensive single piece of legislation dealing with POPs and chemical management in Saint Lucia. Still appropriate chemicals management is hindered by unstable committees, absence of national chemicals management plan, limited financial resources, limited protocols guiding the import of chemicals, inappropriate disposal of chemicals and containers, insufficient data for chemicals management and absence of monitoring programmes on chemicals.

## Suriname

Suriname faces two relatively distinct sets of environmental challenges with respect to chemicals management. In the interior part of Suriname, chemical use is undertaken in mostly mining operations. This poses threats of sodium hydroxide, mercury and other chemicals used in mining. At the coastal area the agricultural and the industrial sector are threatening the environment due to inadequate pesticides use, storage and disposal, and unsound use of mercury and other industrial chemicals. Almost no readily available or easily accessible environmental or bio-monitoring data exists to verify the extent of these environmental

challenges. Presently, Suriname has no legislation that is specifically aimed at addressing POPs, except for the Pesticides Act. However, there are several laws and regulations that can be applied in the absence of specific POPs legislation.

Awareness and knowledge about chemicals management in Suriname remains low in the general public, in local industry and agriculture, and within the Government. A distinction can be made between the national (local) and international (multi-national) companies operating in Suriname. Local companies, (formal and informal), mainly small and medium size, do not have proper information due to lack of awareness. These companies' financial limitations, and poor legislative framework and weak government control result in inadequate chemicals management. Large scale companies, on the other hand, have sufficient funding to keep up with international standards. In this regard, the government institutions are well behind these companies and depend on the information that is provided by them.

The import and export of chemicals, including certain POPs are regulated through the State Order Negative List which regulates the import and export of goods. The Pesticides Act, which was last amended in 2005 incorporates the international techniques for the management of pesticides. The FAO Code of Conduct on the Distribution and Use of Pesticides provides the inspiration and guidance for the Pesticides Act and Pesticides State Order. The Pesticides Act also incorporates the Prior Informed Consent (PIC) procedure. The Pesticides Act further gives authority to regulate the ban of certain pesticides. In accordance with the Pesticides Act, it is prohibited to transport, import, store, sell or use for agricultural purposes pesticides that are listed on the FAO 'Negative List'. This list is automatically adjusted whenever the Rotterdam Convention prohibits a pesticide. The Environmental Act is expected to be the framework law which is currently under review to streamline it with the policy of the government. This draft Act specifically deals with pollution control. The draft environmental law and the draft waste management act still do not contribute to the implementation of the Stockholm Convention and the Basel Convention, thus their revision is needed.

### Trinidad and Tobago

Trinidad and Tobago has an Environmental Policy, but as of 2013 does not have a Sustainable Development Policy. The Environmental Policy recognizes the country's obligations under the Stockholm Convention, and espouses both the Polluter Pays Principle and the Precautionary Principle. As of 2013, there is no enabling legislation for the Stockholm Convention in Trinidad and Tobago. However, POPs are presently being managed to some extent under the provisions of a number of laws including: a) The Pesticides and Toxic Chemicals Act and subsidiary legislation; and b) the Environmental Management Act and its subsidiary legislation. References to the Stockholm Convention and POPs in the Environmental Policy are as follows:

- The Section on Air Pollution indicates that the Government will "design and implement programmes to reduce and eliminate the release of Persistent Organic Pollutants (POPs), including dioxins and furans, into the environment, followed by an eventual elimination in use".
- The Section on Hazardous Waste indicates that "the Government will follow the guidelines of the Stockholm Convention on Persistent Organic Pollutants".
- The Stockholm Convention on Persistent Organic Pollutants is listed in the Annex on Treaties & Conventions on Conservation & Protection of the Environment.

In addition, the import of several POPs is presently regulated by the Ministry of Trade, Industry and Investment (MTII) utilising the Negative List. At present, the requirements of the Stockholm Convention are

undertaken by the Multilateral Environmental Agreement Unit (MEAU) of the Ministry of the Environment and Water Resources (as National Focal Point and Official Contact Point) with the Pesticides and Toxic Chemicals Inspectorate (PTCI) having primary responsibility. Monitoring of POPs is confined to local laboratories, and foreign laboratories with local agents, who can test for several POPs however, none of the laboratories reported the ability to test for certain Polychlorinated biphenyls (PCBs).

In summary, all countries have conducted inventories of POPs and PCBs and where these were found, arrangements were made through the FAO to have these packaged, stored and disposed of. St Lucia is still awaiting final approval for disposal of the POPs stocks while stocks from Trinidad and Tobago were disposed of. The legislation and institutional capacity of the participating countries are generally weak. Chemicals management has not been integrated into the policy framework. In some cases even the framework legislations are also missing. Institutional responsibilities concerning chemicals are generally overlapping and in many cases there are conflicts of interest, or loopholes. As there is no appropriate legal framework, the enforcement system also bleeds from several wounds. The role and mandate of enforcement agencies are not always clear; they do not have the necessary human resources and hardware infrastructures for efficient inspections and monitoring. Finally the information management system which would allow for making time-trend conclusions and informed decision are lacking. The maintenance of such computerized data stores and analytical interfaces would probably exceed their technical and financial capacities.

### ***Component 2: Reduce UPOPs emissions by improving poor waste management practices at landfills***

In 2003 “The OECS-Solid and Ship-generated waste management project” concluded after a seven (7) year implementation. This project improved the monitoring, collection, treatment and disposal solid waste and established an appropriate legal and institutional framework for the management of solid waste. This project saw the establishment of modern engineered sanitary landfills in six of the OECS countries which are all now approaching the stage where upgrade and/or expansion is required. In addition, some of the OECS countries like St Kitts Nevis, St Lucia and Antigua Barbuda are considering the segregation of wastes with a view to utilizing some components of the municipal waste stream for waste to energy conversion. This initiative if successful will both serve to reduce the generation of UPOPS during landfill fires and reduce the overall carbon footprint of these islands as the dependence on the combustion of fossil fuels for energy is reduced. The proper management of these landfills saw the reduction of open-burning as a common practice.

The NIP of Belize estimated that approximately 88 gTEQ/A of dioxins and furans were unintentionally released in 2004. An estimated 48 gTEQ/A is produced by incineration of medical waste and another 37 gTEQ/A from uncontrolled combustion processes. The national solid waste management plan and strategy are silent on medical waste management. This waste stream contains chlorine rich chemicals and items which are generally mismanaged. Medical waste incinerators are out-dated batch type instalments without any air pollution control system. Medical waste is burnt openly at the backyard of hospitals or at open dumps as separate collection of this waste type has not been appropriately resolved. The registration process of health care facilities does not require proof for the disposal of the generated medical waste. Release limit values for air pollution particularly UPOPs from incineration practices are also missing.

The medical waste generation of the whole Western Corridor (the most inhabited part of Belize) is approximately 20 tons in a month. Out of these 20 tons, 8 tons are disposed of in a batch-type incinerator of Belize Waste Control Ltd. (BWC); 2 tons are mixed with municipal waste and end up at the new sanitary landfill. The rest approximately 10 tons of medical waste is burnt on open dump sites or at the backyard of

health care facilities. The annual PCDD/PCDFs release from medical waste disposal in the Western Corridor is estimated at 5.1 gTEQ/A .

In Suriname, the estimated PCDD/PCDF releases in 2009 were 21.33 gTEQ, Uncontrolled combustion processes ranked first with an emission of 20.18 gTEQ/year (94.6% of total emission). The main contributor came from uncontrolled domestic waste burning with an estimated emission of 17.39 g (81.5% of total emission), followed by agriculture residues burning (2.65 g; 12.4% of total releases), and accidental fires in houses and factories (0.14 g; 0.66%). The major cause of high UPOPs releases in the uncontrolled domestic waste disposal sector is the combustion of chlorine rich plastics especially in the presence of metals. The NIP specifically highlights thermal wire reclamation to recover copper and disposal of electronic and electrical articles as significant contributors to high UPOPs releases. Waste electronic and electrical equipment (WEEE) disposal is a pressing problem for enterprises and the public in general especially because these wastes are piling up in corners of offices and garages. As appropriate disposal of this waste type is not resolve these waste streams mostly end up in the main landfill Ornamibo, where the waste is burnt to reduce its volume and to recover valuable metal parts. The NIP also mentions that exporting plastic fractions for recycling is popular in Suriname. PBDE content of the exported plastics has not been assessed and thus the likelihood of recycling of PBDEs into sensitive products is high.

There is no information on the generation pattern of waste electrical and electronic equipment and other types of metal rich plastic containing wastes, such as electrical cables, scrap cars, car upholstery items, etc. These waste streams may contain POPs, such as PBDE or upon burning may generate significant amount of POPs.

The public landfill, Ornamibo, located in district Wanica, is approximately 20 hectares with a lifetime of 20 – 25 years. Since 2002, the public landfill has been in the state of rehabilitation, to be transformed into a controlled landfill, to include the collection and disposal of chemical waste, but even today it is rather a dump site than a landfill. Ornamibo collects mostly waste from greater Paramaribo and the district of Wanica (project demonstration area). The NIP concluded that the Ornamibo landfill could be considered an open dump and it presents great risks for the soil, groundwater and neighbouring surface water contamination, as well as air pollution (methane emissions and odour), all leading to serious health risks for the local people.

The baseline scenario considers that 9% of the total waste generated in the demonstration area is open burnt and 3% of the burnt waste is metal. The estimated PCDD/Fs releases from the Ornamibo landfill is 11.07 gTEQ/A.

There have been no significant changes to landfill management in Trinidad and Tobago over the past decade. However there are many recycling programs that been successfully undertaken by both the private and public sector. The materials collected include glass bottles, plastic containers, lead-acid batteries, waste oil, electronic waste, paper and cardboard. Trinidad also receives some of these materials from the neighbouring Caribbean islands for recycling. These include plastics, waste oil, glass bottles and lead-acid batteries. As Trinidad and Tobago is generally the collection point of recyclable materials, it plays a vital role in recycling of PBDE containing plastics.

### ***Component 3: Assess potential contaminated sites to determine the level of contamination by POPs and develop appropriate remediation strategies***

Many of the countries did not identify POPs-contaminated sites in their NIPs. However, given the current lack of proper storage capacity and capability for POPs and chemicals, there is the real possibility that

contamination of soil and groundwater exists in the areas where these chemicals are stored or were previously stored. Some contaminated sites were identified in Suriname, Barbados and Trinidad and Tobago during the in-country mission conducted as part of the PPG phase of this study.

The preliminary POPs profile for Antigua and Barbuda confirmed that, in general there were unlikely to be major stocks of POPs still in existence, but did confirm that a few sites had residual levels of Toxaphene and PCBs well above ambient.

It is clear from the NIPs of the participating countries that they lack the capacity to identify potential contaminated sites, particularly because the inventory of POPs did not collect and record information on those locations, where POPs, or other chemicals contaminations might be suspected. Standardization of data collection for further use was missed and consequently the development and use of appropriate data management systems have not been used, such as GIS or a simple database for registering potential contaminated sites. The information the preliminary POPs inventories collected were not enough to identify suspected sites and to undertake a historical review to characterize potential contaminants and map the size of the location.

It was agreed in subsequent discussions and during the Regional Validation Workshop in Trinidad and Tobago in September, 2014 that Trinidad and Tobago could be the participating country in a contaminated site assessment and development of a remediation plan demonstration project under Component 3. The site earmarked is the active Guanapo Dump Site in Arima, east of the Piarco International Airport. This site has been the subject of some preliminary assessments to determine if leachate from the unlined dump is creating contamination issues down grade of the dump. Three independent studies during the late 1990s and early 2000s showed chemical contamination of offsite soil and groundwater. This is of concern since not only is the dump upgrade of farming and residential communities but a river used by the farmers to water their crops is also impacted from time to time by surface runoff from the tipping areas and by leachate migration into the water course.

#### ***Component 4: Managing and disposing of PCBs***

PCB inventories in the participating countries were developed by either visual inspection of the name plates of the oil containing equipment or with field test kits. These methods are inappropriate for extrapolation for the whole country particularly for estimating the PCB management costs at the national level. Preliminary POPs inventories have mostly identified phased-out electrical equipment and PCB containing wastes. On-line PCB containing equipment still needs to be assessed.

Even an estimation of the total number of transformers in the electrical and private sectors has not been done which would be the starting point for a detailed inventory. The PCB-containing transformers that have been recorded in the inventory are ready for disposal will be taken by the FAO GEF project #5407.

Because the first preliminary inventory touched the surface of the problem and appropriate information and awareness among the users of PCBs have not been created on the environmentally sound management of

potentially PCB containing equipment and due to lack of appropriate infrastructure and management skills cross-contamination of electrical equipment with PCBs may be prevalent.

Through previous projects, there has been disposal done of POPs and PCBs in the Caribbean Region. This included the disposal of DDT and some pesticides from Trinidad and Tobago through the FAO. Additionally, St Lucia has expired POPs that have been packaged and stored but is in the process of being shipped for disposal because there are no facilities in the Caribbean region that can dispose of POPs and/or PCBs in an environmentally sound manner. Disposal of these types of hazardous wastes would usually be located in North America.

According to NIP of Suriname the public-owned electricity generation company, N.V.EBS, alone has 10,784 registered transformers, nation-wide. There are also private companies that possess transformers and capacitors.

#### *A.4.3 Baseline Projects relevant to project components*

It is evident that the participating Caribbean countries have various levels and nature of baseline situation and projects addressing the project components. Some initiatives on POPs management, in general, have been started in all of the countries involved supported by national or external funding. Assessment of the baseline situation and baseline projects have also indicated varying levels and nature of barriers identified. Description of the baseline projects and the proposed activities in each country are summarized in **Annex I**. The baseline projects in each participating country relevant to the project components are detailed in the following section:

#### ***Component 1: Create the enabling mechanisms in the Caribbean for effective implementation of the Stockholm Convention on POPs***

Seven (7) of the eight (8) project countries had already established NIPs that outlined plans of action for the implementation of the Stockholm Convention when the PPG process commenced. On September 29th, St Kitts and Nevis submitted their completed NIP to the Stockholm Convention.

Countries, through limited resources, have been conducting public awareness campaigns on POPs usually as part of their pesticides' awareness programs. The countries acknowledge that more resources are required to put a holistic POPs management programs in place.

#### Antigua and Barbuda

In ANU the use of all POPs was banned in the country by the Pesticides Control Board during the 1980's under the Pesticides Control Act. Subsequently the Pesticides and Toxic Chemicals Board, empowered by the Pesticides and Toxic Chemicals Act of 2008 has implemented further controls on the importation of pesticides and related substances. Under the new Act, the Board has commenced the stockpiling of banned substances in a central location for eventual export. A Pesticides and Toxic Chemicals (PTC) database was developed for Antigua and Barbuda. However this would need to be improved upon and standardized.

Pesticide and Toxic Chemical Bill (PTCB) 2008 was revised to include POPs but further revision of this and other pieces of legislation is planned. The other main piece of legislation of concern is the National Solid Waste Management Authority Act, 2005. There is a proposed Environmental Protection and Management Act, 2013.

A national Seminar, to sensitize the public on the POPs situation in Antigua and Barbuda, was put on during the Annual Co-coordinating Group of Pesticides Control Board Meeting, September 2011. The joint seminar was utilized to educate the public on the impact of POPs and the relevance of the Stockholm Convention in the monitoring and reduction of POPs globally. Further public education and awareness activities are planned.

The baseline projects of ANU address two areas: legislation development and training and awareness. The development of the legal infrastructure and the corresponding information and awareness is limited in scope and technically challenging in a usually understaffed government. Therefore, these baseline projects would miss the coherency and interconnectivity of the legal measures. The corresponding content management systems, such as databases and information and decision supporting tools, would also be only partially addressed in the baseline project. Limited financial and technical capacity would also continue to hinder the management and disposal of POPs stockpiles and wastes, the promotion of BAT and BEP, and training and capacity building for persons and agencies involved in the management and regulation of POPs.

#### Barbados

In 2007 Barbados completed its NIP. In 2009, it completed a National Chemical Profile as part of the SAICM Project.

Although POPs pesticides have previously been used, the Pesticides Inventory conducted in 2003 – 2004 did not find any POPs pesticides in use. The inventory covered many of the major pesticides storehouses on the island but many of the small users of pesticides were not covered.

In 2012, there was a survey of the following POPs was conducted :Dioxins and Furans, Polychlorinated Biphenyls (PCBs), Pesticides, Pentabromodiphenyl Ethers (PBDEs) and Perfluorooctane sulfonic acid (PFOS).The Pesticides Control Board has banned or severely restricted six of the nine pesticides specified as persistent organic pollutants under the Stockholm Convention. The other three POPs pesticides – hexachlorobenzene, mirex and toxaphene – have not been designated as either banned or severely restricted by the Pesticides Control Board. However no licenses have been issued for their importation or use.

Samples of groundwater are tested annually using a wide-spectrum analysis, which includes analysis for all of the POPs pesticides except mirex. There has been no detection of POPs pesticides in groundwater samples above the limit values.

Other initiatives undertaken by Barbados included preparation of a deskbook for the initial 12 POPs and disseminated to customs officers, a Cabinet Paper prepared to place PCBs on import & export license Barbados has recently received Cabinet's approval to establish a coordinating committee for chemicals management.

Some public awareness campaigns have taken place with respect to chemicals management and more specifically POPs. The EPD developed and disseminated brochures, implemented a logo competition for POPs and have placed articles in newsletters and other publications.

Capacity building for POPs analysis to support the Global Monitoring Plan of POPs for effectiveness evaluation of the Stockholm Convention is also planned, but due to limited resources has been postponed. It is clear from the baseline project of Barbados that legislation development, public awareness and monitoring of POPs are priorities. The PPG phase concluded that baseline projects would still miss the linkages between the management of POPs and other chemicals like ODS, Mercury, etc. and utilizing current resources in an efficient manner. POPs inventories would continue to miss important sectors, BAT/BEP promotion would continue to be a plan and POPs related information management and dissemination of chemicals related information would continue to be scattered rather than a well defined concept.

### Belize

Belize has the following legislation that addresses the chemicals and waste sectors:

- Chemicals:
  - Pesticides - pesticides control act and its regulations
  - Veterinary medicines & Fertilizers - Belize agricultural Health authority Act and its regulations
  - Pharmaceuticals - Chemist and Druggist act
  - Explosives, LOG, Fuels - Dangerous Goods Act.
  - Industrial and Other Chemicals. - Environmental protection act and its Regulations
- Waste:
  - Domestic Solid waste - Solid waste management authority act
  - Chemicals and hazardous wastes. - Environmental protection act

Belize has an on-going program for the elimination of POPs containing products including transformers.

The baseline projects, however, does not provide for the establishment of a unit on industrial chemicals management in the Department of Environment (DOE), including training programs for inspectors on chemicals management. Chemicals related information management and presentation would continue to involve ad-hoc tables and graphs which would not allow for comprehensive time-trend analysis and decision making. The baseline project would mostly

### Saint Lucia

Saint Lucia developed its NIP in 2006. The current Pesticides and Toxic Chemicals Control Act does provide a comprehensive framework to regulate pesticides and other chemicals. However it needs to be updated to cover the requirements of the SC. The other acts that cover chemicals are the Pharmacy Act (8/2003) and the Waste Management Act (No.8/2004;10/2007).

There is a Draft Environmental Management Bill as well as draft Guidelines for the storage, handling & disposal of hazardous chemicals and draft Guidelines for chemicals and hazardous products. There are also Self-check tools & best practice guidelines for the - hotel industry, garages, boat yards/marinas and crop & livestock farms amongst others. Further improvement and enactment of these legal measures have been captured as Saint Lucia's baseline project.

### St Vincent and the Grenadines

An inventory of obsolete pesticides was conducted by the Ministry of Agriculture in collaboration with FAO. Additionally, a chemical profile for SVG was completed as part of the Strategic Approach to International Chemical Management (SAICM) project in 2013. The National Chemicals Policy and the Draft Chemicals Management Act 2013 have been developed. Collection and export of waste materials for recycling (ULABs, metals, spent oils, plastics, copper etc.) is planned in the near future. Recently an environmental fee was introduced on imports, which is a revenue collection tool to finance Solid Waste Management activities. Further the establishment of Chemicals Management Authority to regulate, monitor, enforce, and guide chemicals management in SVG is planned as part of the baseline project in St Vincent and the Grenadines.

While the Chemicals Management Authorities has been established, training of the human resources should be carried out. Likewise, the country still needs to strengthen the development and dissemination of public awareness tools and programs. Analytical capacity also need to be enhanced to include POPs and chemicals related monitoring data which are be required for decision making.

### Suriname

Suriname completed its NIP in 2011. Presently, Suriname has no legislation that is specifically aimed at addressing POPs, except for the Pesticides Act. There is a draft Environmental Act which is built on the polluter pays principle. 29.704 kg of obsolete POPs pesticides were found in the POPs inventory exercisewhich will be disposed of through FAO-GEF project #5407. Government has implemented measures to dispose of used tyres in order to contain vector bourn diseases like the chikungunya. The government further facilitates administrative process of the total battery management (TBM) and hazardous wastes (HW) such as lead acid battery, paint wastes, etc. The government is going to develop regulations on TBM and HW as part of their baseline project.

Suriname acknowledges that their POPs management programs needs to be strengthened. Development of chemicals related awareness tools and programs and their implementation is required. Without the GEF project, POPs and chemicals related information collection and management would remain in its early stage and monitoring and informed decision making would still be missed in the baseline project. Training of government officials to be able to guide the growing industries in Suriname towards cleaner, inclusive and sustainable industrial development would probably remain a challenge.

### St Kitts and Nevis

The main pieces of legislation that govern chemicals management include the Pesticides and Toxic Chemical Control Act Cap 9.18 of 2009, the Biosafety Act No. 14 of 2012 and the Solid Waste Management Act No. 11

of 2009. In 2010 an Obsolete Pesticides Inventory and Environmental Risk Assessment was conducted. Its update with chemicals particularly new POPs is planned to be undertaken.

Further, St Kitts and Nevis tries to facilitate sound management of chemicals through the Basseterre Aquifer Protection Study (GEF-IWCAM Demo Project) 2008-2011, the Terminal Phase Out Management Plan (TPMP) Multilateral Fund Project, Conserving Biodiversity and Reducing Habitat Degradation in Protected Areas and their Buffer Zones (UNDP/GEF) 2014-2018 project and the GEF Regional Project for Disposal of Obsolete Pesticides # 5407.

As maybe seen in the baseline project of St Kitts and Nevis, the main emphasis is on sound chemicals management which is quite advanced in the region. The management and presentation of chemicals related information are still in their early stages and needs to be enhanced.

### Trinidad and Tobago

Trinidad and Tobago completed its NIP in 2013 and has transmitted it to the Stockholm Secretariat on January 2015. POPS are presently being managed to some extent under the provisions of a number of laws including the Pesticides and Toxic Chemicals Act and subsidiary legislation, and the Environmental Management Act and its subsidiary legislation. In addition, the import of several POPs is presently regulated under the Negative List.

With specific regard to POPs, the Environmental Laboratory of the Chemistry Food and Drug Division of the Ministry of Health have been strengthened to test 13 POPs. The Department of Chemistry, University of West Indies (UWI) has also built capacity to test all POPs, but would have to acquire standards and validate test methods. This was the only laboratory, identified during the PPG to have capacity for POPs analysis. In the baseline project, the laboratory support for POPs inventories and monitoring is missing, particularly in the other Caribbean countries where analytical capacity on POPs is even weaker.

Some private companies in Trinidad and Tobago have also started to upgrade their facilities for disposal of POPs. One company indicated that it has the capacity to treat and dispose of all 22 POPs listed in the Convention. Another stated that they are in process of modifying their incinerator to develop the capability to treat these POPs. A third company indicated that they can treat and dispose 11 of the POPs under the SC. These companies maybe tapped during the project implementation to manage the POPs stockpiles found in the participating countries.

It is also important to note that country specific baseline projects would develop and maintain similar infrastructures such as POPs laboratories, information management systems, training and awareness tools, communication strategies, or human resource expertise in BAT/BEP, etc. which is quite resource inefficient as these resources could easily be shared at the regional level. A regional platform for coordination and information sharing could significantly reduce the maintenance cost of POPs and chemicals related management and could allow for a more solid and coherent national progress. Without the GEF intervention this value addition would be completely missed.

### ***Component 2: Reduce UPOPs emissions by improving poor waste management practices at landfills***

## Antigua and Barbuda

Cooks Landfill was designed as a sanitary landfill and there was a building on-site for hazardous chemicals storage. However this was not used in that capacity. There is a plan to re-assess the facility to determine whether it can be used for its designed purpose. Antigua & Barbuda E-waste Management Centre is an NGO that was formed to divert e-waste from disposal sites and waste stream. The Centre offers collection of e-waste and also acts as an E-waste drop-off facility.

The current/future programs would assess the location for storage of hazardous materials, but does not include the development, licensing, revision/upgrading operating instructions training of the employees including their occupational safety training.

## Barbados

In Barbados, the government has improved its landfill management through the training of landfill personnel and installing a leachate collection system. Segregation and waste diversion strategies have been implemented. These include working with the private sector to have a transfer station on-site for municipal waste where waste diversion operations take place. Also a chemical storage facility has been constructed. The Ministry of Health has conducted a campaign against open burning and is in the process of drafting regulations for controlling open burning of waste.

Barbados plans to identify the location for storing POPs and other chemical wastes and would select an enterprise to build a transfer station where municipal waste can be loaded onto larger vehicles that would carry them to the landfill. With this the economics of the waste management could be improved. However, segregation of recyclable wastes which could further boost the economics of waste management has not been considered

## Belize

The demonstration project in Belize hinges on the financial assistance from the Inter-American Development Bank (IDB) that designed a National Solid Waste Management Policy that is consistent with the waste management hierarchy, resource recovery and conservation and integrated sustainable solid waste management. It also developed a Solid Waste Management Strategy in order to deploy the Policy over a twenty year time horizon. It has updated the National Solid Waste Management Plan. This project has assisted the construction of the new sanitary landfill site located at Mile 24 between Belize City and the capital city Belmopan. This site is 350 acres in total. Of this 8 acres are being used for municipal waste and about 1/2 acre for the hazardous waste cell. It has been operational since August 2013. It was designed and built by PACA Belize, an enterprise from Mexico. Subsequent to this, PACA was also given an eight year contract to manage this landfill. Several transfer stations were also developed. The GEF has approved the "Belize Chemicals and Waste Management Project" which aims to achieve UPOPs release reduction in waste management operations and in agriculture waste burning. Both initiatives are silent on medical waste, which is found to be the highest source of UPOPs release according to the latest NIP.

With the IDB funds, BWC in the next couple of years would procure an incinerator and would place it on their premises where the old incinerator is operating. In the baseline project, the new medical waste incinerator of BWC will not be the most appropriate option for the long term, whole country scenario as a

medical waste management plan for the whole country would continue to be missing and BWC plans to buy an incinerator without appropriate air pollution control system.

The Licensing and Accreditation Unit under MoH will continue the same licensing procedures for health care facilities as they use today. The licensing would have to be resubmitted annually, but the proof of environmentally sound health care waste disposal would not be required to get the license.

It is assumed that all the medical waste generated in Belize City would be treated in the newly procured incinerator (approximately 10 tons/month). The rest of the medical waste in the Western Corridor would continue to be burnt at dump sites or backyards of the hospitals. This would mean approximately 4.8 gTEQ/a PCDD/Fs release which is less than 10% improvement compared to the baseline scenario.

### St Lucia

Deglos Landfill site was designed as a sanitary landfill site. At this site, there is a building that was designed to store hazardous wastes but it was never used as such. There is plan to rehabilitate the site and its buildings.

### Suriname

The NIP included an action plan on Improvement of Waste Management (harmonization with other WM activities). In this action plan the improvement of the legislation by supporting the 3 R methodology for reduction, reuse and recycling of wastes is foreseen. The Reduction of UPOPs releases from open burning (open waste burning, landfill fires, agriculture burning, and forest fires) sources receives also close attention. The action plan also aims to establish a general waste catalogue and a database for waste generation for Suriname. This action plan also addresses WEEE in establishing a management scheme for electronic and electrical waste, including a case study for the management of new POPs containing wastes with particular attention on PBDE containing wastes. Implementation of this action plan would further establish a cost sharing system for waste generators which would rely on the polluter pays principal.

Further the government of Suriname has decided to solve the municipal waste management problem of the most inhabited areas of the country, district Paramaribo, district Wanica and parts of district Saramacca where more than 70% of the total population roughly 400 000 people live. The current dump side at Ornamibo will be turned to a waste to energy facility. The continuous state-of -the art incineration technology with a 200 000m<sup>3</sup>/year waste capacity is expected to generate 9MW electricity. The investment cost is roughly 60 million USD. The detailed planning has started and the construction is expected in the second half of 2015. Ministry of Public Works will establish a public enterprise to operate the facility.

The establishment of this facility will eliminate open burning of municipal waste. Currently, scavengers operate in the area and use burning to clean and recover the valuable non burnable parts. With this practice, potential PBDE containing plastic waste streams would continue to be sold on the national and international markets and PCDD/Fs emission will continue to increase. With the planned interventions, the PCDD/Fs releases would decrease to 8.25 gTEQ/a as compared to the 11.07 gTEQ/a release estimates of the baseline scenario.

***Component 3: Assess potential contaminated sites to determine the level of contamination by POPs and develop appropriate remediation strategies***

Contaminated sites management in the Caribbean is in its early stage. The First NIPs have identified in some cases potential contaminated sites with POPs though a contaminated sites cadastre does not exist. There are some priority locations, where POPs contaminations are suspected, particularly former pesticides storage locations, or locations where transformers and other oil containing electrical equipment are used or stored. There are records and pictures in the NIPs that expired pesticides and phased-out transformers are stored in critical conditions, sometimes open air. Governments in the region have invested mostly in re-packaging and re-locating the stocks. Consequently they have upgraded several locations where the aggregated stocks could be stored. These initiatives at least reduce the risks of contamination or stops pollutants entering the environment, therefore the development and maintenance of these locations have been considered as baseline projects. In some countries like Belize hazardous waste landfills have been built, which could serve as temporary solutions for hazardous waste management.

Proper baselining in the PPG phase could not be undertaken mostly because of the limited information on contaminated location. This component will rely on the contaminated sites inventory of the NIP update process. It is expected that selection of the candidate site for demonstration activities will be based on thorough prioritisation.

In Barbados, the Environmental Protection Department (EPD) has compiled a list of landfills and dumpsites and is in the process of mapping landfills and dumpsites where environmental pollution is suspected. The NIP included action to update inventories of contaminated sites every four years. Development of pesticides storage and stock management regulations under the Pesticides Control Act and training for agricultural workers in good pesticides stock management, including safe storage, record-keeping and stock taking, and the use of adequate personal safety measures have been considered as baseline projects. Encouragement, via public awareness campaigns, of voluntary reporting of POPs products, stockpiles and wastes are also planned by the government. The government of Barbados has implemented improved landfill management through reducing the size of the operating face, training operators and personnel, installing a leachate collection system. It also facilitates segregation and diversion strategies like establishment of a transfer station for municipal waste and constructing a chemical storage facility. All these measures have positive effects on avoiding further contamination particularly at and around landfill sites.

In St. Kitts and Nevis, three contaminated locations have been identified these are Conaree Landfill – St. Kitts, Low Ground Landfill – Nevis and the surrounding area of JNF General Hospital incinerator – St. Kitts. The government is planning a risk assessment of the contaminated sites and regular updating of the contaminated sites inventory.

In Belize, there has been no official and comprehensive assessment of chemically contaminated sites in the country. Based on past chemicals related projects possible sites have been identified and visited, with a few incorporated into these initiatives. Examples include the past head quarter of the power generating company (waste oils and PCB), past Flour Mill facility (PCBs), and past chemicals storage Site of Ministry of Health (DDT). Other sites have been inconclusive (pesticides storage and reformulation).

In St Vincent and the Grenadines, one (1) possible contaminated site exists on mainland Saint Vincent, (old dumpsite at Arnos Vale, PCB transformers other POPs and hazardous chemicals were dumped in the past).

Suriname identified twenty two (22) potentially contaminated sites as part of their NIP. Subsequent to this there has been re-packaging of waste pesticides from at least two (2) sites. These have been removed and stored in a central location.

Trinidad and Tobago is by far the most advanced in addressing contaminated sites among the participating countries. It has already begun to map their potentially POPs contaminated sites. In 2013 a report on this was published "Spatial Analysis of Persistent Organic Pollutants (POPs) in Trinidad, Use of a Geographic Information System (GIS) for Spatial Analysis of the Potential Impact of Persistent Organic Pollutants (POPs). Based on this, the Guanapo Dump Site in Arima, Trinidad and Tobago was identified during the PPG as a potential demonstration location, for which the local government authorities, in conjunction with the Solid Waste Management Company of Trinidad and Tobago, have done preliminary assessments of offsite contamination and have determined that a significant issue of concern is applicable to the site. This baseline project will be considered in the selection of the demonstration site for the project. Without the GEF project the site screening, characterization and clean-up operation would be a one time learning experience for T&T, but no impacts could be measured in the region. Selection of the demonstration site for the project will be undertaken once the contaminated sites reports of the NIP update process are ready.

Between 2007 – 2009, Trinidad and Tobago participated in a Caribbean Coastal Pollution Project (CCPP) - Quantitative Bio-monitoring of Persistent Organic Pollutants (POPs) in Caribbean Coastal Zones Using Oysters. This study was performed to provide baseline monitoring data on persistent organic pollutants (POPs) in the Caribbean region with emphasis towards Stockholm Convention compounds. The first phase of this project involved implementation of a qualitative bio-monitoring survey using oysters collected in selected study locations from Jamaica, Trinidad and Mexico. Overall, the oyster bio monitor survey confirmed the presence of Stockholm Convention Compounds in waters of Trinidad. However, the concentrations of POPs measured in oyster tissues were generally low relative to threshold levels used to address human health concerns associated with contaminated seafood.

T&T also participated in another CCPP Project titled "Monitoring POPs in White Grunt from the Wider Caribbean Region". PCB congeners and organochloride compounds were generally present in the muscle tissues of white grunt. Overall, these data indicate that contamination by POPs in white grunt is not likely to be a health risk to fish consumers in the four Caribbean countries from which the samples were collected.

The participating countries have mostly identified locations where POPs contamination might be suspected and storage locations have been built for temporary storage of contaminated materials. The baseline projects, however, does not consider the adoption of environmental pollution limit values in the national laws and a subsequent monitoring/enforcement program to identify new contaminated locations, not to mention the corresponding liability issues. None of the baseline projects included analytical screening for the presence of POPs or other pollutants at the suspected locations. Without the GEF project, the baseline projects would not be enough to build national capacities for identification, characterization, classification of contaminated sites. They would fail to build capacity for developing site remediation/risk management plans, developing corresponding tender documents and monitoring site related activities.

#### ***Component 4: Managing and disposing of PCBs***

As previously mentioned, the PCB inventories of the participating countries mostly collected information concerning phased-out equipment. These stocks have been aggregated and will be disposed of through a FAO-GEF regional project. Based on earlier experiences with PCB projects the initial inventories only present the tip of the iceberg and significant PCB stocks can be identified in the electricity generating, transmission and distribution sectors. Also private sector stakeholders are important sources of PCB containing equipment such as transformers and capacitors.

For this component, regulatory development for import, export, use and disposal of PCB-containing equipment have been carried out in some countries. While detailed inventories of electrical equipment are planned, important points to consider in the inventory, such as the total number of transformers, capacitors, and switch gears would probably be missed. This would not allow for extrapolation of the whole country level and would not allow the estimation of the cost of PCB phase out. Analysis of transformer oils will mostly include field test kits, which do not provide information on the concentration of PCBs in the oil. This information, however, is crucial in developing phase out plans and planning PCB related actions.

Most of the participating countries have built or upgraded storage facilities for obsolete POPs pesticides and other related hazardous wastes, it is practical that the same storage locations could be used for storing PCBs shipments for disposal.

Most of the electrical utilities in the region are regularly servicing and replacing old transformers and other electrical equipment. This process was also considered as a baseline project, particularly when PCB containing pieces of equipment are replaced. In this aspect the business as usual scenario was considered in the baseline project.

In those countries where detailed PCB inventories have been developed some forms of a PCB database were created. These databases are mostly excel tables designed by non-professionals with very limited redundancy and incoherent data structure. The baseline project foresees the establishment of these types of inventories, where the privilege of data analysis and presentation is in the hands of one person, who designed the database.

PCB disposal technologies are not available in the region. In Trinidad and Tobago, incineration of PCBs is planned in the near future, although approvals of the technology for PCBs are pending. Some of the countries are considering the export shipment and disposal of PCB containing equipment. This is rather expensive because the disposal cost of the waste is calculated by the total weight of the waste and packaging material. In the case of transformers, only 1/3rd of its weight is the oil and other porous materials, the rest is metal which maybe recycled. Thus, if the transformers could be drained, cleaned and taken apart then, approximately 2/3 of the disposal costs could be saved. Thus, a thorough inventory of PCB stockpiles and PCB-containing equipment will be undertaken to determine the most appropriate disposal/decontamination options for the participating countries.

In Antigua and Barbuda, a stockpile of used PCB transformers has been identified at the local utility company. The quantities are unknown but the company is considering the best options for recycling/disposal.

In Barbados, 187 pieces of equipment that might be PCB-containing were identified. Of these, 116 pieces are no longer in use and can be considered as wastes. Only two pieces of equipment were positively identified as containing PCBs, based on their labelling. In Belize, it was estimated that less than 3% of all the transformers (approximately 5,000 units) may contain PCBs. The NIP of St Kitts and Nevis listed approximately eight hundred (800) smaller transformers in the distribution system located on the utility poles of the supply lines while the power supply system produces significant quantities of used cooling oils removed from the transformers, which undergo a recycling process. The NIP also identified about forty five (45) defunct transformers with used cooling oils containing polychlorinated biphenyls (PCBs).

Regarding PCB destruction in Suriname, the Government signed in 2005 a bilateral agreement for a period of two years with the Ministry of Environment from the Netherlands to facilitate shipments of PCB-wastes to the Netherlands. The waste was collected from the Suriname Aluminium Company (Suralco), a subsidiary bauxite mining company from ALCOA, and, a small part, from the BHP Billiton. The total PCB waste and scrap PCB transformers exported, amounted to 1 – 20 feet and 8- 40 feet containers, respectively.

While the countries have carried out initiatives to determine the extent and magnitude of their PCB wastes, it is agreed that the PCB problem is largely underestimated. Without properly addressing the situation, cross-contamination of PCB free transformers would continue to happen as ESM of PCBs would not be implemented. Likewise, due to the lack of appropriate analytical infrastructure, PCB contaminated equipment may not be fully identified.

A. 5. Incremental /Additional cost reasoning: describe the incremental (GEF Trust Fund/NPIF) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF/NPIF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:

National authorities have limited resources to balance a range of priorities including poverty alleviation, environmental pollution prevention, and the safeguarding of human health. As a result chemicals management, more specifically POPs management, has not been given the attention that is required. This is due to several barriers including, inter alia (1) existing policies, plans and strategies are sectoral and encourage actions that contradict or duplicate the work of other policies and plans; (2) law enforcement, customs regulation, disposal of used and obsolete stocks and clean-up of contaminated sites are insufficiently addressed by the national authorities; (3) insufficient knowledge on toxic chemical residues in the environment, the interaction with human and ecosystem health and the development of plans to curtail environmental releases; (4) the lack of consistent coordination of functions by government agencies involved in chemicals management across different economic sectors, particularly the environmental, agricultural and health ministries and agencies; and (5) chemical manufacturers, distributors, farmers and other stakeholders do not see added value to incorporating environmental sustainability into their actions and activities.

Grant financing is the only feasible means of supporting the know-how transfer and range of project activities to close the national- and regional- level gaps in managing chemicals. GEF investment will ensure that there is barrier removal, and ensuring long(er) term sustainability of the enhancements sought in chemicals management, enforcement of legal frameworks and promoting best practices for chemicals management across all public and private sectors. Moreover, the project is designed to support implementation of key global and regional multilateral environmental agreements, in particular the Stockholm Convention as well as

the Basel Convention and the Montreal Protocol. Furthermore, the GEF incremental investment will support the establishment of a regional dialogue (including South-South collaborations) for assisting countries in meeting their obligations under these agreements in a coordinated manner; multiplying local and global project benefits in the participating countries. Without GEF support, the synergistic benefits and multiplying effects generated through this regional collaboration, including multi-focal benefits, would be lost and the addressing of key chemicals management issues would continue in the current disjointed and fragmented manner.

Thus, without the implementation of the proposed project, the management of POPs in the Caribbean is expected to continue slowly, without large positive changes. The current scenario can be summarized as follows:

- Without POPs specific legislation that creates the legal framework for the proper management of the POPs in the Caribbean, the use, handling and disposal of POPs in the countries will continue to make it very difficult for the region to comply with its obligations under the Stockholm Convention. Project on the other hand would also allow for harmonization of legislation and regulations and a standardization of country NIPs.
- Without the GEF intervention it is unlikely that BAT/BEP PCB disposal and/or treatment technologies will be transferred and installed in the region. The two (2) demonstration projects proposed will not only significantly reduce the amount of UPOPs entering the atmosphere but will allow for easy transfer of knowledge to the other countries who all face similar challenges.
- Without GEF intervention, POPs will continue to be disposed of in an unsafe manner increasing the risk of environmental and human contamination. Through the project, source separation would be implemented in some countries and hazardous waste facilities developed on landfill sites. This will offer waste managers economical and environmentally safe options to dispose their waste within the country.

The GEF intervention would allow the region to benefit from the technical expertise of the BCRC-Caribbean and UNIDO. UNIDO has a lot of experience in POPs management and remediation of contaminated sites. More importantly they have been involved in a number of BAT/BEP projects thus allowing them to share their expertise with the region.

The GEF intervention would facilitate a sharing-mechanism with the region through the BCRC-Caribbean. This would allow each country to share their individual experiences while also learning from other countries. It would also allow for the development of local and regional expertise in POPs management thus ensuring that future projects can be managed with a higher local/regional expertise component.

The technical experience of UNIDO will be used in identification and application of relevant BAT/BEPs for the most economically and environmentally efficient methods of disposal. The project will be built on the efforts of the Region to promote environmentally sound industrial and economic development, to strengthen an existing regulatory framework on chemicals, to create an appropriate regional information platform to manage POPs based on already existing inventories, and to strengthen the already existing institutions involved in POPs management, to transfer BAT/BEPs and advanced analytical capacities. The sustainability of the project activities will be assured by the updated regulation, strengthened institutions in enforcement, demonstration of economically attractive methods for waste management, availability of technologies for safe

disposal of POPs and trained staff for implementing the environmentally safe management of POPs in the Caribbean.

Environmental benefits of the project are as follows:

- (a) Improved legislative framework for POPs management including strengthened enforcement institutions;
- (b) Upgraded regional and national databases of POPs which allows redundant data storage and improved analytical and presentation platform for facilitating informed decision making;
- (c) BAT/BEP in landfill management leading to improved waste management practices with a reduction in potential contamination to air, soil and groundwater;
- (d) Adequate capacity for identification, classification, remediation and long term monitoring of potentially contaminated sites;
- (e) Experience in environmentally sound management and disposal of PCBs that will be used to facilitate the phase out and disposal of PCBs in the region as per the Stockholm Convention;
- (f) Saving of natural resources through recycling; creation of additional working and employment opportunities in the hazardous waste management and laboratory sectors;
- (g) Improved public awareness on POPs and thus an increased awareness on proper handling and disposal techniques.

#### *A.5.1 The GEF Project*

Small Island Developing States in the Caribbean have generally limited capacity to adequately address global environment challenges. The Stockholm Convention has recognized the special needs of SIDS in POPs management as it is stipulated in Articles 12 and 13. Most of the SIDS in the Caribbean has significant interests in tourism which is sensitive to clean environment therefore pollution prevention and environmentally sound management of natural resources are high priority in their development goals. Governments have already demonstrated their commitments to the objectives of the Stockholm Convention and chemicals management through their baseline projects.

The project will strengthen and build the capacity required in participating countries to implement their Stockholm Convention NIPs in a sustainable, effective and comprehensive manner, while building upon and contributing to strengthening a country's foundational capacities for the sound management of chemicals. As a starting point the updated NIPs will be developed whereby all POPs on the list of the SC will be included including those that may be added to the SC on its next meeting in 2015. The proposed project will be implemented in a complimentary manner, enhancing current and planned activities. The executing agency would be the BCRC-Caribbean (see **Annex H**).

Traditionally, the economies of the Caribbean region have had a strong agricultural base with heavy reliance upon pesticide use. In recent times, the regional economies have evolved beyond a high dependency on the agricultural sector to an increased dependency on the tourism, manufacturing and industrial sectors. This advance in tourism, industrial and commercial expansion has allowed for increased levels of consumerism as the economies of the Caribbean islands grew with a congruent improvement in the quality of life. This

economic shift as well as the increased living standards across the region, has resulted in even greater use of chemicals and consumer goods. These factors have led to the generation of much larger and more complex categories of solid, hazardous and chemical wastes ending up in landfills. Landfill management however has not evolved as fast as new, multiple types of wastes appeared. Open burning of used lead acid battery (ULAB) wastes, waste electronic and electrical equipment (WEEE), waste lubricating oils, plastics, scrap metals, beverage containers, chemical wastes and others at the landfills has resulted severe impacts on all spheres of the receiving environment (air, water, soil, biota) and on human health. The project aims to address these challenges and demonstrate participating governments how to improve wastemanagement through BAT/BEPs wherby the disposal capacities could be increased, pollutant releases reduced and additional incomes generated.

The Caribbean is a globally important strategic region with rich biodiversity where contaminated sites pose immense and unpredictable risk to wildlife and marine ecosystems. Due to the extensive use of persistent pesticides in the past and various industrial chemicals today have resulted sites where these chemicals appear in higher concentration than ambient posing risks to environment and human health. Management of contaminated sites is expensive and resource intensive. SIDS of the Caribbean generally lack both the capital and the technical resources for sound management of contaminated sites. The project aims to assist participating countries in learning how to identify, characterise, priorities and store information on contaminated locations. It will further build capacity at the regional level for planning clean up and/or remediation of contaminated locations. Remediation measures will be demonstrated at one location with confirmatory sampling and long term monitoring.

The first preliminary PCB inventories have confirmed that PCBs are used in the electrical system. The scope and magnitude of the problem have not been appropriately mapped due to lack of analytical and other technical reasons. The project, building on the updated NIP inventories, will assist participating countries in establishing and implementing environmentally sound management of PCBs, developing and implementing phase-out plans for PCB containing equipment and providing low-cost decontamination technologies for draining PCB-contaminated oil from the transformers and cleaning the oil and the equipment in order to reduce the cost of PCB disposal operations.

The project has been designed to have specific, measurable, attributable, realistic and time bound outcome indicators, as shown in the Logical / Results Framework. Most of the projects indicators are expressed as, or in relation to, specific targets to be achieved by project completion. The expected duration of the project is five years. The quarterly work plan for the project, as well as the key deliverables and benchmarks, are presented as well.

#### *A.5.1.1 Details of the Project Components:*

##### ***Component 1: Create the enabling mechanisms in the Caribbean for effective implementation of the Stockholm Convention on POPs***

The GEF project will assist all eight (8) countries in the updating of their POPs inventories and updating of their NIPs. In the case of SVG, it will assist them to complete their updated NIP. The updated NIPs will include information and actions related to the initial twelve POPs, the nine new POPs which were added to the

list of the SC at the fourth meeting of the Conference of the Parties held from 4 to 8 May 2009, endosulfan and those POPs which will be added to list of the SC at COP 7 of the SC in 2015. It will ensure that the NIPs developed present actionable items that can be easily implemented by the countries. Proposed project activities for six (6) countries are detailed in **Annex I**.

A regional training workshop will be planned to train appropriate personnel on how to conduct POPs inventories and update their NIPs particularly for the newly added POPs. This workshop is planned to be training for trainers who can train national experts in their home countries. The training will also place strong attention on how to present inventory data and how to draw conclusions for decision making.

A Priority setting workshop is also planned at the regional level, where participating countries can identify priority areas where regional cooperation may lead to value added impacts in POPs management such as harmonized disposal operations, development of regional databases and data analysing tools etc.

Mainstreaming sound management of chemicals, particularly POPs, into national policies is expected to have significant positive impact on scattered, ad-hoc legislative development patterns of the participating countries depicted by the baseline projects. This activity is envisaged to result to a coherent legislative and institutional chemicals management system replacing the current incoherent and haphazardly functioning systems. Legal consultants will be hired to investigate chemicals related legislations of the participating countries and to develop a comprehensive legislative framework for the Caribbean where chemicals related legislations such as import, export, use, disposal, registration and monitoring of chemicals including enforcement measures are developed coherently with eliminating parallelisms. Each country will then be responsible for drafting the necessary regulations (or re-drafting existing regulations). This legislation drafting in a coherent manner is one of the most important difficulties participant countries face today in chemicals management and the resolution of this important problem would be missed in the baseline projects.

A training needs matrix will be developed for the Caribbean. Some aspects that will be considered include training on sampling and storage techniques for POPs, rapid testing for PCBs, recognition of POPs, environmental and health issues with respect to POPs (focusing on the new POPs) and PCBs. This training matrix will capture all the needs and from this a training regime will be developed. The training will then be executed through a series of regional workshops attended by the requisite stakeholders. At least five regional workshops will be held.

Countries that have a completed NIP will conduct a project to demonstrate the implementation. Some of these projects include:

Belize - Setting up of an Industrial Chemicals Unit (ICU) in the Department of Environment (DOE):

Trinidad and Tobago - Promote the use of BAT and BEP to reduce the release of UPOPs. This will be done through workshops and exhibits and will involve the private sector.

A communications strategy will be developed for the Caribbean by a communications consultant. This strategy will examine the best methods to improve public education and awareness on POPs and develop the

necessary programmes. This strategy will be shared via a regional workshop. Each country will then be required to execute the necessary components of the strategy.

The output addressing regional information system for all countries is expected to assist countries in capturing, maintaining and analysing POPs related information at today's level. In today's fast changing world analysing data to capture trends or to extrapolate data to the future is imperative for informed decision making. The same is applicable for environment or chemicals related information. In order to be able to make informed decisions on phasing out of a POP chemical (for example PCBs, PFOS or PBDEs) the problem should be sampled and extrapolated for the country level. The initial data collection, the sampling, the storage of the data and their presentation should be carefully planned and developed. Despite of the technical revolution in computer science particularly in database management still in most of the countries chemicals and environment related data is captured on paper or in spread sheets. Designing such a database that could store and present chemical, POPs or contaminated sites related data in a nice visually attractive manner is expensive; still this is the most convincing way to support decision makers in making informed decisions. To establish such a system at the country level in the SIDS would be probably too ambitious. Establishing and maintaining this system at the regional level however seems to be feasible, whereby country data can be secured still available online if information is required or if new information has to be fed to the system. In this process standardization of data collection and data storage is important. The project aims to establish such a data capture and management system for POPs and for contaminates sites. To this end each nominated environmental agency together with an information technology expert will design the data capture and presentation system based on the POPs inventory exercise and country needs and requirements. Each country will have the rights to manage its own data as if the database would be in house. The central repository database will be kept at the BCRC-Caribbean.

Part of the capacity building would include IT trainings for the users in the countries and where necessary to ensure that there is continuity in the database development and subsequent updating of the database.

The BCRC could be entrusted to hold and maintain country specific information on POPs. It can also be an information and training centre for the development and update of POPs inventories and if needed it can also foster the development of legal measures for the SIDS of the Caribbean to meet the obligations of the SC.

### ***Component 2: Reduction of UPOPs emission by improving poor waste management practices at landfills.***

Open-burning of wastes has long been a common practice for waste management in the Caribbean; both at the household level and at dumpsites. As sanitary landfills were developed, this practice ceased on these landfills but many times continued on dump sites, at the backyard of buildings, etc. Additionally, many persons who work in the recycling industry burn insulated copper wire in order to retrieve the copper wire for re-sale.

The proposed project targets landfill management at two OECS countries (St Lucia and Antigua and Barbuda) and Barbados. A training needs assessment will be conducted and then a training program developed. This training program would focus on hazardous waste management (especially POPs) and also how to develop source separation programs. After this, one (1) site per country would be chosen as a demonstration site for source separation programs. These will be developed and executed.

Hazardous waste storage sites will be built at the established landfill sites for three countries (ANU, SLU, BDOS). In ANU the Cooks Sanitary Landfill will be assessed whether the on-site storage areas could be used for hazardous wastes. In BDOS, a landfill site is a candidate location for the storage of HW. In SLU, the Deglos Landfill was built for the storage of HW, but because it was never used for this purpose the site needs a thorough audit and probably minor upgrades.

The project foresees the upgrading of these location which would include the development of the necessary infrastructures, obtaining the operational permits, revising the work instructions, training the employees including their occupational and safety training. These sites will be designed to store waste chemicals and will have the necessary infrastructure for package and storage of hazardous wastes.

Additionally, two (2) demonstration projects would be undertaken in Belize and Suriname under the BAT/BEP demonstration at landfills output (see **Annexes J and K**).

The demonstration project for Belize would look at the medical waste generation and management to develop a medical waste disposal plan with a feasibility study and a cost and benefit assessment for the disposal of this waste stream at the country level. These studies will ensure that the medical waste disposal technology selected for the demonstration project is in line and integrated into the whole country solution.

With GEF assistance the PCDD/Fs releases from e medical waste disposal at the Western Corridor would drop to 0.03 gTEQ/A. This would mean 90% improvement in the releases compared to the baseline scenario. In the project BWC would form a public and private partnership (PPP) with Solid Waste Management Authority (SWMA); similar to the one that is in place between Paca Belize and SWMA on municipal waste. This way all types of wastes from the Western Corridor would be disposed of in one facility, where land is available, monitoring wells are installed, weighing station is working and office buildings are built. SWMA would provide the land on the municipal landfill site for BWC to build the medical waste treatment site that would host the medical waste disposal technology. BWC would finance the development costs.

The GEF project would also look at public awareness issues, which the baseline project would completely miss. Hazardous waste regulation 2009 will be revised and increased penalties will be inserted for open burning medical wastes. Due to dissemination workshops of the project on the disposal options available for medical waste generators of medical waste will sign agreement with the medical waste disposal facility and mismanagement of medical waste is going to decline.

The demonstration project for Suriname would address metal rich, WEEE and potentially PBDE containing waste management in district of Paramaribo, district Saramaca and district Wanica. Complementary to the government intention to establish a waste-to-energy facility at Ornamibo the GEF intervention would further process the out sorted non-burnable WEEE and other metal containing wastes into recyclable fractions. The project would assess the economic viability of setting up a waste recycling facility in the area. With the pretreatment technology for dismantling, crashing, cleaning, sorting, compacting and documenting metal rich, WEEE and PBDE containing wastes another important environmental objective could be efficiently addressed, because often the plastic parts of electrical and electronic goods contain POPs, which upon getting recycled to new sensitive plastics such as children toys could harm human health.

The GEF intervention will be used to finance the feasibility study and cost and benefit assessment for the recycling facility and the technology that maybe adopted. The studies are expected to rely on the WEEE inventory of the Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean, which is expected to be completed in 2015. Based on these studies the size, the design and the tender document for the procurement of the demonstration technology would be developed.

The demonstration project will have a strong public awareness program to inform the public and private sector that their metal rich, WEEE and potentially PBDE containing wastes can be disposed of in an environmentally sound manner. Scrap dealers will be trained on detection of PBDE containing wastes, and these types of waste will not be allowed for shipping out for recycling.

The major output of GEF intervention will be that open burning of WEEE, metal rich and PBDE containing wastes in the demonstration area will be completely eliminated, with this it is expected that the PCDD/Fs releases would be reduced to 2.21 gTEQ/A is 8.86 gTEQ/A release reduction compared to the baseline scenario.

***Component 3: Assessment of potential contaminated sites to determine level of soil and groundwater contamination by POPs and ODS and develop appropriate remediation strategies.***

POPs contaminated sites management in the Caribbean has been mostly ignored and the countries have considered persticides and PCB wastes disposal important. As GEF Project #5407 will dispose of the aggregated stocks of PCBs and pesticides in the Caribbean, the participating countries have expressed their commitment in addressing contaminated sites in this project with higher priority. At the Regional Validation Workshop held on the 25th and 26th September 2014 in Trinidad & Tobago, project stakeholders recommended that contaminated sites related measures should not only select and identify priority contaminated sites and delineate the extent of surface and subsurface soil and groundwater contamination of POPs through the use of numerical modeling as it was planned at the PIF stage, but remediation should be demonstrated in a more comprehensive manner. This will include:

- 1) an initial testing program where co-contaminants are also identified,
- 2) site classification,
- 3) a detailed testing program where migration pathways of the all contaminants are identified and data is collected for the remediation plan,
- 4) a site remediation plan is developed,
- 5) site clean-up is undertaken,
- 6) successful remediation is proved through confirmatory sampling and
- 7) a long-term monitoring is undertaken for at least one location. The improvement in the scope of this project component deeply considers the STAP comments on the PIF.

As the current NIPs of the participating countries lack consistent information on potentially contaminated sites, the selection of one priority site for remediation in the PPG phase could not be undertaken. At the Regional Validation Workshop held on the 25th and 26th of September 2014 in Trinidad & Tobago, participant countries recommended that based on the contaminated sites inventories of the NIP update process

a prioritization could be undertaken at the regional level to select the demonstration location for site remediation/clean up. Subsequent to this the Guanapo Dump Site in Arima, Trinidad and Tobago, was identified as the site of highest priority.

Based on the updated contaminated sites inventories of the participating countries 1-5 priority sites will be selected where an initial testing programme will be undertaken to provide valuable site information, including the nature and location of the contaminants with respect to the groundwater table, potential pathways for contaminant migration, the location of nearby sensitive receptors, and the potential for direct human exposure to the contaminants. Undertaking a qualitative risk assessment, as part of the initial testing program, will establish the three components of risk such as contaminants, potential receptors, and exposure pathways. This information will be used to classify the candidate sites. The project intends to use developed classification systems such as the National Classification System of Canada. If needed further site evaluations will be undertaken in order to classify the location to high, medium, low priority for action. Based on the site classification and estimated costs of clean up/ remediation the project steering committee will prioritize the locations and will propose one location for demonstration.

If required a detailed testing program will be undertaken to further define the nature of the site contamination and to address outstanding issues with respect to the development of an effective site management strategy. This will delineate the boundaries of identified contaminants; define, in greater detail, site conditions required to identify all contaminant pathways, particularly with respect to risk assessment; provide information necessary to finalize remediation guidelines or risk assessment; and provide all other information required to develop the remediation plan and/or risk management plan and input to tender documents.

While the remediation plan will establish which clean-up objectives are most appropriate, the risk management plan will determine if remedial action is required at the contaminated site. Further a cost-benefit analysis will help determine the optimum remediation/risk management for the particular site. This includes a study that would identify whether removal and disposal; containment or encapsulation; or treatment would be the most preferable option. It will further identify if in-situ, ex-situ, off-site or their combination would be the best alternative. Priority will be given to those technologies which have the potential of minimizing environmental impacts during implementation. Research on various remedial technologies may be required to assess the effectiveness of the methods proposed for contaminant removal. In this regard a literature review and GEF and UNIDO's expertise will be used to determine the available technologies and their applicability to the location. Based on the tender document remediation will be subcontracted. Confirmatory sampling is planned to ensure that remediation has been successful and met its target. At the end of the site remediation a final report will be developed for future reference. If necessary long-term monitoring will also be planned and initiated.

During the demonstration of contaminated site remediation project the intention is to develop a regional contaminated site management capacity with

- a regional laboratory,
- proposal for environmental pollution limit values for national adoption,
- network of experts in contaminated sites assessment and classification,
- GIS for storing and presenting contaminated sites related information in the regional information system which is available for national decision making,

- network of experts for planning contaminated sites remediation/decontamination and developing tender documents,
- regional platform for tender evaluation.

#### **Component 4: Managing and disposing PCBs**

The first preliminary PCB inventories of the participating countries have mostly identified phased-out or waste PCB positive equipment. These pieces of equipment have been prepared for disposal under the FAO-GEF project #5407. As it was mentioned earlier the PCB problem is probably much deeper and in-line transformers and other oil-containing equipment may also be contaminated with PCBs. It is also mentioned in some NIPs, that the electrical utilities regenerate transformer oils during maintenance and service operations. As none of the utilities have implemented measures for PCBs, they do not even have analytical instruments for PCBs, with this practice they cross-contaminate PCB free transformers. Because this practice has not changed since the development of the first NIPs the baseline project considered that this practice will continue. Because the current PCB problem has not been appropriately mapped in the first inventories, PCBs have largely been ignored in the attention and actions of the governments.

The PCB component of the project will create appropriate analytical capacity in the region for PCB inventory. Each country would receive rapid PCB analysers, in order to screen potential PCB containing equipment and wastes. This will be undertaken before the PCB inventory begins. One regional laboratory for accredited PCB analysis would be strengthened; probably the same laboratory that would be used to analyse pollutants for the contaminated sites project component. The accredited laboratory will only be used in the PCB inventory if the results of the rapid analysers are questionable (i.e. close to the limit value). The PCB inventory of the NIP update process is expected to be based on standardized data collection and analysis. This will provide sound and comparable PCB inventories and databases, which would enable countries to better comply with their PCB reporting obligations under the SC.

The regional information system will be used to assist the project in prioritizing among PCB positive equipment for which phase-out plans will be developed. In this regard paragraph b of Part II of Annex A will be taken into consideration which requests that PCBs should not be used in equipment in areas associated with the production or processing of food or feed; or in populated areas, including schools and hospitals, or hotels.

In each participating country, where PCB stocks will be identified in the updated PCB inventory, temporary storage areas will be selected for decommissioned PCB equipment and PCB wastes. The Project intention is to use the same locations for PCB storage which will be used for the GEF-FAO project for obsolete pesticide disposal.

It is also important to stop further PCB cross contamination. In this regard the project aims to work closely with the BCRC and implement ESM measures for transformer maintenance at the electrical sector.

Most PCB inventories demonstrated that the most significant problem is associated with transformers with low to medium level PCB contamination (50-500ppm and 500-2000ppm). These transformers, switches, containers can easily be decontaminated and the clean oil re-used if the appropriate technology is available.

Based on the inventory data gathered, technology options for disposal or decontamination will be assessed. PCB technology leasing or decontamination/disposal services will be considered. In this process the project implementation team will cooperate with the GEF-FAO project that aims to dispose of obsolete pesticides. The intention is to undertake joint disposal operation which may lower the cost of disposal. The project target in this regard is the disposal of 70 tons of PCB or PCB contaminated oil; or decontamination of approximately 210 tons of PCB-contaminated equipment. This target will be reassessed once the PCB inventories of the countries are ready.

A.6 Risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and measures that address these risks:

RISKS	RISK LEVEL	MITIGATION MEASURES
<b>Outcome 1:</b> Enabling mechanism for effective implementation of the Stockholm Convention on Persistent Organic Pollutants created		
Participating countries lack the political will for establishing a comprehensive regulatory framework.	M	High level awareness raising activities are planned undertaken in partnership with the BCRC-Caribbean to increase high level understanding and political support for the implementation of the Stockholm Convention in the region. The BCRC-Caribbean has a track record of consulting member countries on legislation, having used the same process with waste legislation. The involvement of the BCRC-Caribbean in this activity ensures that activities are complimentary to, and build on, activities already undertaken in the Region.
<b>Outcome 2</b> UPOPs emissions reduced by improving poor waste management practices at landfills		
Technology transfer will be successful, but the maintenance of the disposal facility may be substandard.	L	Training program is planned for operating the transferred technology according to BEP. Staff will also be trained on appropriate service and maintenance of the technology.
A more detailed risk analysis of the demonstration projects are elaborated in <b>Annex K and L</b> .		
<b>Outcome 3:</b> Site Assessments conducted for potentially contaminated sites and remediation plans developed		
The cost of remediation of potentially contaminated sites would be too high to cover by project budget.	M	Characterization of potentially contaminated sites will be undertaken gradually. First a historical review will be undertaken to identify potential contaminants including non-POPs pollutants, then an initial testing program will follow to confirm contamination, then if necessary a detailed testing program will characterize the sites. This will allow the control of the cost of contaminated sites assessment and allow for maximizing the impacts of the actions.
<b>Outcome 4:</b> Managing and disposing of PCBs		
The disposal cost of PCB-containing wastes may vary significantly within project life. This could have negative impact on project efficiency in PCB disposal.	L	If export disposal costs will be high and thus joint disposal with the waste collected in the FAO-GEF project #5407 could not be undertaken, the project intends to lease a mobile technology for draining PCB-containing equipment and cleaning the carcasses. This mostly applies for low and medium PCB content (PCB concentration < 2000 ppm). With this the weight of the wastes sent for export disposal could be significantly reduced

RISKS	RISK LEVEL	MITIGATION MEASURES
		and by selling the scrap metals some of the costs could be recovered.
<i>Climate related risks</i>		
The Caribbean SIDS are located in an area that is prone to tropical storms/hurricanes and flooding	L	Field activities will be planned outside the storm/hurricane seasons. POPs wastes will be stored in areas not prone to hurricane or flooding.

#### A.7. Coordination with other relevant GEF financed initiatives

There are several on-going GEF funded projects being undertaken in the Caribbean Region with respect to POPs. This project will endeavour to co-ordinate with the following GEF-funded projects:

Project #4881: Continuing regional Support for the POPs Global Monitoring Plan under the Stockholm Convention in the Latin American and Caribbean Region. This is applicable to Antigua and Barbados and was submitted by UNEP to GEF with the objective to strengthen capacity for implementation of the revised POPs Global Monitoring Plan in the Latin American and Caribbean Region and to create the conditions for sustainability of the networks. There are possible linkages in the areas of training and capacity development especially for laboratories.

Project #5407: Disposal of Obsolete Pesticides including POPs, Promotion of Alternatives and Strengthening Pesticides Management in the Caribbean project was submitted by FAO to GEF with the primary objective to promote the sound management of pesticides in the Caribbean throughout their life-cycle in ways that lead to the minimization of significant adverse effects on human health and the global environment. The project also addresses PCB stocks in the Caribbean. The FAO has been the leading UN agency dealing with obsolete pesticides in developing countries. FAO led activities on managing obsolete pesticides include organizing and running workshops, consultation meetings and public outreach; initiating and coordinating the development of inventories; and coordinating and monitoring disposal projects. As part of its work the FAO has developed the Pesticide Stock Management System (PSMS), an application to be used by countries to record and monitor their inventories of pesticides and their usage, in order to assist them in managing the most efficient usage.

In Suriname, the pesticides and PCB stocks have been re packaged for shipment and the government is intending to move the stocks into a temporary storage location close to port of Paramaribo. The government intends to further maintain this temporary storage for further POPs wastes, which may be identified through the detailed inventories planned in the near future. If during the implementation of the present demonstration project any POPs stocks were identified, particularly during the detailed PCB inventory or during the demonstration project (PBDE-containing waste), these POPs wastes would be transferred and stored at this temporary storage until final disposal is undertaken.

Project #5126 (Suriname): Mainstreaming Global Environment Commitments for Effective National Environmental Management project was submitted by UNDP with the objective to generate global

environmental benefits through improved decision-support mechanisms and improved local planning and development processes in Suriname, by harmonizing existing information systems that deal with the Rio Conventions (climate change, biodiversity conservation, and land degradation) integrating internationally accepted measurement standards and methodologies. This project is in its PIF phase. During the implementation of the demonstration project possible linkages, particularly in the field of waste management will be identified.

Project #2325 (Suriname): Initial Assistance to Enable Suriname to Fulfill its Obligations Under the Stockholm Convention on POPs project was submitted by UNDP to identify means to support Suriname's own sustained capacity to fulfill its obligations in the context of the Stockholm Convention, including the preparation of a National Implementation Plan focused on Persistent Organic Pollutants (POPs), that will more widely cover aspects important to the safe and environmentally sound management of chemicals and wastes, as called for in Chapters 19 and 20 of Agenda 21. The project is near to completion as the NIP is ready. The demonstration project builds on the achievements of project #2325, particularly by selecting one of the action plans as the demonstration project for Suriname.

Project #5094: Belize Chemicals and Waste Management Programme was submitted by UNDP to GEF with the primary objective to strengthen national institutional, technical, and legal infrastructure and capacity for POPs phase out and sound chemicals management. Project component No 2, UPOPs release reduction in waste management operations and agriculture aims to achieve measurable reduction in dioxin release from informal waste dumps with the following measures:

- Inventory of informal waste dumps and current open burning practices
- Waste separation procedures and recycling operations at new solid waste management facility includes consideration of minimizing UPOPs and other hazardous chemical wastes within the solid waste stream
- Clean-up of major informal waste dumps with significant risk for UPOPs releases

By selecting medical waste disposal as the demonstration project for Belize the project is complementary to the UNDP- GEF project, particularly, because the geographical scope is the same, the Western Corridor, and the project addresses an area -medical waste- which has not been covered by the UNDP- GEF project.

## **B. ADDITIONAL INFORMATION NOT ADDRESSED AT PIF STAGE:**

B.1 Describe how the stakeholders will be engaged in project implementation.

During the preparation of the NIP, different government implementing agencies worked in coordinated and collaborative manner and have met on a regular basis. Similar coordination activities have been mapped out for the proposed project. The National Coordinators proposed for this project will be from the main agency responsible for chemicals management in each country. The various Government agencies and SC National Focal Points (NFPs) are as follows:

- Ministry of Agriculture, Land, Housing and the Environment, Antigua and Barbuda

- Environment Protection Department (EPD), Ministry of the Environment and Drainage, Barbados
- Department of the Environment, Ministry of Forestry, Fisheries & Sustainable Development, Belize
- St. Kitts and Nevis Bureau of Standards/Multi-Purpose Laboratory
- Sustainable Development & Environment Division, Ministry of Sustainable Development, Energy, Science and Technology, Saint Lucia
- Environmental Health Division, Ministry of Health, Wellness and the Environment, ST Vincent and the Grenadines
- Directorate of Environment, Ministry of Labour, Technological Development and Environment, Suriname
- Environmental Policy and Planning Division, Ministry of the Environment and Water Resources, Trinidad and Tobago

BCRC-Caribbean will be the executing agency for the project. The BCRC-Caribbean is a regional organisation with sound knowledge of waste and hazardous chemicals and has both the mandate for and experience with mainstreaming chemicals management into regional and national agendas.

Major stakeholders in each country will have the opportunity to be a member of the project working committee (PWC). These will include the Solid Waste Management Authorities, Pesticides Control Boards, NGOs, GEF Focal Points, Ministries responsible for Environment, Agriculture etc,

Other stakeholders will participate through stakeholder consultations. Environmental NGOs and women's groups will be engaged when public education and awareness programmes are developed and executed.

The project will observe gender balance in the development and execution of the project activities and will encourage the participation of women.

Industrial Associations, Chambers of Commerce and Industry etc. will have improved capacities to boost private sector investments and activities in POPs management.

#### *Stakeholders for the demonstration project for medical waste management in Belize*

Department of Environment (DOE) will be the key executing partner for the demonstration project in Belize. DOE is under Ministry Forestry Fisheries and Sustainable Development and thus will be responsible for updating the necessary legal measures to support environmentally sound disposal of medical waste and to coordinate the activities of the demonstration activities, identify linkages with the UNDP-GEF project, hold meetings, workshops and provide logistical support for the technical teams working on the project. DOE will also lead the regulatory enforcement activities.

The Solid Waste management Authority (SWMA) under the Ministry of Natural Resources and Agriculture is responsible for solid waste management in Belize. SWMA is subordinate to DOE and owns the Sanitary Landfill at Mile 24. Their key role will be to provide the land and readily available infrastructure at the

Sanitary Landfill to BWC along a public and private partnership (PPP). They will also be responsible to support the regulatory inspection at health care facilities and at the medical waste disposal facility.

Ministry of Health Licensing and Accreditation Unit (LAU) licenses health care facilities in Belize. They will be responsible to update the licensing requirements for health care institutions and participate in the regulatory inspections concerning medical waste management. They will also be key partners in information and awareness-raising activities to health care institutions.

Belize Waste Control Ltd. (BWC) is a private enterprise engaged in waste collection and disposal. They primarily operate in Belize City. They collect medical waste from health care facilities in Belize City municipality. They will host, operate and maintain the demonstration technology for medical waste disposal. The technology will be located at the Sanitary Landfill at Mile 24, thus they negotiate and sign a public and private partnership with the SWMA to treat medical waste of the Western Corridor.

A Technical Team will be formed for executing the demonstration project. The Technical team will have members from the DOE, national and international experts. National and international experts will assist in undertaking the necessary surveys, feasibility studies, technology assessments, cost and benefit assessments for the preparation of the National Medical Waste Disposal Plan and the tender document for procurement of the medical waste disposal technology. International consultants will also be used for the training of trainers components of the demonstration activities.

#### *Stakeholders for the demonstration project for metal rich, WEEE and PBDE containing wastes in Suriname*

The National Institute for Environment and Development in Suriname (Nationaal Instituut voor Milieu & Ontwikkeling in Suriname, NIMOS) responsibility will be to maintain the waste related database and information, to undertake site inspections and to be involved in the issuance of the operational permit for the demonstration facility.

Ministry of Public Works owns the Ornamibo dump site. Their key role will be to undertake the investments for the establishment of the Ornamibo Wastes Energy Facility. They will also be responsible to develop the necessary legal instruments for waste classification and management as well as supporting the regulatory inspections at dump sites and recycling facilities.

Ministry of Labor, Technological Development and Environment will be responsible to develop the environment related legislations concerning waste tracking, developing the database system for collecting information on waste generation and transport.

Ministry of Public Health Office of Public Health will participate in the enforcement related activities such as site inspections.

A Technical Team will be formed for executing the demonstration project in Suriname. The Technical team will have members from the Ministry of Public Works, Ministry of Labor, Technological Development and Environment, NIMOS, Ministry of Public Health, national and international experts. National and international experts will assist in undertaking the necessary surveys, feasibility studies, technology

assessments, cost and benefit assessments for the preparation of the technology transfer plan and the tender document for procurement of the waste pretreatment technology. International consultants will also be used for the training of trainers' components of the demonstration activities.

B.2 Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund/NPIF) or adaptation benefits (LDCF/SCCF):

The most important socioeconomic benefit of the proposed project will be the reduced amount of POPs releases in the environment and consequently the reduction of human exposures. The economically and environmentally efficient management of POPs wastes at the national and regional levels will contribute towards the mitigation of global environmental problems. This will create a greener, cleaner and healthier environment to live.

The project will create an enabling environment for many government agencies, private companies and local communities to participate in the project, such as selection of priority actions and demonstration areas, selection and approval of technologies for local use and subsequent stages of project implementation.

The proposed project will ensure collection of adequate data that will enable continuous monitoring of socioeconomic impacts by all stakeholders involved.

The project will aim to mainstream gender in the activities. The implementation of the project components will be conducted having in mind global and specific national and local gender dimensions. The project will also observe GEF's and UNIDO's Gender Policies. Training opportunities will be generated, and respecting gender rights will be observed. Participation of women at all activities will be encouraged and monitored.

The countries in the Caribbean have nurtured and developed a culture of gender balance in the professional environment. For example, in Trinidad and Tobago, women have maintained an average range of 44% to 60% of the share in higher education enrolment as well as professional and managerial/senior positions in comparison to men. The same holds true for the environmental professional field in the country. This is similar for the other countries. Therefore, it is expected that the level of participation of women from the participating countries will be equally distributed in this project. The participation of women will be encouraged and reported.

In many of the countries there are NGOs that focus on developing the skills and livelihoods of young women in the rural areas. These NGOs would be targeted as part of all stakeholder consultations. One such NGO is the GARD Centre in Antigua and Barbuda which strives to help young persons to be able to establish and operate viable farms or other agricultural and rural based enterprises, at a universally acceptable standard of living.

People's awareness of the environmental and health risk associated with POPs and PCBs will reduce exposure to these toxic materials. By reducing or eliminating human exposure to these chemicals, the risk of development diseases caused by the exposure to these compounds is reduced, therefore human health is protected. The reduction of diseases and preservation of human health will reduce the demand for resources of the public health system that otherwise have to be spent on providing health care to sick people due to exposure to PCBs and POPs. The occupational safety and preventive measure to reduce leakages to the environment will be planned and implemented on the priority basis. The project will monitor gender issues during the public awareness programs and will place special attention in developing gender sensitive public awareness materials, brochures, advertisements.

The training activities of the project will be a training of trainers, the project will have direct benefits of trained trainers. They will train people in their respective organizations, thus an indirect impact of the project will be a large cadre of trained people. The gender ratio among trainers and trainees will be monitored and reported. Small entrepreneurs will also be encouraged especially with source separation and recycling activities.

Technical expertise on POPs management will be developed in each participating country. Examples of these would be contaminated site evaluations and remediation; or the demonstration projects in Belize and Suriname which will provide opportunity for experts to participate. The gender ratio will also be monitored in these cases.

BAT/BEP demonstration projects, particularly WEEE management in Suriname will upgrade capacity for improved waste separation and management. Currently these activities are mainly undertaken by scavengers and homeless people. The project intends to institutionalize the current ad-hoc, self-employed manner of waste separation with facilitating the employment of these people. Consequently the project will create better occupational environment and safety at the newly created workplaces. An impact indicator to this end has been incorporated in the project design.

### B.3. Explain how cost-effectiveness is reflected in the project design:

The regional approach to project implementation also allows GEF-5 to target resources for priority issues and to realize higher visibility and greater impact by linking project interventions in a programmatic context. While some activities will be undertaken at the national and local levels, many activities such as the training activities, the information management system will be executed at the regional level. From a management perspective such an approach will allow transaction costs and administrative burden to be kept to a minimum, while allowing participants to share experiences with colleagues from neighboring countries.

The information capture mechanism and databases would be standardized for all participating countries. Furthermore the centralized database would be at the BCRC-Caribbean where national POPs data including a GIS for storing and presenting contaminated sites related information could be stored. This would allow the countries to readily share information and communicate with each other on technical issues as well. The major cost saving with this option is that there is no need to develop and maintain the same infrastructures in each country, rather there will be one at the regional level, where national data is secured and classified.

Since the ratification of the SC, SIDS of the Caribbean have achieved limited progress in implementing the measures of the SC. This might be due to the fact that the cost of maintaining the necessary infrastructures and human resources for the efficient implementation of the SC would significantly be felt on the living standards of their small population. For example to establish and maintain accredited POPs laboratories in each country would be very expensive and probably underutilized. Having one accredited POPs laboratory in the region would be cheaper to maintain in a collaborative manner, and the laboratory would probably be better utilized. Alternatively to outsource laboratory analyses to accredited laboratories, particularly expensive and less frequent analyses such as PCDD/Fs or PCBs, could even further reduce the cost. The project in its contaminated sites component will investigate the cost and benefit of this.

Further by broadening BCRC's activities in POPs management will allow for better integration of the Basel and Stockholm Conventions in chemicals management in the region, consequently this will increase the cost-efficient use of international resources. BCRC can assist countries in the region to develop and recommend environmental pollution limit values; can build a network of experts on POPs and chemical related matters including developing legislations, writing tender documents, which could be easily used for national aims.

With the GEF funding, the feasibility study will show the realistic business opportunities in medical waste disposal in Belize. Private sector investments will be in line and coherent with the National Medical Waste Disposal Plan and the feasibility study developed by the project. This would be missed in the baseline project where investments in this sector would be undertaken in an uncoordinated, incoherent manner which would lead to business losses.

Less investment is required for BWC in the project scenario as would be required in the baseline project as they can use the facilities already available at the sanitary landfill site, such as the weigh bridge, truck washer, office buildings, monitoring wells, etc. An environmental impact assessment may not be required as the site already has one. These benefits will be clearly presented in the public and private partnership agreement between SWMA and BWC.

In the case of the demonstration project for sound management of metal, WEEE and potential PBDE containing wastes in Suriname the baseline project would only establish the waste to energy plant where the cost recovery is from the generated electricity alone. The non-burnable materials, such as metals and WEEE parts are planned to be dumped at the landfill. In this case this waste will occupy space in the landfill, potential burnable mixed plastic and metal parts will be landfilled thus the energy efficiency of the waste will not be fully utilized. Valuable metal parts will also be landfilled or collected by scavengers.

The project scenario would further separate metal wastes into fractions that could be sold, such as iron, copper, aluminum, etc., refundable glasses would also be recovered as well as electronic wastes would be separated into fractions that could be sold on international markets. Mixed waste streams, such as computers, electronic equipment will be dismantled and separated to sellable fractions like printed circuit boards, metals, plastics, etc. which will be sold on international markets. The plastic parts of the WEEE could be fed to the incinerator and would further improve the cost-efficiency of the waste to energy facility and also avoid that PBDE containing plastics get recycled.

An earlier study on the total waste generation of greater Paramaribo found that approximately 66 234 tons of municipal waste was generated in 2004. Approximately 2% of the household waste was found to be metal, mostly aluminum. Therefore annually approximately 1 324 tons of aluminum could be recovered. Selling this alone on the international market would generate 2.3 million USD (1.76 USD/kg) income.

Other waste streams such as circuit boards, iron, and copper would also generate additional income.

**C. DESCRIBE THE BUDGETED M & E PLAN:**

Monitoring and evaluation will facilitate tracking implementation progress toward the outcomes and objectives. Likewise, it will facilitate learning, feedback, and knowledge sharing of results and lessons among the primary stakeholders to improve knowledge and performance. This section of the project document presents a concrete and fully budgeted monitoring and evaluation plan of the project.

<b>Type of M&amp;E activity</b>	<b>Responsible Parties</b>	<b>GEF Budget USD*</b>	<b>Co-financing</b>	<b>Time frame</b>
Regular monitoring and analysis of performance indicators	UNIDO PM, BCRC, NPCs and M&E consultants as required	100,000	200,000	Regularly to feed into project management and Annual Project Review
Annual Project Review to assess project progress and performance	Project Steering Committee to review the project performance and make corrective decision	100,000	200,000	Annually prior to the finalization of APR/PIR and to the definition of annual work plans
Mid-term Evaluation	RC, NPMU, external consultants, UNIDO PM, Steering Committee	60,000	120,000	Mid of project
Terminal Project Evaluation	PMU, MoE, UNIDO PM, and Project Steering Committee, independent external evaluators	60,000	120,000	Evaluation at least one month before the end of the project; report at the end of project implementation
Monitoring visits to assess contractual delivery of services and progress	UNIDO PM	120,000	240,000	Once a Year
Visits to field sites to monitor implementation of activities	UNIDO PM, RC, NPMU	160,000	320,000	Twice a year; as necessary for PMU
<b>Total Indicative Cost</b>		600,000	1,200,000	

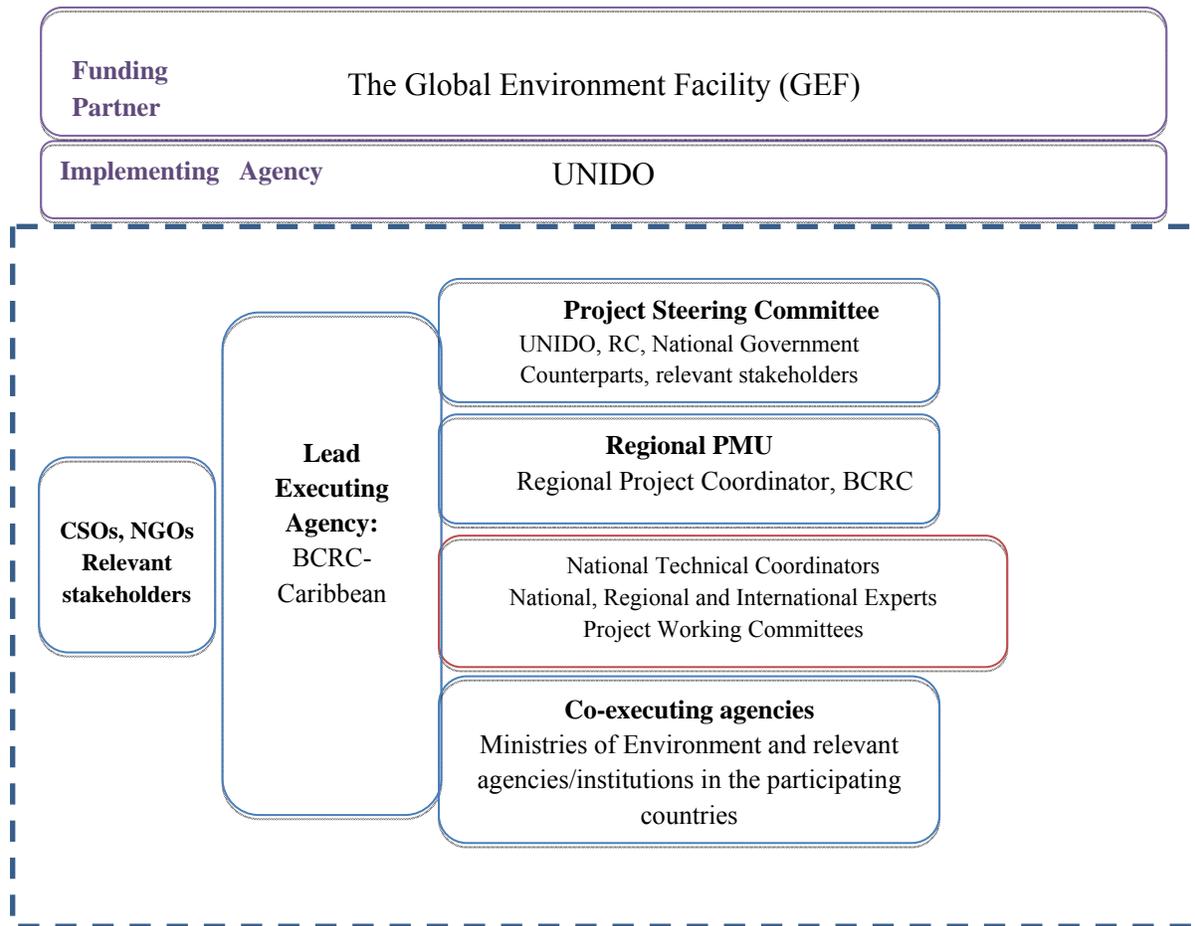
Formal monitoring and evaluation (M&E) of the project will follow the principles, criteria and minimum requirements set out in the GEF Monitoring and Evaluation policy and the respective guidelines and procedures issued by the GEF Evaluation Office and the GEF Secretariat. At the same time, M&E will comply with the rules and regulations governing the M&E of UNIDO technical cooperation projects, in particular the UNIDO Evaluation Policy and the Guidelines for Technical Cooperation. The overall objective of the monitoring and evaluation process is to ensure successful and quality implementation of the project by:

- i) Tracking and reviewing project activities execution and actual accomplishments;

- ii) Leading the project processes so that the implementation team can take early corrective action if performance deviates significantly from original plans;
- iii) Adjust and update project strategy and implementation plan to reflect possible changes on the ground, results achieved and corrective actions taken; and
- iv) Ensure linkages and harmonization of project activities with that of other related projects at national, regional and global levels.

According to the Monitoring and Evaluation policy of the GEF and UNIDO, follow-up studies like Country Portfolio Evaluations and Thematic Evaluations can be initiated and conducted. All project partners and contractors are obliged to prepare studies, reports and other documentation related to the project, and facilitate interviews with staff involved in the project activities. A detailed monitoring plan for tracking and reporting on project time-bound milestones and accomplishments will be prepared by UNIDO in collaboration with the Project Management Unit (PMU) and project partners at the beginning of project implementation and then periodically updated.

*C. 1 Project Implementation Structure and Monitoring Responsibilities*



*Figure 1: Project Implementation Structure*

UNIDO will be the Implementing Agency of the project, supervising its progress and providing technical, administrative and financial oversight on behalf of the GEF. A project manager will be appointed in UNIDO to oversee the implementation of the project, assisted by a support staff and supervised by a senior professional staff.

The Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean Region (BCRC-Caribbean) will execute the components of the projects (as agreed with UNIDO) through a contractual arrangement with UNIDO and house the Project Management Unit (PMU). BCRC-Caribbean will be responsible in ensuring that the project is on track as per deliverables and outputs. Day-to-day management and monitoring of project activities, and any consultants and subcontractors recruited to undertake them, will be the responsibility of the project management unit in co-ordination with UNIDO. The BCRC-Caribbean, working in conjunction with the national technical coordinators, will be responsible for delivering the technical outputs from individual objectives. During the course of the project, the Project Management Unit will be responsible for the preparation of regular progress and financial reports as per established contract, and for the preparation of forward plans and budgetary estimation. The timely preparation and submission of mandatory reports forms an integral part of the monitoring process. The PMU will also be responsible for planning, organising and executing the project activities set out below, and prepare and present project plans, regular progress and financial reports to responsible officers.

The BCRC-Caribbean, in coordination with national institutions, will be responsible for the arrangement and hosting of workshops at an in-country and at a regional level, the routine monitoring and evaluation of project progress and reporting the same to UNIDO. In consultation and upon mutual agreement with UNIDO, BCRC-Caribbean will also be responsible for recruitment and supervision of regional, national and international consultants/experts and subcontractors as necessary to deliver project outputs on the contracted project components..

The release of funds (by UNIDO) will be done on the approval of required submitted reports/deliverables by the BCRC-Caribbean. BCRC - Caribbean will be responsible for the proper management and reporting of funds provided to them by UNIDO. They will account for income and expenditure and provide annual consolidated statements and annual audit reports to UNIDO. Expenditure and procurement will be undertaken in conformity with international rules and standards/UN rules and standards/ the statutory rules of these organizations.

A Project Steering Committee (PSC) will be established during the inception phase of the project. The PSC will be responsible for the supervision and follow up of the implementation of the project. The PSC will also provide strategic guidance and approve annual workplans and budgets based on the approved project document. It should make necessary decisions within the rules and regulations of UNIDO and the GEF as per GEF C.39/inf3. The PSC will comprise representatives of UNIDO, eight (8) national government counterparts (not contracted by the project) and the BCRC-Caribbean. Other stakeholders may be invited, as necessary, to participate in the PSC meetings. The Regional Project Coordinator will attend PSC meetings in an *ex-officio* capacity.

The PSC will hold its regular sessions at least once a year throughout the project implementation, but additional meetings will be held if necessary. Some PSC meetings maybe held through teleconferences, web conferences or during planned regional workshops. The Secretariat of the PSC will be provided by the PMU, supported by the host institution for physical and for 'electronic' meetings.

Day to day monitoring of project execution progress will be the responsibility of the Regional Project Coordinator (RPC) based on the project's Annual Work Plan (AWP) and its indicators. The Project Management Unit (PMU), via the RPC, will inform UNIDO of any delays or difficulties faced during execution so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

The National Technical Coordinators (NTC) will be responsible in formulating the national project work plan, with the guidance of the RPC, in accordance with the approved project document and in ensuring the corresponding project outputs required on a national level are achieved in a timely manner. The NPC should submit a progress report of national activities and a financial report to the PMU one (1) month before each Project Steering Committee meeting.

Technical working groups may be formulated for specific issues based on the recommendations of the PSC.

Technical outputs and milestones identified for the project will be prepared by national and international experts or expert groups contracted by the project management team. The project has been designed to allow for the review and approval of draft outputs by key stakeholders to ensure ownership of products. This is particularly important as most project outputs are designed and intended to be sustainable beyond the life of the project. The project management team and the executing agencies have a first-line supervisory role with regard to project consultants and thus to the review and monitoring of their outputs. The PSC will also review and make recommendations regarding the technical outputs of the project at key milestones defined in the implementation plan.

Targets and indicators will be reviewed annually as part of the internal evaluation and planning processes undertaken by the Project Management Unit (PMU).

UNIDO will conduct periodic visits to assess progress and delivery of contractual services. These visits may be held in conjunction with visit to the project sites to monitor implementation of activities. A mission report will be prepared by UNIDO and will be circulated to the project team not less than one month after the visit.

### *C. 2 Project Reporting Requirements*

The BCRC and the PMU, in coordination with UNIDO, will be responsible for the preparation and submission of the following reports that form part of the monitoring process.

#### (a). Inception Report

A Project Inception Report (IR) will be prepared immediately following the Inception phase. It will include a detailed First Year Work Plan divided into quarterly timeframes, which detail the activities and progress indicators that will guide the implementation during the first year phase of the project. The Work Plan will include the tentative dates of specific field visits, support missions from UNIDO and/or UNIDO consultants, as well as timeframes for meetings of the project's decision-making structures. The report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 month timeframe.

#### (b). Project Implementation Report

The Project Implementation Report (PIR) is an annual monitoring process mandated by the GEF. It is an essential management and monitoring tool for the UNIDO project manager and offers the main vehicle for extracting lessons from ongoing projects. Once the project is under implementation for a year, the project team shall complete the PIR. The PIR are prepared observing the GEF cycle (July-June) and in accordance with the GEF's Annual Monitoring Guidelines. The PIR includes, but is not limited to, the following:

- (i) Analysis of the achievement of project objectives;
- (ii) Analysis of project performance over the reporting period, including outputs produced and information on the status of the outcome;
- (iii) Management of Risks
- (iv) Co-financing accounting (resources provided both as in kind or cash contribution). Expenditure reports, lessons learned and recommendations to address key problems, if applicable, are reported. Likewise, part of this PIR is the reporting/updating of the co-financing committed and the UNIDO Stockholm Convention Unit indicators.

A project management information system will be established at the BCRC to support the project management team to ensure that all the project activities be completed on time, in quality and within budget. The MIS will include a database containing (in electronic format or scanned PDF) all the project technical and administrative documentation. The MIS will keep baseline records of Annual Work Plans and contracts with consultants and subcontracts with performance indicators, result reports, responsibilities and budgets, allowing the easy comparison of them with the progress of the activities. The RC and the NTCs will be responsible in updating and uploading the relevant documentation in the MIS.

The terminal project meeting will be held in the last month of project implementation. A draft terminal report will serve as the basis for discussions in the final workshop. This will serve as a venue to consider the implementation of the project as a whole, paying particular attention to whether the project has achieved its stated objectives and contributed to the broader environmental objective. It decides whether any actions are still necessary, particularly in relation to sustainability of project results and acts as a mean, where lessons learned can be captured for use in other projects under implementation or formulation. The Terminal Report, in its final form, should be prepared by the project management team within 60 days following the end of project implementation.

### *Project Evaluations*

The project will be subjected to at least two external evaluations as follows:

- (a) **Mid-term Evaluation.** Mid-Term Evaluation will be undertaken at half way of project implementation. The Mid-Term Evaluation will measure progress made towards the achievement of outcomes and will identify corrections if needed. The evaluation will focus on the effectiveness, efficiency, and timeliness of project implementation; highlight issues requiring decisions and actions; and present initial lessons learned on project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the second half of the project’s term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation among the parties to the project document. The Terms of Reference for this mid-term evaluation will be prepared by UNIDO in accordance with the TORs developed by the GEF Evaluation Office.
- (b) **Final evaluation.** Final Evaluation will take place 2-3 months prior to the completion of the project implementation, and will focus on the same issues as the mid-term evaluation, with a greater focus on project impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities future projects, based on lesson learned and success stories. The Terms of Reference for this evaluation will be prepared by the UNIDO in accordance with the generic TORs developed by the GEF Evaluation Office.

The budget allocated for the monitoring and evaluation of the project are set out in Table below.

<b>Type of M&amp;E activity</b>	<b>Responsible Parties</b>	<b>GEF Budget USD*</b>	<b>Co-financing</b>	<b>Time frame</b>
Regular monitoring and analysis of performance indicators	UNIDO PM, BCRC, NPCs and M&E consultants as required	100,000	200,000	Regularly to feed into project management and Annual Project Review
Annual Project Review to assess project progress and performance	Project Steering Committee to review the project performance and make corrective decision	100,000	200,000	Annually prior to the finalization of APR/PIR and to the definition of annual work plans
Mid-term Evaluation	RC, NPMU, external consultants, UNIDO PM, Steering Committee	60,000	120,000	Mid of project

Type of M&E activity	Responsible Parties	GEF Budget USD*	Co-financing	Time frame
Terminal Project Evaluation	PMU ,MoE, UNIDO PM, and Project Steering Committee, independent external evaluators	60,000	120,000	Evaluation at least one month before the end of the project; report at the end of project implementation
Monitoring visits to assess contractual delivery of services and progress	UNIDO PM	120,000	240,000	Once a year
Visits to field sites to monitor implementation of activities	UNIDO PM, RC, NPMU	160,000	320,000	Twice a year or as necessary for PMU
<b>Total Indicative Cost</b>		600,000	1,200,000	

### **General Consideration**

According to the Monitoring and Evaluation policy of the GEF and UNIDO, follow-up studies including Country Portfolio Evaluations and Thematic Evaluations can be initiated and conducted. All project partners and contractors are obliged to (i) make available studies, reports and other documentation related to the project and (ii) facilitate interviews with staff involved in the project activities.

### **Prior Obligations and Prerequisites**

GEF grant assistance will be provided subject to UNIDO being satisfied that obligations and pre-requisites listed below have been fulfilled or are likely to be fulfilled. When fulfillment of one or more of these prerequisites fails to materialize, UNIDO may, at its discretion, either suspend or terminate its assistance.

- Prior to project effectiveness, financing by co-financiers other than the GEF and UNIDO specified in the project document and the respective commitment letters is to be made available to the Project;
- During project implementation, progress reports and Project Implementation Review (PIR) reports should be prepared as per monitoring plan of the project.

### **Legal Context**

#### Antigua and Barbuda

*“The Government of Antigua and Barbuda agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed and entered into force on 26 August 1983.”*

#### Barbados

*“The Government of Barbados agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed and entered into force on 21 October 1974.”*

#### Belize

*“The Government of Belize agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed and entered into force on 7 June 1982.”*

Saint Kitts and Nevis

*“The Government of Saint Kitts and Nevis agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed and entered into force on 30 January 1985.”*

Saint Lucia

*“The present project is governed by the provisions of the Standard Basic Cooperation Agreement between the Government of Saint Lucia and UNIDO, signed on 6 September 1988 and 24 February 1989 and entered into force on 7 March 1989.”*

Saint Vincent and the Grenadines

*“The present project is governed by the provisions of the Standard Basic Cooperation Agreement between the Government of Saint Vincent and Grenadines, and UNIDO, signed on 1 November and 28 November 1991 and entered into force on 28 November 1991.”*

Suriname (Republic of)

*“The Government of the Republic of Surinam agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed on 29 April 1978 and entered into force on 19 June 1996.”*

Trinidad and Tobago (Republic of)

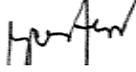
*“The Government of the Republic of Trinidad and Tobago agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed and entered into force on 20 May 1976.”*

**PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)**

**A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT(S) ON BEHALF OF THE GOVERNMENT(S):** (Please attach the [Operational Focal Point endorsement letter\(s\)](#) with this form. For SGP, use this [OFP endorsement letter](#)).

<b>NAME</b>	<b>POSITION</b>	<b>MINISTRY</b>	<b>DATE (MM/dd/yyyy)</b>
Diann Black-Layne	GEF Operational Focal Point	Antigua: Ministry of Agriculture, Lands, Housing And the Environment	09/13/2013
Rickardo Ward	GEF Operational Focal Point	Barbados: Ministry of Environment and Drainage	09/09/2013
Martin Alegria	GEF Operational Focal Point	Belize: Department of the Environment	08/29/2013
Lavern Queeley	GEF Operational Focal Point	St. Kitts: Ministry of Sustainable Development	09/04/2013
Caroline Eugene	GEF Operational Focal Point	St. Lucia: Ministry of Sustainable Development, Energy, Science and Technology	09/12/2013
Henna Uiterloo	GEF Operational Focal Point	Suriname: Ministry of Labour, Technological Development and Environment	08/22/2013
Yasa Belmar	GEF Operational Focal Point	Saint Vincent and the Grenadines: Ministry of Health, Wellness and the Environment	09/05/2013
Gayatri Badri Maharaj	GEF Operational Focal Point	Trinidad and Tobago: Environmental Management Authority	09/05/2013

**B. GEF AGENCY(IES) CERTIFICATION**

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for CEO endorsement/approval of project.					
<b>Agency Coordinator, Agency Name</b>	<b>Signature</b>	<b>Date (Month, day, year)</b>	<b>Project Contact Person</b>	<b>Telephone</b>	<b>Email Address</b>
Mr. Philippe R. Scholtès Managing Director Programme Development and Technical Cooperation Division  UNIDO GEF Focal Point		05/12/2015	Carmela Centeno 	+43(1) 260263385	c.centeno@ unido.org

**ANNEX A: PROJECT RESULTS FRAMEWORK** (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Outcome	Baseline	Target	Objectively Verifiable Impact Indicators	Sources of Verification	Risks and Assumptions
<b>Project Objective: To develop and implement a Sustainable Management Mechanism for POPs in the Caribbean</b>					
Outcome 1: Enabling mechanism for effective implementation of the Stockholm Convention on Persistent Organic Pollutants created	No country in the Caribbean Region has comprehensive regulatory system in place for chemicals.	Eight (8) countries mainstreaming sound chemicals management into national policies, regulations and institutional infrastructure.	Number of regulatory instruments and guidelines mainstreamed in compliance with requirements of SC on POPs submitted for approval.	Official gazette	The Governments of the Region are committed to meet the requirements of the Stockholm Convention and develop guidance documents and new/updated regulation that will require stakeholders to manage POPs in an environmental sound manner. Agreement among stakeholders on the content of the regulatory tools will be reached rapidly and efficiently.
Output 1.1: National Implementation Plans (NIPs) updated	Most of the NIPs require updating including the inventories for new POPs SVG still to complete their NIPs	8 updated NIPs to reflect the needs of the countries.	Updated NIPs submitted to Cabinets of the participating countries.	Cabinet acknowledgment of receipt of NIPs	The respective Governments need to allocate the necessary resources to ensure that the NIP action plans are actually undertaken.
Output 1.2: Sound chemicals management mainstreamed into national policies and plans	No country in the Caribbean Region has comprehensive regulatory system in place for chemicals	POPs related legislations are fully in-line with the requirements of the SC	Technical regulations, standards and norms are developed and adopted.	Copy of the submitted laws, standards	Stakeholders understand the need for developing a comprehensive regulatory system. National governments adopt the legal concepts developed by the project.
	Staff has not been trained on the obligations of the Stockholm Convention in the region. There is a lack of appropriate legal infrastructure and enforcement for environmentally sound hazardous waste management in the participating countries. Hazardous wastes generally end up mixed	Legal infrastructure for hazardous waste management is drafted and submitted for cabinet approval.  At least eight (8) trainers trained.  At least five (5) trainings conducted  At least two (2) inspectors at enforcement authorities	Number of trained trainers (women/men).  Number of trainings conducted.  Number of trained Inspectors in the countries.  Number of tool kit for site inspection procedures for hazardous waste management enterprises.	Training records. Copy of the toolkit for site inspections of hazardous waste management enterprises.  Copy of accreditation certificate  Operating license.	Training of judiciary and Ministry of Finance employees on the Stockholm and other chemicals conventions leads to increased support for implementation and active and enforcement of the convention by these sectors. Trained inspectors will train their colleagues on hazardous waste related legal measures and enforcement practices.

Outcome	Baseline	Target	Objectively Verifiable Impact Indicators	Sources of Verification	Risks and Assumptions
	<p>with domestic wastes and dumped.</p> <p>SLU and ANU have had facilities built but these have been used for other activities</p>	<p>are trained in each country for efficient implementation of the hazardous waste related legislations.</p> <p>One (1) tool kit for site inspection procedures for hazardous waste management enterprises.</p> <p>Eight (8) trained environmental specialists in POPs inventories.</p> <p>At least 40% of the trained specialists are female.</p> <p>One regional laboratory for POPs analysis strengthened</p> <p>One hazardous waste storage facility per country</p>	<p>Number of trained environmental specialists in POPs inventories.</p> <p>Number of men/women trained.</p> <p>Number of laboratories strengthened</p> <p>Number of storage facility built</p>		
	<p>Whilst there is general awareness of pesticides there has been no focus on other POPs.</p>	<p>POPs, UPOPs are integrated into general, gender sensitive public awareness campaigns.</p> <p>At least three (1) public awareness workshops are conducted in each country.</p> <p>30 % improvement on POPs awareness. (based on KAP survey)</p> <p>At least 45% of the participants at the public</p>	<p>Gender sensitive media products developed.</p> <p>No of pesticides/POPs week activities per country.</p> <p>Result of KAP survey.</p> <p>No of men/women participants at the workshops.</p>	<p>Media products aired on television/radio</p> <p>KAP surveys carried out show an improved awareness</p>	<p>Public awareness workshop will have large participation.</p> <p>Communities and NGOs will actively participate in public awareness activities.</p>

Outcome	Baseline	Target	Objectively Verifiable Impact Indicators	Sources of Verification	Risks and Assumptions
		awareness workshops are female.			
Output 1.3: Regional information system available for all countries	POPs and contaminated sites related information is scattered, Data collection, presentation is not undertaken in a standardized, redundant manner. Informed decisions are hard to make as data and data analysis are incomprehensive or missing.	One regional POPs database and data presentation and analysis platform is developed and in place.	Online database developed and housed at the BCRC-Caribbean	Database available online, Copy of the user manual.	Resources need to be allocated to ensure that information is updated and uploaded to the respective databases. The database structure will allow for redundant data storage and appropriate user privileges for accessing data input modification and view.
Outcome 2:UPOPs emissions reduced by improving poor waste management practices at landfills	Open burning of waste still exists at many landfills and dumpsites. The annual PCDD/PCDFs release from inappropriate medical waste disposal in the western corridor in Belize is estimated at 5.1 gTEQ/a (fact finding mission for FSP development May 2014). The releases are due to open burning of medical wastes at backyards of hospitals, dump sites and incineration of medical wastes in batch type substandard incinerators.  In Suriname it is a common practice to burn metal containing wastes, such as electrical wires and WEEE at dump sites to recover scrap metals. The annual	Elimination of this practice. The UPOPs releases in Medical Waste disposal sector in the Western Corridor of Belize drops by 99 % to 0.03 gTEQ/a. which is 5.07 gTEQ/a release reduction  The PCDD/PCDFs releases at Ornamibo landfill in Suriname drop to 2.21 gTEQ/a which is 8.86 gTEQ/a release reduction compared to the baseline.  2 tons of PBDE-containing plastics have been diverted from being recycled.	Quantity of UPOPs releases reduced  Tons of PBDE containing plastics disposed.  Tons of materials recycled  Value of recycled materials  Number of jobs created in the recycling industry (women/men)	No fires recorded at dumpsites and landfills  Progress reports, UPOPs Inventories.	Medical waste generation will not increase significantly in the following 5 years in Belize.  The waste generation pattern of electrical, electronic, metal containing and plastic wastes will not increase significantly within project lifetime in Suriname.

Outcome	Baseline	Target	Objectively Verifiable Impact Indicators	Sources of Verification	Risks and Assumptions
	<p>PCDD/PCDFs releases from this practice at the Ornamibo landfill is 11.07 gTEQ/a.</p> <p>PBDE containing plastics might be exported and recycled into sensitive products.</p>				
<p>Output 2.1: Systems for the collection and disposal of POPs wastes resulting in better waste management practices implemented at a national level</p>	<p>Medical waste management practices at the demonstration area is generally substandard.</p> <p>Environmental contaminants such as POPs are released and deteriorating human health and environmental quality. Penalties for open burning of waste are generally low and regulatory inspections for adherence to the law is scarce.</p> <p>In Suriname Penalties for open burning of WEEE and potentially PBDE containing waste streams are generally low, non-discouraging and regulatory inspections for adherence to the law is scarce.</p>	<p>Source separation programmes in place in each demonstration site.</p> <p>80% of healthcare facilities in Belize comply with sound medical waste management practices.</p> <p>80% of the enterprises comply with improved waste management practices.</p>	<p>Number of Trained landfill operators (male/female)</p> <p>Tons of hazardous wastes separated at source.</p> <p>Number of generators of metal rich, WEEE and potentially PBDE containing wastes adhere to improved waste management practices.</p> <p>Tons of materials recycled</p> <p>Value of materials recycled</p> <p>Number of new businesses established</p> <p>Number of jobs created (women/men)</p>	<p>Training records</p> <p>Site inspection reports.</p> <p>Site inspection report.</p>	<p>In Belize health care institutions will understand the reasons behind the stricter requirements for medical waste management and will responsively and actively participate in improving their own such practices.</p> <p>Generators of metal rich, WEEE and potentially PBDE containing waste will understand and adhere to the waste management system in the demonstration area and will responsively and actively participate in the implementation of the project.</p>
<p>Output 2.2: BAT/BEP demonstrated in a pilot (existing) landfill facility.</p>	<p>There are seven medical waste incinerators in Belize. Out of them only one is operational. None of them meet</p>	<p>One medical waste disposal demonstration technology, which adopts BAT/BEP principles, is transferred to Belize.</p>	<p>Proof of performance test of the selected technologies and services comply with BAT/BEP.</p>	<p>Operating permits</p> <p>Progress reports</p>	<p>BWC includes the establishment of a new medical waste disposal facility in its business plan.</p>

Outcome	Baseline	Target	Objectively Verifiable Impact Indicators	Sources of Verification	Risks and Assumptions
	<p>international environmental performance standard. Solid waste management strategy and plan is silent on medical wastes consequently a country wide feasibility study for its disposal is missing.</p> <p>Burning is used at Ornamibo to recover metals from waste.</p> <p>There are several small scale recycling facilities in Suriname that collect metals, PET bottles, paper and electronic wastes.</p> <p>Plastic is not analyzed for PBDE content, thus the likelihood of recycling of potential POPs containing waste into sensitive products is existing.</p>	<p>One technology for dismantling, crushing, cleaning, sorting, compacting and documenting metal rich, WEEE and PBDE containing wastes streams is operational.</p> <p>At least 5 new jobs created</p>	<p>Number of new businesses established (managed by men/women)</p> <p>Number of jobs created (men/women)</p> <p>Tons of materials recycled</p> <p>Value of materials recycled</p>		<p>Ministry of Public Works will establish a waste to energy facility to utilize the municipal waste of district Paramaribo, district Wanica and parts of district Saramacca. The facility will have a presorting line where all non-burnable wastes will be separated. It is assumed that Ministry of Public Works will accept the potential PBDE containing plastics as a fuel in their waste to energy facility.</p>
<p>Outcome 3: Identification and remediation of contaminated sites</p>	<p>Many potential POPs contaminated sites may be present in the Caribbean due to the former intensive use of pesticides in the agriculture and use of PCBs in electrical equipment. There may not be records of these locations.</p> <p>There is not appropriate capacity for assessment and evaluation of</p>	<p>Participating countries have capacity in managing contaminated sites.</p> <p>Regional support and network of experts are available for contaminated site management.</p>	<p>Number of potentially contaminated sites are identified and recorded in the regional database.</p> <p>Number of dissemination workshops.</p>	<p>Progress reports, NIPs</p>	<p>The regional database and data analytical platform is operational and helps prioritizing among candidate sites.</p> <p>BCRC will maintain a network of experts and enterprises that have capacity in identifying, assessing and remediating contaminated sites.</p> <p>BCRC maintains and disseminates the lessons learnt from successful contamination site management</p>

Outcome	Baseline	Target	Objectively Verifiable Impact Indicators	Sources of Verification	Risks and Assumptions
	contaminated sites in the Caribbean.				and remediation projects.
Output 3.1: Contaminated sites identified, assessed and prioritised for treatment	The preliminary contaminated sites inventories of the first NIP development process in the Caribbean have not provided appropriate information on potential POPs contaminated sites that would have allowed the selection of a priority site for demonstration activities.	1-5 priority sites are identified for detailed site assessment and evaluation. Conceptual site modeling is developed for the locations including the determination of POPs and co-contaminant levels.  One contaminated sites is selected for remediation.	Risk assessments and site evaluations and classification conducted for candidate sites.	Progress Report  Risk Assessment matrix Site classification reports	Contaminated sites inventories of the NIP update process will provide comprehensive and coherent data from all participating countries whereby prioritization and selection of candidate sites could be undertaken.  Laboratory back up for the initial and, if required, detailed testing program is available.
Output 3.2: Remediation demonstrated in a prioritized contaminated site	Lack of capacity in the region for remediation of contaminated sites.	Remediation plan including technology selections and cost and benefit assessment is developed.  One site remediated	Result of confirmatory sampling.  Tons of POPs removed	Site remediation plans Site remediation final report. Laboratory test results	Remediation will be undertaken in the dry season to avoid unpredictable migration of contaminants during clean-up operations.
Outcome 4: PCBs managed and disposed of	The Caribbean does not have appropriate hazardous waste disposal facilities for POPs and PCBs. Export disposal operations are costly, which has hindered phasing out of PCB-containing equipment in the past.  There is no accurate information within the Governments on PCB amounts	One regional PCB database is in place, where each country can store its own PCB inventory.  PCB related information is available for decision-making.	PCB database is in place and accessible on the Internet.	Database users guide.	Mobile rapid PCB analyzers will be used to fast-screen mineral oil samples.  The storage areas identified and strengthened by the FAO-GEF project would be used to temporary storage of PCB containing equipment and wastes. Project assumption is that these storages do not require further investments to store PCB wastes.
Output 4.1: ESM of PCBs implemented	Some inventories were done by the FAO.	30% of potentially PCBs containing equipment and wastes are identified and	Number of labelled oil containing equipment.	Inventory reports.	The power companies would be the main target groups. However other large power consuming

Outcome	Baseline	Target	Objectively Verifiable Impact Indicators	Sources of Verification	Risks and Assumptions
		<p>labeled in the electrical and private sectors.</p> <p>Disposal of 70 tons of PCB or PCB contaminated oil; representing approximately 210 tons of PCB-contaminated equipment</p>	<p>Number of PCB-containing equipment prioritized and selected for Phase-out.</p> <p>Tons of PCB-contaminated oil and carcasses.</p> <p>Value of materials recycled and re-used.</p>	<p>Phase-out plans</p> <p>Disposal certificates</p>	<p>stakeholders will be involved as well.</p> <p>PCB owners will actively support the inventory exercise.</p> <p>The central locations chosen should be designed to accommodate hazardous materials and should be properly secured. If PCB containing waste materials have to be shipped for disposal, all the affected countries should be notified prior using the mechanisms of the necessary Conventions</p>

**ANNEX B: RESPONSES TO PROJECT REVIEWS** (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

The comments by the Scientific and Technical Advisory Panel (STAP) and the GEF Council Members were taken into consideration when developing the project document. The following table shows how STAP and the GEF Council comments have been incorporated.

**A. Responses to STAP Comments**

<b>Comment by STAP</b>	<b>Consideration in the Project</b>
<p>Four of the project countries have yet to complete/submit NIPs (Trinidad, Bahamas, St. Kitts &amp; Nevis, St. Vincent &amp; the Grenadines). Some of these countries are also named for pilot investment type activities in the project. The capacity building activities in the project should help bolster the countries to complete their NIPs, and participation in the pilot activities should be contingent on their NIP completion, so as to ensure there is appropriate baselining, capacity and awareness to increase the chance of success in the pilot activities.</p>	<p>Bahamas is no longer included in the project and Trinidad and Tobago has submitted their NIP to their cabinet. St Vincent and the Grenadines would participate in the project in order to get assistance with the updated inventories of POPs and the finalization of their NIPs. They will also participate in the public awareness-raising activities and in the institutional strengthening measures.</p>
<p>There is no preliminary risk assessment in the PIF. There are some risks listed, but no assessment of their priority or magnitude (high, medium or low?). This should be evaluated in the PPG phase and elaborated in the eventual project document.</p>	<p>Detailed risk assessment has been developed in section A.6 of the project document. Risk assessment from the demonstration projects are detailed in Annex K and L.</p>
<p>The project seeks to upgrade legislation and enforcement around POPs, but there is no financial/economic evaluation component. In general legislation will not be effective if the costs of enforcement are not considered in parallel with development of the legislation.</p>	<p>Stakeholders from the Office of the Attorney General for each country were invited to town meetings. When the legislative framework is developed, the financial/economic evaluation components would be considered</p> <p>The project in output 1.3 plans to strengthen national capacities for enforcement of POPs related legal measures. A toolkit will be developed for guide inspectors on how to conduct inspections. One training of trainers is planned at the regional level for the inspectors on the legal measures and inspection guidelines. These trainers are expected to train inspectors in their countries.</p> <p>In order to provide laboratory support for site inspections, contaminated site assessments, and enforcement a regional laboratory will be</p>

Comment by STAP	Consideration in the Project
	<p>strengthened for POPs analysis. This is expected to be more cost efficient than strengthening and maintaining one laboratory in each country.</p> <p>The project also intends to outsource certain POPs related activities to regional organizations, for example maintaining POPs related databases and information systems, assisting participating countries in legislation drafting, contaminated sites assessment, designing publishing and evaluating tender documents, organizing coordinated disposal operations, etc. The establishment and maintain these infrastructures and human resources capacity in every country would be more expensive than maintaining one on the regional level. Component one of the project aims to investigate those areas, where national responsibilities could be outsourced.</p>
<p>Attendant to this last point, line Ministries such as Finance, Energy, Manufacturing/Industry or what have you would have to figure prominently in the project stakeholders, and give significant commitment if the project is to be successful. At present it would appear the PIF has focused on Ministries of Health and Environment for government contact, who do not have the powers to ensure that resources for enforcement can be made available, nor that those partners using, disposing of, or generating POPs, have the wherewithal to comply with any new legislation and regulation.</p>	<p>During in-country stakeholder meetings a broad cross-section of stakeholders were consulted in developing the details of each country's requirements. These included the identification of stakeholder ministries, agencies as well as legislative drafters. The duties and responsibilities of the project stakeholders in each country is elaborated in Annex I of the project document.</p> <p>These stakeholders would also be targeted as part of the PA/PE programmes.</p> <p>Additionally, at the start of the Project a thorough stakeholder analysis for each country will be done and all stakeholders in each country will be identified. Ministries of Finance would also s be Project partners.</p>
<p>Component 3 of the project proposes to determine the levels of remediation required at dump sites for POPs. It cites that it will "delineate the extent of surface and subsurface soil and groundwater contamination through the use of numerical modelling..." and will "manage the excavation and removal for off-site treatment of the contaminated soil and/or groundwater from the contaminated sites". However, evaluation of other GEF projects in the portfolio are generating lessons that include the fact that characterization of anticipated</p>	<p>Hydrogeological and soil tests are proposed as part of the assessment. This will thus give the necessary information on the amount and type of contamination that has occurred in each site including the migration paths and migration pattern of the contaminants. This information would be considered when the site remediation or site clean up plans are developed.</p> <p>During the initial screening of the potential contaminated sites, a detailed historical review will be undertaken to characterize the potential contaminants. All of the potential contaminates will be screened in</p>

Comment by STAP	Consideration in the Project
<p>contamination levels is critical, including the impact of co-contaminants. This can have significant cost implications both in terms of supporting the soil characterization exercise, and the "legacy" impacts to a project's cost if proper characterization is not done and contaminant levels exceed what was anticipated during project development. More detail on this is given later in the comments.</p>	<p>the initial testing program. In later stages only the confirmed contaminants will be tested.</p>
<p>The document flags the intent of the project to draw on its past experiences in the field and in POPs legislative and institutional work (eg from EC-funded FAO project, SAICM-QSP etc). However no reference is made to examples from the GEF portfolio and work of other implementing agencies.</p>	<p>In addition to the Regional Projects that were referenced to, other GEF agencies that have experience in this field include World Bank, UNDP and UNEP. UNDP has various offices in the Region and would be a particularly useful resource. Additionally, the World Bank has worked with other countries in site remediation projects so their project documents would be used as well.</p> <p>Some examples of these include:            GEF#3032: Environmental Remediation of Dioxin Contaminated Hotspots in Viet Nam            GEF #4601: POPs Legacy Elimination and POPs Release Reduction Project, Republic of Turkey</p>
<p>Given the rapid increase in remediation projects entering the work programme, the STAP has seen that there is a need to work with the GEF Secretariat to better amass the knowledge and lessons learned around GEF technology demonstration projects. Management and Technical/Institutional Capacity Upgrading". But with what evaluative material is available, what is evident is that in spite of the fact that projects may target different chlorinated POPs products, there are many lessons that can be shared</p> <p>Technology selection and evaluation should draw on the large body of existing work, such that there is not a tendency to "reinvent the wheel", whilst retaining the ability to improve on the knowledge base. There is some anecdotal evidence that in the POPs destruction area, there was an artificial creation of "POPs destruction technologies", when in the commercial world, POPs were but a subset of halogenated wastes that could be handled en masse. This artificial divide, however, meant there was a myopic approach to possible applications, and to recognition of shared experience that may have been mutually beneficial. Therefore as remediation</p>	<p>The GEF-Secretariat technical guidelines such as the referenced POPs disposal guideline will be consulted and a thorough literature review will be undertaken before the site remediation plans are finalized. Additionally, contacted firms that would be considered would be firms who follow strict ASTM standards and have previous experience in such remediation work. GEF Project #3622 Integrated POPs Management Project: Dioxins and Furans, PCB and Contaminated Sites Management for the Phillipines would also have information on remediation plans that can be used for the Region. Specifically, <b>Activity 5 Identification, Prioritization, and Pilot Remediation of POPs Contaminated Sites</b> Inventory and national priority list of POPs contaminated sites produced, including PCB wastes and POPs pesticide stockpiles. The expected outputs from this activity would be:</p> <ul style="list-style-type: none"> <li>• Safeguards for highly-contaminated sites put into place;</li> <li>• Three pilot sites cleaned up (funded by GOP);</li> <li>• A national strategy for site remediation</li> </ul>

Comment by STAP	Consideration in the Project
<p>projects become more frequent, it would be good to avoid the lack of coordination and sharing of lessons amongst similar GEF projects, and not tapping into global research and knowledge gained both inside and outside of the GEF, where it may exist (eg use of STAP products (its POPs Disposal Technology guidance defines what constitutes environmentally sound disposal of POPs, and technologies and costs to achieve it), Convention technical guidance and other training materials, etc). Remediation work should also try to draw on the extensive global experience on remediation and research that exists within key government agencies</p>	<p>developed.</p> <p>GEF Project #4737 is a project in the Republic of Armenia that deals with the Elimination of Obsolete Pesticide Stockpiles and addressing POPs contaminated Sites within a Sound Chemicals Management Framework. Most of the elements of this Project are similar to this Project so that training materials developed and lessons learnt can be used. One outcome of particular interest is :</p> <p>1.1: Site assessments and clean up design, planning, support training for initiating works required at obsolete pesticide burial and storage sites undertaken. equipment supply and training for initiating works required at obsolete pesticide and storage sites undertaken</p>
<p>Further, the capacity of national partners should be built as well, perhaps using elements from training guides such as the 2002 Basel Secretariat training manual "Destruction and Decontamination technologies for PCBs and other POPs Wastes under the Basel Convention: A Training Manual for Hazardous Waste Project Managers" (<a href="http://archive.basel.int/meetings/sbc/workdoc/TM-A.pdf">http://archive.basel.int/meetings/sbc/workdoc/TM-A.pdf</a>). Though largely (but not exclusively) targeted to PCBs, and published a considerable time ago, it still has some utility in pointing out useful operational planning steps and stages that apply to any disposal or remediation project, and would amply inform the steps to be considered within any project. More research on lessons learned and planning/training materials would help ensure there are proper checks in place for the uncertainties for which remediation projects are prone.</p>	<p>There is a significant capacity-building component part of the project. A training-needs assessment would be conducted and based on this, training programmed would be developed and executed.</p> <p>The BCRC-Caribbean is a good resource as there is resident knowledge on training activities especially relating to Hazardous Waste Management Projects (including POPs wastes). Participating countries can and should consult BCRC-Caribbean before any remediation, decontamination or POPs destruction is undertaken. BCRC can guide them in estimating the costs of the operations and can even assist in developing the tender documents for bidding and linking up waste owners with waste disposal facilities.</p> <p>The executing agency role of BCRC in the project assures that hazardous waste related disposal operations would be undertaken as per the latest guidelines and participating countries will appropriately be trained on the related obligations and recommendations.</p>

**B. Responses to GEF Council Comments**

Council comments	Consideration in the project
<b>Canada</b>	
<p>First, we share STAP’s view on the sequencing issue, such that all countries involved in the project should officially submit their National Implementation Plans (NIPs) before being eligible to receive support. Since countries have already received GEF funding to complete their initial NIP, we ask the GEF Secretariat to ensure that funding from this project is not used to complete NIPs.</p>	<p>All participating countries except St. Vincent and the Grenadines have completed and submitted their NIPs.</p> <p>As it is discussed in part II. A. of the project In output 1.1 SVG will focus on updating the data collected for the first NIP with the new POPs and consequently developing a NIP which addresses all POPs.</p> <p>Under output 1.3 they will participate in all regional workshops and training sessions in order to build the necessary capacity to actively implement the action plans of their updated NIP. SVG will also participate as observer in the demonstration activities under component No 2. No other particular programme is planned for them in the project.</p>
<p>Second, in line with STAP’s observation, we request that the final project proposal address the following issues:</p> <ul style="list-style-type: none"> <li>▫ the lack of a preliminary risk assessment;</li> <li>▫ the need for an economic/financial evaluation component;</li> <li>▫ the lack of initial assessment of the extent of contamination at project sites, which makes it impossible for the project to properly scale and design its interventions; and,</li> <li>▫ the need to include analysis of lessons learned from similar GEF and non-GEF projects.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Risk assessment is presented in Part II. A/6 of the project document.</li> <li>• Impact Monitoring and Evaluation component has been added to the project which will cater for the economic and financial evaluation.</li> <li>• Component No 3 has been thoroughly revised to address initial contaminated sites' assessment and other relevant steps which have not been addressed at the PIF stage.</li> <li>• Impact Monitoring and Evaluation component includes activities for analysis of lessons learned from similar GEF and non-GEF projects. The implementing agency will also facilitate sharing of lessons learned in similar projects.</li> </ul>
<b>Germany</b>	
<p>Germany approves the following PIF in the work program but asks that the following comments are taken into account:</p> <ul style="list-style-type: none"> <li>• Clarification is sought whether component 3 (off-site treatment) is to happen through export or on the islands. According to the PIF, p. 9, there is yet no disposal facility (presumably no</li> </ul>	<p>Component No. 3 has been thoroughly revised. The project will select the most cost-effective contaminated site treatment method for the particular scenario. Project intention is discussed in Part II. A. 5.</p> <p>PCB management and disposal capacity is building up in Trinidad and Tobago, though the facility has not got an official license for PCB disposal. The project aims to support these</p>

<p>treatment facility either) in the Caribbean to adequately manage and dispose of PCBs.</p>	<p>initiatives and develop a preprocessing technology which could reduce the weight of PCB wastes sent for export disposal. This is also described in Part II. A. 5. of the project document.</p>
<p>• The incremental cost reasoning should be more stringent (e.g., the low motivation of stakeholders and insufficient enforcement through government agencies are no reason to declare these incremental costs to be covered by the GEF).</p>	<p>Through the development of the detailed project document a strong and clear incremental reasoning has been developed. Please see Part II. A.4. and A.5.</p>
<p><b>USA</b></p>	
<p>The United States agrees with the STAP's recommendation that the GEF Secretariat ensure that four countries included in this regional project (Trinidad, Bahamas, St. Kitts &amp; Nevis, St. Vincent &amp; the Grenadines) will complete their National Implementation Plans prior to CEO endorsement of this proposal.</p>	<p>All participating countries except St. Vincent and the Grenadines have completed and submitted their NIPs. As it is discussed in part II. A. of the project In output 1.1 SVG will focus on updating the data collected for the first NIP with the new POPs and consequently developing a NIP which addresses all POPs. Under output 1.3 they will participate in all regional workshops and training sessions in order to build the necessary capacity to actively implement the action plans of their updated NIP. SVG will also participate as observer in the demonstration activities under component No 2. No other particular programme is planned for them in the project.</p>
<p>In addressing countries' gaps in legal, policy, and institutional infrastructure on the management of chemicals and hazardous waste, the project should ensure that its efforts include a review of labor regulations on minimum age, wage and hour and occupational safety and health. Capacity building and training should include information on workplace safety and health, reaching workers who handle hazardous substances and materials. The project should consider partnering with international organizations, such as the International Labor Organization (ILO).</p> <p>In addition, page 10 notes that key ministries will be consulted and will form a National Project Coordinating Committee. The list of ministries does not include labor ministries. In</p>	<p>The project has included an in-depth stakeholder analysis in the PPG phase. Several town meetings have been held to identify the most relevant stakeholders. Several labour ministries were present including Suriname and Belize. The PPG refers to several aspects of occupational health and safety so there will be involvement of the Labour departments and/or OSG Agencies The project document includes an annex (Annex I) which specifically identifies relevant stakeholders for each activity in each country. We believe that through the involvement of labor related ministries would efficiently address occupational safety, minimum age, wage and hour related aspects of the implementation. The demonstration projects under component No2. include labor and health ministries as one of the objectives is to facilitate employment of</p>

some cases, the labor ministries may be the ministry responsible for overseeing occupational safety and health issues and other labor issues relevant to the safe handling of POPs in the countries. The project should therefore consider partnering with and consulting ministries of labor where possible.

marginal groups such as scavengers. The project also includes a socio-economic assessment part in Part II B.2.

**ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS<sup>5</sup>**

A. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES FINANCING STATUS IN THE TABLE BELOW:

PPG Grant Approved at PIF: <b>USD 200,000</b>			
<i>Project Preparation Activities Implemented</i>	<i>GEF/LDCF/SCCF/NPIF Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent To date</i>	<i>Amount Committed</i>
Baseline scoping and assessment	70,000	69,350	650
Conduct of consultative meetings and communication with stakeholders and counterparts in participating countries			
Preliminary assessment of candidate sites for the BAT/BEP component	40,000	21,810	17,440
Conduct of the regional workshop for project document validation	50,000	42,600	18,150
Development and finalization of the project document	40,000	28,780	11,220
<b>Total</b>	200,000	162,540	37,460

During the PPG phase a Regional Consultant was retained to implement most of the activities of the PPG. The process started in April 2014. In order to inform the participating countries of the project and ensure their full participation, the Director of the BCRC-Caribbean conducted eight (8) in-country meetings with the various stakeholders. During these meetings the Director discussed the Project Components and solicited feedback. Any supporting documentation was also requested at these meetings.

Subsequent to this the Regional Consultant, reviewed all supporting documentation, including all NIPs, where available and proposed project activities based on each country's requirements. After this, the proposed components were sent to the six (6) countries that had submitted their NIPs. The countries reviewed these activities prior to town meetings that were held in each of the six (6) countries.

During the town meetings, the proposed activities were discussed and all the key stakeholders gave their inputs so that a final document was developed. This document reflected the needs and requirements of each country. The Regional Consultant also conducted site visits to landfill sites and other areas of interest. These site visits were also used to identify and build linkages to relevant projects in the field of waste management and open burning, particularly to maximise the use of international financial resources and to avoid any duplication of efforts. For two (2) of these town meetings (Belize and Suriname), the Regional Consultant was joined by the International Consultant from UNIDO. During this time, the International Consultant discussed the possible demonstration projects with the key stakeholders and was thus able to develop the project activities for these demonstration projects. Belize and Suriname were chosen as the demonstration countries as their respective NIPS indicated that they had sources of UPOPs that could be reduced

<sup>5</sup> If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities.

if BAT/BEP would be applied to waste management activities. Detailed meeting reports were completed and sent to UNIDO. These meetings were held between May – July 2014.

A final Validation Workshop was held in Trinidad and Tobago on September 25-26<sup>th</sup> 2014, whereby the project components, activities, demonstration projects and budgets were discussed with the country representatives. After this workshop, the participants committed to finalizing the co-financing letters for their respective Ministries.

**ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used)**

Provide a calendar of expected reflows to the GEF/LDCF/SCCF/NPIF Trust Fund or to your Agency (and/or revolving fund that will be set up)

N/A

## ANNEX E: PROJECT TIMELINE

YEAR	1				2				3				4				5			
Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Interventions																				
Outcome 1: Enabling mechanism for effective implementation of the Stockholm Convention on Persistent Organic Pollutants created																				
Output 1.1: National Implementation Plans (NIPs) updated																				
Activity 1.1.1: Strengthening NIP update coordinating mechanism																				
Activity 1.1.2: Establishment of basic new POPs inventories and assessment of national, legal, infrastructure and institutional capacity to manage new POPs																				
Activity 1.1.3: National priority assessment and objective setting to accelerate reduction and elimination of new POPs																				
Activity 1.1.4: –Development of action plans for implementation of the reviewed and updated NIPs																				
Activity 1.1.5: Endorsement of reviewed and updated NIPs and their submission																				
Output 1.2: Sound chemicals management mainstreamed into all national policies and plans																				
Activity 1.2.1: Undertake gap and barrier analysis of current chemicals management legislation and practices																				
Activity 1.2.2: Draft comprehensive chemicals regulatory framework																				
Activity 1.2.3: Formulation of standard operating procedures for inspectors on industrial chemicals																				
Activity 1.2.4: Undertake training workshops																				
Activity 1.2.5: Develop regional communications strategy (including source separation)																				
Activity 1.2.6: Develop gender sensitive PA/PE materials on POPs																				
Activity 1.2.7: Communicate regional strategy at eight national workshops																				
Output 1.3: Regional information system available for all countries																				

YEAR	1				2				3				4				5			
Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Interventions																				
Activity 1.3.1: Develop information capture system				■	■															
Activity 1.3.2: Develop and maintain database					■	■	■				■					■				■
Activity 1.3.3: Train stakeholders on the use of POPs database						■														
Outcome 2: UPOPs emissions reduced by improving poor waste management practices at landfills resulting in improved human health	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Output 2.1: Systems for the collection a POPs hazardous wastes resulting in better management practices implemented at a	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Activity 2.1.2: Design and implement source separation programmes for three countries							■	■	■											
Activity 2.1.3: Assess existing hazardous waste facilities									■	■										
Activity 2.1.4: Upgrade hazardous waste facilities										■	■	■	■	■	■	■	■	■	■	■
Output 2.2: BAT/BEP demonstrated in a pilot (existing) landfill facility	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Activity 2.2.1: Implement BAT/BEP demonstration Project with Belize		■	■	■	■	■	■	■	■		■	■		■	■		■	■		■
Activity 2.2.2: Implement BAT/BEP demonstration Project with Suriname		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Outcome 3: Identification and remediation of contaminated sites	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Output 3.1: Contaminated sites identified and assessed and prioritized for treatment	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Activity 3.1.1: Prioritisation and selection of candidate sites for remediation							■	■	■											
Activity 3.1.2: Develop site remediation plan for one site								■	■	■										
Activity 3.1.3: Demonstrate remediation on one contaminated site										■	■	■	■	■	■	■	■	■	■	■
Outcome 4: PCBs managed and disposed of (ANU, SLU, Suriname, Belize)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Output 4.1: ESM of PCBs implemented	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Activity 4.1.1: Assess inventories from NIPs and prioritize PCB contaminated equipment											■	■								

YEAR	1				2				3				4				5			
Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Interventions																				
Activity 4.1.2: Develop PCB phase-out plans																				
Activity 4.1.3: Package, label and consolidate PCB waste at secure locations																				
Activity 4.1.4: Dispose PCBs wastes in an ESM at a certified hazardous waste disposal facility																				
Outcome 5: Adherence to project document and attainment of project objective																				
Output 5.1: Project impact monitoring system, evaluation of the achieved results and introduction of corrections if required																				
Activity 5.2.1: Measure impact indicators (for every year)																				
Activity 5.2.2: Hold PSC meetings to review implementation progress																				
Activity 5.2.3: Prepare Project Implementation Report																				
Activity 5.2.4: Carry out independent mid-term external evaluation																				
Activity 5.2.5: Carry out independent final external evaluation																				
Activity 5.2.6: Complete Project Terminal Report																				
Output 5.2: Dissemination of project related information and results to local stakeholders																				
Activity 5.3.1: Organize Inception Workshop																				
Activity 5.3.2: Hold project management training for project management staff as the first PSC meeting																				
Activity 5.3.3: Organize Project Terminal Workshop																				

**ANNEX F: GEF GRANT DISTRIBUTION**

GEF Outputs/Inputs	Description	Year 1		Year 2		Year 3		Year 4		Year 5		Total	
		US\$	w/m	US\$	w/m	US\$	w/m	US\$	w/m	US\$	w/m	US\$	w/m
<b>Output 1.1: National Implementation Plans (NIPs) updated</b>	Consultants	50,000	4.6	30,000	2.7							80,000	7.3
	Nat. Experts	300,000	85.7	310,000	88.5							610,000	174.2
	Sundries												
	Project Staff travel	10,000		10,000								20,000	
	Equipment			50,000								50,000	
	Workshops	50,000		50,000								100,000	
	Subcontracts	50,000		50,000								100,000	
	<b>Sub-total</b>	<b>460,000</b>		<b>500,000</b>								<b>960,000</b>	<b>181.5</b>
<b>Output 1.2: Sound Chemicals management mainstreamed into all national policies and plans</b>	Consultants	50,000	4.6	50,000	4.6							100,000	9.2
	Nat. Experts	250,000	71.4	115,000	33.9							365,000	105.3
	Sundries												
	Project Staff travel	10,000		10,000								20,000	
	Equipment												
	Workshops	75,000		75,000		75,000		75,000		75,000		375,000	
	Subcontracts												
	<b>Sub-total</b>	<b>385,000</b>		<b>250,000</b>		<b>75,000</b>		<b>75,000</b>		<b>75,000</b>		<b>860,000</b>	<b>110.5</b>
<b>Output 1.3: Regional information system available for all countries</b>	Consultants												
	Nat. Experts	30,000	8.6	30,000	8.6	30,000	8.6	30,000	8.6	30,000	8.6	75,000	43
	Sundries												
	Project Staff travel												
	Equipment	15,000										15,000	
	Workshops			15,000								15,000	

GEF Outputs/Inputs	Description	Year 1		Year 2		Year 3		Year 4		Year 5		Total	
		US\$	w/m	US\$	w/m	US\$	w/m	US\$	w/m	US\$	w/m	US\$	w/m
	Subcontracts												
	<b>Sub-total</b>	<b>45,000</b>		<b>45,000</b>		<b>30,000</b>		<b>30,000</b>		<b>30,000</b>		<b>180,000</b>	<b>43</b>
<b>Output 2.1</b> Systems for the collection and disposal of POPs wastes resulting in better waste management practices implemented at a national level	Consultants					50,000	4.6	50,000	4.6			100,000	9.2
	Nat. Experts					100,000	28.6	100,000	28.6	100,000	28.6	300,000	85.7
	Sundries												
	Project Staff travel					30,000		30,000		30,000		90,000	
	Equipment												
	Workshops					30,000		30,000		30,000		90,000	
	Subcontracts					390,000		375,000				765,000	
	<b>Sub-total</b>					<b>600,000</b>		<b>585,000</b>		<b>160,000</b>		<b>1,345,000</b>	<b>129.2</b>
<b>Output 2.2:</b> Pilot Project conducted in one of the countries to demonstrate the effectiveness of BAT/BEP in landfill management  <b>See Annex K and Annex L</b>	Consultants	81,000	7.4	36,000	3.3					12,000	1.1	129,000	11.8
	Nat. Experts	73,000	20.9	82,000	23.4	48,000	13.7	21,000	6	12,000	3.4	236,000	67.4
	Sundries	2,000		1,000				2,000				5,000	
	Project Staff travel	17,000		23,000		22,000		12,000		2,000		76,000	
	Equipment	28,000		12,000						2,000		42,000	
	Workshops	21,000		29,000		6,000		6,000		14,000		76,000	
	Subcontracts	46,000		1,500,000								1,546,000	
	<b>Sub-total</b>	<b>268,000</b>		<b>1,683,000</b>		<b>76,000</b>		<b>41,000</b>		<b>42,000</b>		<b>2,110,000</b>	<b>79.2</b>
<b>Output 3.1:</b> Contaminated sites identified, assessed and prioritized for treatment	Consultants					250,000	22.7					250,000	22.7
	Nat. Experts					135,000	37.1					135,000	37.1
	Sundries												
	Project Staff travel					15,000						15,000	
	Equipment					25,000						25,000	

GEF Outputs/Inputs	Description	Year 1		Year 2		Year 3		Year 4		Year 5		Total	
		US\$	w/m	US\$	w/m	US\$	w/m	US\$	w/m	US\$	w/m	US\$	w/m
	Workshops					25,000						25,000	
	Subcontracts							650,000				650,000	
	<b>Sub-total</b>					<b>450,000</b>		<b>650,000</b>				<b>1,100,000</b>	<b>59.8</b>
<b>Output 4.1:</b> ESM of PCBs implemented	Consultants					140,000	12.7	140,000	12.7			280,000	25.4
	Nat. Experts							54,000	15.4			54,000	15.4
	Sundries												
	Project Staff travel							10,000				10,000	
	Equipment												
	Workshops												
	Subcontracts							700,000				700,000	
	<b>Sub-total</b>					<b>140,000</b>		<b>904,000</b>				<b>1,044,000</b>	<b>40.8</b>
<b>Output 5.1:</b> Project impact monitoring system, evaluation of the achieved results and introduction of corrections if required	Consultants	30,000	2.7	30,000	2.7	30,000	2.7	30,000	2.7	30,000	2.7	150,000	13.5
	Nat. Experts	25,000	7.1	25,000	7.1	25,000	7.1	25,000	7.1	25,000	7.1	125,000	35.5
	Sundries												
	Project Staff travel	5,000		5,000		5,000		5,000		10,000		30,000	
	Equipment												
	Workshops	15,000		15,000		15,000		15,000		15,000		75,000	
	Subcontracts	5,000		5,000		5,000		5,000		10,000		30,000	
	<b>Sub-total</b>	<b>80,000</b>		<b>80,000</b>		<b>80,000</b>		<b>80,000</b>		<b>90,000</b>		<b>410,000</b>	<b>49</b>
<b>Output 5.2:</b> Dissemination of project related information and results to local stakeholders	Consultants	10,000	0.9									10,000	0.9
	Nat. Experts	10,000	2.9							10,000	2.9	20,000	5.8
	Sundries												
	Project Staff travel												

GEF Outputs/Inputs	Description	Year 1		Year 2		Year 3		Year 4		Year 5		Total	
		US\$	w/m	US\$	w/m	US\$	w/m	US\$	w/m	US\$	w/m	US\$	w/m
	Equipment												
	Workshops	80,000								80,000		160,000	
	Subcontracts												
	<b>Sub-total</b>	<b>100,000</b>								<b>90,000</b>		<b>190,000</b>	<b>6.7</b>
<b>TOTAL PROJECT COSTS</b>		<b>1,238,000</b>		<b>2,628,000</b>		<b>1,566,000</b>		<b>2,430,000</b>		<b>337,000</b>		<b>8,199,000</b>	<b>669.4</b>
<b>Project Management Costs:</b>	Consultants								1		4		
	Nat. Experts	140,000	40	45,000	12.9	45,000	12.9	45,000	12.9	90,000	25.7	365,000	104.3
	Sundries	10,000		10,000		10,000		10,000		10,000		50,000	
	Project Staff travel	20,000		15,000		15,000		15,000		20,000		85,000	
	Equipment												
	Workshops	50,000		20,000		20,000		20,000		30,000		115,000	
	Subcontracts												
	<b>Sub-total</b>	<b>220,000</b>		<b>90,000</b>		<b>90,000</b>		<b>90,000</b>		<b>150,000</b>		<b>640,000</b>	<b>104.3</b>
<b>GRAND PROJECT TOTAL</b>		<b>1,458,000</b>		<b>2,718,000</b>		<b>1,656,000</b>		<b>2,520,000</b>		<b>487,000</b>		<b>8,839,000</b>	<b>773.7</b>

**ANNEX G: TABLE G1 - SUMMARY OF FUNDS DISTRIBUTION**

Interventions	Financing (USD)		
	GEF	Co-financing	Total
Outcome 1: Enabling mechanism for effective implementation of the Stockholm Convention on Persistent Organic Pollutants created	2,000,000	4,000,000	6,000,000
Output 1.1: National Implementation Plans (NIPs) updated NIPs, (ANU, BDOS, BZE, SKN, SLU, SVG, SUR, T&T)	960,000	1,920,000	2,880,000
Activity 1.1.1: Strengthening NIP update coordinating mechanism	120,000	240,000	360,000
Activity 1.1.2: Establishment of basic new POPs inventories and assessment of national, legal, infrastructure and institutional capacity to manage new POPs	640,000	1,280,000	1,920,000
Activity 1.1.3: National priority assessment and objective setting to accelerate reduction and elimination of new POPs	120,000	240,000	360,000
Activity 1.1.4: Development of action plans for implementation of the reviewed and updated NIPs	56,000	112,000	168,000
Activity 1.1.5: Endorsement of reviewed and updated NIPs and their submission	24,000	48,000	72,000
Output 1.2: Sound chemicals management mainstreamed into all national policies and plans (ANU, BDOS, BZE, SKN, SLU, SVG, SUR, T&T)	860,000	1,720,000	2,580,000
Activity 1.2.1: Undertake gap and barrier analysis of current chemicals management legislation and practices	40,000	80,000	120,000
Activity 1.2.2: Draft comprehensive chemicals regulatory framework	300,000	600,000	900,000
Activity 1.2.3: Formulation of standard operating procedures for inspectors on industrial chemicals	40,000	80,000	120,000

Interventions	Financing (USD)		
	GEF	Co-financing	Total
Activity 1.2.4: Undertake training workshops	385,000	770,000	1,155,000
Activity 1.2.5: Develop regional communications strategy (including source separation facilities)	15,000	30,000	45,000
Activity 1.2.6: Develop gender sensitive PA/PE materials on POPs	40,000	80,000	120,000
Activity 1.2.7: Communicate regional strategy at 8 national workshops	40,000	80,000	120,000
Output 1.3: Regional information system available for all countries(ANU, BDOS, BZE, SKN, SLU, SVG, SUR, T&T)	180,000	360,000	540,000
Activity 1.3.1: Develop information capture system (national and international consultants)	60,000	120,000	180,000
Activity 1.3.2: Develop and maintain database on POPs related information	60,000	120,000	180,000
Activity 1.3.3: Train stakeholders on the use of POPs database	60,000	120,000	180,000
Outcome 2: UPOPs emissions reduced by improving poor waste management practices at landfills resulting in improved human health due to reduction and eventual elimination of UPOPs	3,455,000	7,605,000	11,060,000
Output 2.1: Systems for the collection and disposal of POPs s wastes resulting in better waste management practices implemented at a national level (ANU, SKN, SLU, SVG, BDOS)	1,345,000	2,690,000	4,035,000
Activity 2.1.1: Develop and execute training programmes for five countries (ANU, BDOS, SLU, SKN, SVG)	100,000	200,000	300,000
Activity: 2.1.2: Design and implement source separation programmes for three (3) countries (ANU, SLU, BDOS)	345,000	690,000	1,035,000

Interventions	Financing (USD)		
	GEF	Co-financing	Total
Activity 2.1.3: Assess existing hazardous waste facilities (ANU, SLU, BDOS)	150,000	300,000	450,000
Activity 2.1.4: Upgrade hazardous waste facilities (ANU, SLU, BDOS)	750,000	1,500,000	2,250,000
Output 2.2: BAT/BEP demonstrated in a pilot (existing) landfill facility (BZE, SUR)	2,110,000	4,915,000	7,025,000
Activity 2.2.1: Implement BAT/BEP demonstration project with Belize	802,000	1,620,000	2,422,000
Activity 2.2.2: Implement BAT/BEP demonstration project with Suriname	1,308,000	3,295,000	4,603,000
See details in Annex K and Annex L			
Outcome 3: Identification and remediation of contaminated sites (ANU, BDOS, BZE, SKN, SLU, SVG, SUR, T&T)	1,100,000	4,280,000	5,380,000
Output 3.1: Contaminated sites identified, assessed and prioritized for treatment (ANU, BDOS, BZE, SKN, SLU, SVG, SUR, T&T)	1,100,000	4,280,000	5,380,000
Activity 3.1.1: Prioritization and selection of candidate sites for remediation – all countries	280,000	660,000	940,000
Activity 3.1.2: Develop site remediation plan for one site (Likely T&T)	170,000	440,000	610,000
Activity 3.1.3: Demonstrate remediation on one contaminated site (Likely T&T)	650,000	3,180,000	3,830,000
Outcome 4: PCBs managed and disposed of (ANU, SLU, BEL,SUR)	1,044,000	2,588,000	3,132,000
Output 4.1: ESM sound management of PCBs implemented	1,044,000	2,088,000	3,132,000

Interventions	Financing (USD)		
	GEF	Co-financing	Total
Activity 4.1.1: Assess inventories from NIPs and prioritize PCB contaminated equipment	24,000	48,000	72,000
Activity 4.1.2: Develop PCB phase-out plans	280,000	560,000	840,000
Activity 4.1.3: Package, label and consolidate PCB waste at secure locations	20,000	40,000	60,000
Activity 4.1.4: Dispose PCB wastes at a certified hazardous waste destruction facility	720,000	1,440,000	2,160,000
Outcome 5: Adherence to project document and attainment of project objective	600,000	1,400,000	1,800,000
Output 5.1: Project impact monitoring system, evaluation of the achieved results and introduction of corrections if required	410,000	940,000	1,350,000
Activity 5.1.1: Measure impact indicators	80,000	160,000	240,000
Activity 5.1.2: Hold PSC meetings to review implementation progress	150,000	350,000	500,000
Activity 5.1.3: Prepare Project Implementation Reports	100,000	250,000	350,000
Activity 5.1.4: Carry out independent mid-term external evaluation	30,000	60,000	90,000
Activity 5.1.5: Carry out independent final external evaluation	30,000	60,000	90,000
Activity 5.1.6: Complete Project Terminal Report	20,000	60,000	60,000
Output 5.2: Dissemination of project related information and results to local stakeholders	190,000	460,000	570,000
Activity 5.2.1: Organize Regional Inception Workshop	90,000	180,000	270,000
Activity 5.2.2: Hold project management training for project management staff as the first PSC meeting	10,000	40,000	30,000

Interventions	Financing (USD)		
	GEF	Co-financing	Total
Activity 5.2.3: Organize Regional Project Terminal Workshop	90,000	240,000	270,000
<b>Total</b>	<b>8,199,000</b>	<b>19,373,000</b>	<b>27,572,000</b>
Project Management Costs:	640,000	1,751,103	<b>2,391,103</b>
<b>Total Project Costs:</b>	<b>8,839,000</b>	<b>21,124,103</b>	<b>29,963,103</b>

ANNEX G: TABLE G-2 - SUMMARY OF ACTIVITIES AND FUNDING BY COUNTRY

Activity	Country																Total by Activity ('000 USD)
	Antigua and Barbuda		Barbados		Belize		St Kitts Nevis		St Lucia		St Vincent and the Grenadines		Suriname		Trinidad and Tobago		
	Funding Amount ('000 USD)		Funding Amount ('000 USD)		Funding Amount ('000 USD)		Funding Amount ('000 USD)		Funding Amount ('000 USD)		Funding Amount ('000 USD)		Funding Amount ('000 USD)		Funding Amount ('000 USD)		
	GEF	CoF	GEF	CoF	GEF	CoF	GEF	CoF									
Activity 1.1.1: Strengthening NIP update coordinating mechanism	15	30	15	30	15	30	15	30	15	30	15	30	15	30	15	30	360
Activity 1.1.2: Establishment of basic new POPs inventories and assessment of national, legal, infrastructure and institutional capacity to manage new POPs	80	160	80	160	80	160	80	160	80	160	80	160	80	160	80	160	1920
Activity 1.1.3: National priority assessment and objective setting to accelerate reduction and elimination of new POPs	15	30	15	30	15	30	15	30	15	30	15	30	15	30	15	30	360
Activity 1.1.4: Development of action plans for implementation of the reviewed and updated NIPs	7	14	7	14	7	14	7	14	7	14	7	14	7	14	7	14	168
Activity 1.1.5: Endorsement of reviewed and updated NIPs and their submission	3	6	3	6	3	6	3	6	3	6	3	6	3	6	3	6	72
Activity 1.2.1: Undertake gap and barrier analysis of current chemicals management legislation and practices	5	10	5	10	5	10	5	10	5	10	5	10	5	10	5	10	120
Activity 1.2.2: Draft comprehensive chemicals regulatory framework	37.5	75	37.5	75	37.5	75	37.5	75	37.5	75	37.5	75	37.5	75	37.5	75	900
Activity 1.2.3: Formulation of standard operating procedures for inspectors on industrial chemicals	5	10	5	10	5	10	5	10	5	10	5	10	5	10	5	10	120
Activity 1.2.4: Undertake training workshops	48.125	96.25	48.125	96.25	48.125	96.25	48.125	96.25	48.125	96.25	48.125	96.25	48.125	96.25	48.125	96.25	1155
Activity 1.2.5: Develop regional communications strategy (including source separation facilities)	1.875	3.75	1.875	3.75	1.875	3.75	1.875	3.75	1.875	3.75	1.875	3.75	1.875	3.75	1.875	3.75	45
Activity 1.2.6: Develop gender sensitive PA/PE materials on POPs	5	10	5	10	5	10	5	10	5	10	5	10	5	10	5	10	120
Activity 1.2.7: Communicate regional strategy at 8 national workshops	5	10	5	10	5	10	5	10	5	10	5	10	5	10	5	10	120
Activity 1.3.1: Develop information capture system (national and international consultants)	7.5	15	7.5	15	7.5	15	7.5	15	7.5	15	7.5	15	7.5	15	7.5	15	180

Activity	Country																Total by Activity ('000 USD)
	Antigua and Barbuda		Barbados		Belize		St Kitts Nevis		St Lucia		St Vincent and the Grenadines		Suriname		Trinidad and Tobago		
	Funding Amount ('000 USD)		Funding Amount ('000 USD)		Funding Amount ('000 USD)		Funding Amount ('000 USD)		Funding Amount ('000 USD)		Funding Amount ('000 USD)		Funding Amount ('000 USD)		Funding Amount ('000 USD)		
	GEF	CoF	GEF	CoF	GEF	CoF	GEF	CoF	GEF	CoF	GEF	CoF	GEF	CoF	GEF	CoF	
Activity 1.3.2: Develop and maintain database on POPs related information	7.5	15	7.5	15	7.5	15	7.5	15	7.5	15	7.5	15	7.5	15	7.5	15	180
Activity 1.3.3: Train stakeholders on the use of POPs database	7.5	15	7.5	15	7.5	15	7.5	15	7.5	15	7.5	15	7.5	15	7.5	15	180
<b>Total By Country – Component 1</b>	<b>250</b>	<b>500</b>	<b>250</b>	<b>500</b>	<b>250</b>	<b>500</b>	<b>250</b>	<b>500</b>	<b>250</b>	<b>500</b>	<b>250</b>	<b>500</b>	<b>250</b>	<b>500</b>	<b>250</b>	<b>500</b>	<b>6000</b>
Activity 2.1.1: Develop and execute training programmes for five countries (ANU, BDOS, SLU, SKN, SVG)	20	40	20	40	0	0	20	40	20	40	20	40	0	0	0	0	300
Activity: 2.1.2: Design and implement source separation programmes for three (3) countries –(ANU, SLU, BDOS)	115	230	115	230	0	0	0	0	115	230	0	0	0	0	0	0	1035
Activity 2.1.3: Assess existing hazardous waste facilities (ANU, SLU, BDOS)	50	100	50	100	0	0	0	0	50	100	0	0	0	0	0	0	450
Activity 2.1.4: Upgrade hazardous waste facilities (ANU, SLU, BDOS)	250	500	250	500	0	0	0	0	250	500	0	0	0	0	0	0	2250
Activity 2.2.1: Implement BAT/BEP demonstration project with Belize	0	0	0	0	802	1620	0	0	0	0	0	0	0	0	0	0	2422
Activity 2.2.2: Implement BAT/BEP demonstration project with Suriname	0	0	0	0	0	0	0	0	0	0	0	0	1308	3295	0	0	4603
<b>Total By Country – Component 2</b>	<b>435</b>	<b>870</b>	<b>435</b>	<b>870</b>	<b>802</b>	<b>1620</b>	<b>20</b>	<b>40</b>	<b>435</b>	<b>870</b>	<b>20</b>	<b>40</b>	<b>1308</b>	<b>3295</b>	<b>0</b>	<b>0</b>	<b>11060</b>
Activity 3.1.1: Prioritization and selection of candidate sites for remediation – all countries	35	70	35	70	35	70	35	70	35	70	35	70	35	70	35	70	840
Activity 3.1.2: Develop site remediation plan for one site (Likely T&T)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	170	340	510
Activity 3.1.3: Demonstrate remediation on one contaminated site (Likely T&T)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	650	2380	3030
<b>Total By Country – Component 3</b>	<b>35</b>	<b>70</b>	<b>35</b>	<b>70</b>	<b>35</b>	<b>70</b>	<b>35</b>	<b>70</b>	<b>35</b>	<b>70</b>	<b>35</b>	<b>70</b>	<b>35</b>	<b>70</b>	<b>855</b>	<b>2790</b>	<b>4380</b>
Activity 4.1.1: Assess inventories from NIPs and prioritize PCB contaminated equipment	6	12	0	0	6	12	0	0	6	12	0	0	6	12	0	0	72
Activity 4.1.2: Develop PCB phase-out plans	70	140	0	0	70	140	0	0	70	140	0	0	70	140	0	0	840
Activity 4.1.3: Package, label and consolidate PCB waste at secure locations	5	10	0	0	5	10	0	0	5	10	0	0	5	10	0	0	60

Activity	Country																Total by Activity ('000 USD)
	Antigua and Barbuda		Barbados		Belize		St Kitts Nevis		St Lucia		St Vincent and the Grenadines		Suriname		Trinidad and Tobago		
	Funding Amount ('000 USD)		Funding Amount ('000 USD)		Funding Amount ('000 USD)		Funding Amount ('000 USD)		Funding Amount ('000 USD)		Funding Amount ('000 USD)		Funding Amount ('000 USD)		Funding Amount ('000 USD)		
	GEF	CoF	GEF	CoF	GEF	CoF	GEF	CoF	GEF	CoF	GEF	CoF	GEF	CoF	GEF	CoF	
Activity 4.1.4: Dispose PCB wastes at a certified hazardous waste destruction facility	180	360	0	0	180	360	0	0	180	360	0	0	180	360	0	0	2160
<b>Total By Country – Component 4</b>	<b>261</b>	<b>522</b>	<b>0</b>	<b>0</b>	<b>261</b>	<b>522</b>	<b>0</b>	<b>0</b>	<b>261</b>	<b>522</b>	<b>0</b>	<b>0</b>	<b>261</b>	<b>522</b>	<b>0</b>	<b>0</b>	<b>3132</b>
Activity 5.1.1: Measure impact indicators	10	20	10	20	10	20	10	20	10	20	10	20	10	20	10	20	240
Activity 5.1.2: Hold PSC meetings to review implementation progress	18.75	37.5	18.75	37.5	18.75	37.5	18.75	37.5	18.75	37.5	18.75	37.5	18.75	37.5	18.75	37.5	450
Activity 5.1.3: Prepare Project Implementation Reports	12.5	25	12.5	25	12.5	25	12.5	25	12.5	25	12.5	25	12.5	25	12.5	25	300
Activity 5.1.4: Carry out independent mid-term external evaluation	3.75	7.5	3.75	7.5	3.75	7.5	3.75	7.5	3.75	7.5	3.75	7.5	3.75	7.5	3.75	7.5	90
Activity 5.1.5: Carry out independent final external evaluation	3.75	7.5	3.75	7.5	3.75	7.5	3.75	7.5	3.75	7.5	3.75	7.5	3.75	7.5	3.75	7.5	90
Activity 5.1.6: Complete Project Terminal Report	2.5	5	2.5	5	2.5	5	2.5	5	2.5	5	2.5	5	2.5	5	2.5	5	60
Activity 5.2.1: Organize Regional Inception Workshop	11.25	22.5	11.25	22.5	11.25	22.5	11.25	22.5	11.25	22.5	11.25	22.5	11.25	22.5	11.25	22.5	270
Activity 5.2.2: Hold project management training for project management staff as the first PSC meeting	1.25	2.5	1.25	2.5	1.25	2.5	1.25	2.5	1.25	2.5	1.25	2.5	1.25	2.5	1.25	2.5	30
Activity 5.2.3: Organize Regional Project Terminal Workshop	11.25	22.5	11.25	22.5	11.25	22.5	11.25	22.5	11.25	22.5	11.25	22.5	11.25	22.5	11.25	22.5	270
<b>Total By Country – Component 5</b>	<b>75</b>	<b>150</b>	<b>75</b>	<b>150</b>	<b>75</b>	<b>150</b>	<b>75</b>	<b>150</b>	<b>75</b>	<b>150</b>	<b>75</b>	<b>150</b>	<b>75</b>	<b>150</b>	<b>75</b>	<b>150</b>	<b>1800</b>
<b>Total GEF and Co-Financing By Country</b>	<b>1056</b>	<b>2112</b>	<b>795</b>	<b>1590</b>	<b>1423</b>	<b>2862</b>	<b>380</b>	<b>760</b>	<b>1056</b>	<b>2112</b>	<b>380</b>	<b>760</b>	<b>1929</b>	<b>4537</b>	<b>1180</b>	<b>3440</b>	<b>26372</b>
<b>Total Budget By Country</b>	<b>\$3,168</b>		<b>\$2,385</b>		<b>\$4,285</b>		<b>\$1,140</b>		<b>\$3,168</b>		<b>\$1,140</b>		<b>\$6,466</b>		<b>\$4,620</b>		<b>\$26,372</b>

## **ANNEX H: The Basel Convention Regional Center – Caribbean**

### ***Basel Convention Regional Centre for the Caribbean Region in Trinidad & Tobago***

The Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean (BCRC-Caribbean) is an autonomous, regional institution hosted by the Government of the Republic of Trinidad and Tobago.

It was established by the Government of the Republic of Trinidad and Tobago under a Framework Agreement signed between the Government and the Secretariat for the Basel Convention in October 2004 and given its power and authorities under Act Number 2 of 2008 of the laws of Trinidad and Tobago.

### ***Functions of the BCRC-Caribbean***

The core functions of the BCRC in Trinidad and Tobago include



In order to perform these functions, the centre performs a range of activities including training workshops, seminars, pilot projects on the management of priority waste streams and their minimisation, and the production of information material and guidelines.

These programmes and activities are developed and documented in the Business Plan of the Centre and subject to biennial review by the Conference of the Parties to the Convention; its highest decision-making body.

### ***Governance***

The development and implementation of the activities of the Centre pursuant to its regional functions is guided by the advice of its Steering Committee. The Committee, comprising of eight or more members nominated by the Parties it serves, endorses the Business Plan and oversees its execution.

The BCRC-Caribbean is administered by the Director of the Centre. The Director has overall responsibility for the activities, administration and regional role of the Centre.

### ***Partners & Stakeholders***

While BCRC-Caribbean activities are concentrated at the regional to national level, collaborations can take place between relevant groups and organisations throughout society in order to promote effective and efficient implementation of the Convention.

To achieve this, the Centre may become actively involved and form partnerships with the following:

- private sector organizations,
- non-governmental organisations,
- academic institutions, and/or
- other group(s) playing a critical role in the generation, transport and/or disposal of hazardous and other wastes.

Such partnerships are highlighted under the Convention as a voluntary and creative means through which important issues associated with the ESM of wastes and their transboundary movement can be collectively addressed.

***States consenting to be served by the Centre include:***

*Antigua & Barbuda, Bahamas, Barbados, Belize, Cuba, Dominica, Dominican Republic, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines, Suriname and Trinidad & Tobago.*

#### ***Involvement of the BCRC-Caribbean in GEF#5558***

The shortcoming of the implementation of the Stockholm Convention within the Caribbean countries was highlighted by GEF in October 2010<sup>2</sup> at their annual meeting of the Directors of the Regional Centres of the Basel and Stockholm Conventions in Geneva. The GEF indicated that there were very few funding requests received from the Caribbean, including those to address chemicals management issues. At this meeting the GEF indicated a willingness to work with the BCRC-Caribbean in order to build the capacity in the Caribbean parties to access GEF funding in order to effectively address their POPs management issues and implement the Stockholm Convention. Further discussions with UNDP, and the Secretariat for the Basel, Rotterdam and Stockholm Conventions (SBRSC) resulted in an arrangement for the BCRC-Caribbean to coordinate the preparation of regional project proposals and regional implementation of projects aimed at reducing POPs in the Region.

**ANNEX I: COUNTRY PROJECT ACTIVITIES**

**ANTIGUA AND BARBUDA (ANU)**

*Component 1: Create the enabling mechanisms in the Caribbean for effective implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs).*

<b>PROJECT SUB ACTIVITY</b>	<b>WHAT IS REQUIRED</b>	<b>BASELINE PROJECT</b>
Assist in the Update of existing NIPs, including the conduct of in-country inventories of new POPs added to the Stockholm Convention.	Update NIP Update inventories Include new POPs	ANU's NIP was initially completed in 2007 and a preliminary POPs assessment was conducted.
Develop templates to improve existing legislation and enforcement mechanisms, including border controls, national legislation, import and export regulations, and prohibitions on the production and use of POPs chemicals in order to comply with the wastes and chemicals conventions and with the control of POPs and PCB entry and exit.	-Conduct legislative review  -Include pesticides storage and stock management provisions within the draft for the Pesticides and Toxic Chemicals Act  -Review Solid Waste Management Act and any regulations re hazardous and chemicals waste  -Draft Env Protection and Mgt Act  -Review of Public Health Act  -Customs Act check for negative list. This may need to be developed to include POPs  -Review of Physical Planning Act 2003	The Pesticide and Toxic Chemicals Bill (PTCB) 2008 was revised to include POPs.
Conduct awareness building activities such as a training and education of target groups, and a regional workshop for information dissemination, and develop and implement a Public Awareness Campaign inclusive of media programmes to sensitize the general public to the need for environmentally sound management of wastes and chemicals and to communicate the NIP strategies at a	-Training for agricultural workers, pest control operators, fire services as well as hotel grounds keepers in good pesticides stock management, including safe storage, record keeping and stock taking and the use of adequate personal safety measures  -Encouragement via public awareness	Public sensitization to issues of pesticides and POPs is usually done annually through the work of the PTCCB.  There is limited laboratory capability

PROJECT SUB ACTIVITY	WHAT IS REQUIRED	BASELINE PROJECT
country level	<p>campaigns of voluntary reporting of POPs products, stockpiles and wastes</p> <ul style="list-style-type: none"> <li>- Development and implementation of educational and public awareness programs on POPs, their health and env impacts and their alternatives (consider Pesticides Week as the start up point)</li> <li>- Development and implementation of training and certification programs for technical officers, private sector and targeted community groups (those involved in disaster mgt)</li> <li>- Integration of POPs information into formal education system (through Environmental Cadets)</li> <li>- Development and delivery of a sustained public awareness on POPs and other toxic chemicals (Govt Information Services, Solid Waste Mgt Authority)</li> <li>- Capacity building of the analytical services including proper sampling and storage techniques (Analytical Services Division, CBH). Consider rapid testing kits for Customs and CBH</li> </ul>	for POPS and PCB testing through the Central Board of Health
Develop a database of POPs, UPOPs, PCBs and other hazardous wastes and chemicals for the Caribbean and create an Information Management Systems for use by the Caribbean in keeping records of the use, storage and disposal of these wastes and chemicals.	<p>Data capture and reporting needs to be standardized</p> <p>IT training</p> <p>Procure equipment eg server, GPS</p>	PTCCB has a database but this needs to be expanded and standardised

**Component 2 : Reducing UPOPs emission by improving poor waste management in landfills and dump sites.**

<b>PROJECT SUB ACTIVITY</b>	<b>WHAT IS REQUIRED</b>	<b>BASELINE PROJECT</b>
Improve the efficiency of landfill management through appropriate training to landfill operators and managers, including the development of efficient systems for the collection and disposal of hazardous wastes containing POPs and for cost recovery through disposal fees and penalties for liability issues.	-Develop and execute training program for landfill personnel on source separation and diversion  -Design systems for separate collection of e-waste (public-private partnership)	Cooks Landfill was designed as a sanitary landfill site but throughout the years has faced many challenges
Design and install hazardous waste storage facilities at the landfills to temporarily store and segregate wastes and chemical wastes containing POPS, and wastes that produce UPOPS on combustion, from entering the landfill cells	The facility this will include storage for e-waste, expired chemicals	There is a shed tin the existing landfill site hat needs to be expanded to include POPs etc. Some redesign is needed though as it is not designed for the storage of hazardous waste
Design a municipal waste source segregation management system to remove materials that produce UPOPs	-Choose a targeted area on ANU for program – English Harbour, NW area of St John’s (the Point),  - Design source separation system for the area	There is an NGO, the Antigua and Barbuda E-waste Management Centre that has been formed to divert e-waste from the waste stream. They also act as an e-waste drop off facility
Develop and implement a public awareness campaign to support the municipal waste source segregation programme		Public awareness programmes are usually done through the National Solid Waste Management Authority

**Component 4 : Protect the environment and human health by safely managing and disposing of stockpiles of PCBs**

<b>PROJECT SUB ACTIVITY</b>	<b>BASELINE PROJECT</b>
Conduct an inventory of PCB wastes and stockpiles as well as chemical characterisation tests on suspected old PCBs in storage and on PCB contaminated	There is no nationwide program in place to identify, package, store and dispose of PCB wastes.

<b>PROJECT SUB ACTIVITY</b>	<b>BASELINE PROJECT</b>
materials.	
Package and facilitate the consolidation of PCBs and PCB contaminated materials at a secure centre where they can be packaged in secure containers for future destruction or off-island disposal.	A stockpile of used PCB transformers has been identified at the local utility company
Demonstrate the ESM of PCBs via the destruction of PCBs and PCB contaminated materials at an existing ESM designated hazardous waste destruction facility in the region.	

## **BARBADOS**

Barbados will be involved in three (3) of the four (4) components

***Component 1: Create the enabling mechanisms in the Caribbean for effective implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs).***

<b>PROJECT SUB ACTIVITY</b>	<b>WHAT IS REQUIRED</b>	<b>BASELINE PROJECT</b>
Assist in the Update of existing NIPs, including the conduct of in-country inventories of new POPs added to the Stockholm Convention.	<p>Need to update NIP</p> <p>Update POPs inventories</p> <p>Conduct a socio-economic assessment</p> <p>Calculate cost of action plan</p> <p>Develop a suitable mechanism for collecting data on implementation activities</p> <p>Incorporate POPs and chemicals into EPD's reporting schemes</p>	<p>Barbados completed its NIP in 2007</p> <p>Created a national profile on chemicals management in 2009</p> <p>Surveyed POPs in 2012</p>
Develop templates to improve existing legislation and enforcement mechanisms, including border controls, national legislation, import and export regulations, and prohibitions on the production and use of POPs chemicals in order to comply with the wastes and chemicals conventions and with the control of POPs and PCB entry and exit.	<p>Develop measures to control production, import, export, storage and disposal of chemicals including POPs</p> <p>Prepare technical guidance for drafting regulations on the import and export control of chemicals including POPs, storage and management of wastes and chemicals and waste incinerators</p> <p>Incorporate BAT and BEP into national policies and programmes</p> <p>Establish an oversight committee to coordinate chemicals management activities</p> <p>Conduct training of regulatory personnel</p>	<p>Deskbook prepared for initial 12 POPs and distributed to Customs Officers</p> <p>Conducted project to develop a NIS for the GHS in Barbados</p> <p>Received Cabinet approval to establish a coordinating committee for chemicals management</p>
Conduct awareness building activities such as a training	Develop a sustainable comprehensive public awareness	Developed and disseminated

and education of target groups, and a regional workshop for information dissemination, and develop and implement a Public Awareness Campaign inclusive of media programmes to sensitize the general public to the need for environmentally sound management of wastes and chemicals and to communicate the NIP strategies at a country level	<p>programme</p> <p>Evaluate the effectiveness of the programme</p> <p>Develop a standardized reporting scheme</p> <p>Promote voluntary reporting of chemical stockpiles and emissions</p> <p>Develop technical guidelines</p> <p>Establish mechanism to solicit stakeholder feedback</p>	<p>brochures</p> <p>Logo competition for POPs</p> <p>Placed articles in newsletters and other publications</p>
Develop a database of POPs, UPOPs, PCBs and other hazardous wastes and chemicals for the Caribbean and create an Information Management Systems for use by the Caribbean in keeping records of the use, storage and disposal of these wastes and chemicals.	Develop a database to store, analyse and share data from monitoring activities	Monitoring activities for groundwater take place but there is no central database

**Component 2 : Reducing UPOPs emission by improving poor waste management in landfills and dump sites.**

<b>PROJECT SUB ACTIVITY</b>	<b>WHAT IS REQUIRED</b>	<b>BASELINE PROJECT</b>
Improve the efficiency of landfill management through appropriate training to landfill operators and managers, including the development of efficient systems for the collection and disposal of hazardous wastes containing POPs and for cost recovery through disposal fees and penalties for liability issues.	<p>-Conduct monitoring around landfill</p> <p>Revise existing SOPs</p> <p>Develop/update emergency response plans</p> <p>Raise awareness about the danger of open burning and landfill fires</p> <p>Landfill operators training</p>	<p>Ministry of Health (MoH) conducted an open burning campaign</p> <p>MoH is in the process of drafting regulations for open burning</p> <p>Environmental Protection Department (EPD) conducts routine landfill inspections</p>
Design and install hazardous waste storage facilities at the landfills to temporarily store and segregate wastes and chemical wastes containing POPs, and wastes that produce UPOPs on combustion, from entering the landfill cells	<p>Access the facility for adequacy, relevance, location and operations</p> <p>Develop a clear national policy for waste</p>	<p>Transfer station in operation for municipal waste at the Mangrove Landfill Site</p> <p>There is an existing chemical storage</p>

<b>PROJECT SUB ACTIVITY</b>	<b>WHAT IS REQUIRED</b>	<b>BASELINE PROJECT</b>
	storage and disposal	facility at the Landfill
Design a municipal waste source segregation management system to remove materials that produce UPOPs	- Design a municipal waste segregation and diversion management system for chemicals	Some waste segregation currently takes place at the Mangrove Landfill site.
Develop and implement a public awareness campaign to support the municipal waste source segregation programme		There are current campaigns that show what waste types are accepted on-site and what are segregated

*Component 3: Assess potential contaminated sites to determine the level of soil and groundwater contamination by POPs and ODS and develop appropriate remediation strategies*

<b>PROJECT SUB ACTIVITY</b>	<b>PROPOSED ACTIVITIES</b>	<b>BASELINE PROJECT</b>
Assess and identify the type of contamination existing at old dumpsites where POPs/PCBs/ODS were disposed of and prioritize these sites for remediation.	Assess sites for POPs and chemical contamination	List of landfills and dumpsites has been compiled
Delineate the extent of surface and subsurface soil and ground water contamination through the use of numerical modelling.	Map the site using GIS software Use maps to aid with physical development	EPD has started the process of mapping landfills and dumpsites

<b>PROJECT SUB ACTIVITY</b>	<b>PROPOSED ACTIVITIES</b>	<b>BASELINE PROJECT</b>
<p>Manage the excavation and removal for offsite treatment and disposal of all contaminated soil and/or groundwater from contaminated sites.</p>	<ul style="list-style-type: none"> <li>▪ Site remediation design</li> <li>▪ Cleanup plan</li> </ul>	

## **BELIZE**

**Belize was chosen for a pilot project. Details of this are included in Annex J**

***Component 1: Create the enabling mechanisms in the Caribbean for effective implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs).***

<b>PROJECT ACTIVITY</b>	<b>SUB</b>	<b>WHAT IS REQUIRED</b>	<b>DISCUSSION ON ACTIVITIES</b>	<b>STAKEHOLDERS</b>	<b>BASELINE PROJECT</b>
Assist in the Update of existing NIPs, including the conduct of in-country inventories of new POPs added to the Stockholm Convention.		-Inventory of new POPs -audit of existing inventory and update as necessary - Report to the Stockholm Convention	Consider the use of consultant working with local agencies - Training for new POPs inventory - how to do the inventory for PFOS Establish teams e.g. PCBs, POPs pesticides, dioxins, furans to update existing inventory Rapid analyser for PCBs for oil (e.g. L2000DX) (6K each) Handheld analyser for bromine-containing material (7K each) Review by ICN (PWC) committee	Customs, PC Board, Belize Electricity, ICN (PWC), BCCI, Belize Recycling Company, Banana Industry	Belize completed its NIP in 2008. Inventories on the following POPS were compiled - Aldrin, Chlordane, DDT, Dieldrin, Dioxins, Endrin, Furans, Heptachlor, Hexachlorobenzene (HCB), Mirex, Polychlorinated Biphenyls (PCBs), and Toxaphene  Programme developed with 12 farmers in the South to manage the waste plastic bags containing fertilizers  Information from the inventory, can be used to find the solutions for disposal
Develop templates to improve existing legislation and enforcement mechanisms, including border controls, national legislation, import and export regulations, and prohibitions on the production and use of POPs chemicals, in order to comply with the wastes and chemicals conventions and with the control of POPs and PCB entry and		Regulations developed for new POPs Create Industrial Chemicals Unit in DOE (job specs, training for staff, work plan for unit, infrastructure requirements, identify equipment, procure equipment) -Needs assessment of the different institutions (Customs, BAHA, Ministry of Health, DOE,	Consider all the regulations under the Integrated Chemicals Management Bill, need to examine if testing and equipment standards are covered under this Bill Develop the regulations specific to POPs Review Pesticides Control, Pharmaceuticals,	Attorney General, DOE, new IC Commission/Authority/Secretariat, Bureau of Standards	Draft Integrated Chemicals Management Bill still being developed. This calls for the development of an Industrial Chemicals Unit in the DOE. It also calls for the development of an Authority (look at regulations, NEMO, licensing, set standards) POPs do not fall under the Pesticides Control Board. The Pesticides Control Act (1984) is being reviewed There is a gap wrt some chemicals and who will be responsible  UNDP Project is addressing the overall

<p>exit.</p>	<p>PC Board)  - Information network developed for POPs focal point (Information required for reporting to SC. Agencies need to report to the POPs focal point. This would require communication amongst all the agencies).  -Training and monitoring (Industry and public sector need training in data collection, use of template for reporting)  - Training for Customs, BAHA, DOE etc for identification of POPs (need for rapid testing and analytical equipment for PCBs and POPs, sampling, )</p>	<p>DOE, Ministry of Health  Review of Customs negative list  Review PRTR to include POPs  Consultant required to update  Industry need to be trained on how to identify and quantify their POPs  IT skills are required in-house  Acquire testing equipment  Develop training for stakeholders (IC Commission/Authority )</p>	<p>Customs, Transport Department</p>	<p>legal framework for chemicals (but does not address regulations and enforcement)   There is an existing template of PRTR (Pollutant Release and Transfer Registry) that can be used to develop the database</p>
<p>Conduct awareness building activities such as a training and education of target groups, and a national workshop for information dissemination, and develop and implement a Public Awareness Campaign inclusive of media programmes to sensitize the general public to the need for environmentally sound management of wastes and chemicals and to communicate the NIP strategies at a country level</p>	<p>-Training materials for POPs pesticides, PCBs  -National Media campaign for POPs and PCBs(advertising, radio and tv jingles, flyers, brochures)  - Enhancement of DOE website</p>	<p>Integrated chemical awareness strategy (include social mobilisation)  Use consultant to pull together this strategy over 3-5 yrs  Develop the implementation plan  Through the PWC/ICN public awareness unit</p>		<p>Existing proposed activities include information dissemination on waste management and protection of natural resources</p>

<p>Develop a database of POPs, UPOPs, PCBs and other hazardous wastes and chemicals for the Caribbean and create an Information Management Systems for use by the Caribbean in keeping records of the use, storage and disposal of these wastes and chemicals.</p>	<p>Develop database onto which PRTR template would be uploaded to (Belize's PRTR may be used as the template for the Caribbean) Development of interlinked monitoring networks for POPs within national laboratories and other agencies as well as to create a platform for data management and exchange. The proposed monitoring system will be tailored to the needs identified above for reporting at national and international levels and will be tested in Belize</p>	<p>(PRTR database to be brought on-stream in 2014) Use PRTR database as the central linkage for other databases IT expertise required to create the linkages and repository IT person on contract for three years (GEF) Develop regional database for Basel Center</p>		<p>Approved pesticides database – Pesticides and Chemicals Board Pesticides Importation Database Pesticides Importers and Distributors Certified Pesticides Applicators</p> <p>For electricity sector - will get authorisation for Pesticides and Chemicals Board</p>
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**Component 4: Protect the environment and human health by safely managing and disposing of stockpiles of PCBs**

PROJECT SUB ACTIVITY	WHAT IS REQUIRED	DISCUSSION	STAKEHOLDERS	BASELINE PROJECT
<p>Conduct an inventory of PCB wastes and stockpiles as well as chemical characterisation tests on suspected old PCBs in storage and on PCB contaminated materials.</p>	<p>Conduct an inventory of PCB wastes and stockpiles as well as chemical characterisation tests on suspected old PCBs in storage and on PCB contaminated</p>	<p>Check ADM (flour mill) What about the sugar factory? Develop listing of companies that have privately owned companies that may have transformers GEF - equipment and</p>	<p>Belize Electricity will partner with Department of Energy (DOE) Ministry of Energy</p>	<p>Belize has an on-going program for the elimination of POPs containing products including transformers. Belize Electricity conduct on-site</p>

	materials.(Include review of previous reports, training for personnel)	training on the equipment, payment for external tests Trained personnel and equipment (rapid testing) Develop a phase-out plan		tests for transformers since 2009
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**SAINT LUCIA**

*Component 1: Create the enabling mechanisms in the Caribbean for effective implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs).*

<b>PROJECT SUB ACTIVITY</b>	<b>WHAT IS REQUIRED</b>	<b>BASELINE PROJECT</b>
Assist in the Update of existing NIPs, including the conduct of in-country inventories of new POPs added to the Stockholm Convention.	Update national chemicals profile  Update POPs inventory to include new POPs	Saint Lucia developed its NIP in 2006.
Develop templates to improve existing legislation and enforcement mechanisms, including border controls, national legislation, import and export regulations, and prohibitions on the production and use of POPs chemicals, in order to comply with the wastes and chemicals conventions and with the control of POPs and PCB entry and exit.	Develop a national policy on POPs and hazardous waste regulations  Review PTCCA or new instrument to better address POPs  Establish industry standards for the safe handling of chemicals and equipment containing chemicals as well as chemicals' containers	The Pesticides and Toxic Chemicals Control Act provides a comprehensive framework for pesticides and toxic chemicals but does not fully meet the requirements of the Stockholm Convention.  A Draft Environmental Management Bill exists. There are also draft Guidelines for the storage, handling and disposal of hazardous chemicals
Conduct awareness building activities such as a training and education of target groups, and a national workshop for information dissemination, and develop and implement a Public Awareness Campaign inclusive of media programmes to sensitize the general public to the need for environmentally sound management of wastes and chemicals and to communicate the NIP strategies at a country level	Training required in chemicals disaster management and HazMat management and response  Develop and disseminate materials that promote BEP for safe handling of household chemicals  Host health and safety BEP	Some information materials were developed and disseminated. These included brochures and newsletters

PROJECT SUB ACTIVITY	WHAT IS REQUIRED	BASELINE PROJECT
	<p>workshops with industry and other relevant groups</p> <p>Review/update of laboratories to determine existing and potential capabilities</p> <p>Create technical infrastructure for POPs assessment, measurement analysis within laboratories</p> <p>Develop and implement an effective PA/PE programme on chemicals management</p> <p>Conduct KAP for pesticides and chemicals</p>	
<p>Develop a database of POPs, UOPs, PCBs and other hazardous wastes and chemicals for the Caribbean and create an Information Management Systems for use by the Caribbean in keeping records of the use, storage and disposal of these wastes and chemicals.</p>	<p>Develop catalogue on existing national information on POPs pesticides and chemicals</p> <p>Develop and implement an Information Management System application for chemicals management</p> <p>National information clearing house on POPs pesticides and chemicals required</p>	

*Component 2 : Reducing UOPs emission by improving poor waste management in landfills and dump sites.*

PROJECT SUB ACTIVITY	WHAT IS REQUIRED	BASELINE PROJECT
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<b>PROJECT SUB ACTIVITY</b>	<b>WHAT IS REQUIRED</b>	<b>BASELINE PROJECT</b>
Improve the efficiency of landfill management through appropriate training to landfill operators and managers, including the development of efficient systems for the collection and disposal of hazardous wastes containing POPs and for cost recovery through disposal fees and penalties for liability issues.	Trainers and training materials to conduct training workshops for landfill managers, operators, recyclers and garbage collectors	The Deglos Landfill site was designed as a sanitary landfill site. It handles only municipal wastes
Design and install hazardous waste storage facilities at the landfills to temporarily store and segregate wastes and chemical wastes containing POPs, and wastes that produce UPOPS on combustion, from entering the landfill cells		There is a shed that needs to be expanded to include POPs etc. May need redesign
Design a municipal waste source segregation management system to remove materials that produce UPOPS	Develop an efficient system for the collection and disposal of hazardous wastes including POPs and for cost recovery through disposal fees and penalties for liability issues	Limited segregation takes place through the recycling companies. They collect recyclables such as plastic bottles, glass bottles and lead acid batteries for recycling
Develop and implement a public awareness campaign to support the municipal waste source segregation programme		Some public awareness activities take place through the St Lucia Solid Waste Management Authority

**Component 4 : Protect the environment and human health by safely managing and disposing of stockpiles of PCBs**

<b>PROJECT SUB ACTIVITY</b>	<b>WHAT IS REQUIRED</b>	<b>BASELINE PROJECT</b>
<p>Conduct an inventory of PCB wastes and stockpiles as well as chemical characterisation tests on suspected old PCBs in storage and on PCB contaminated materials.</p>	<p>Would conduct a national inventory and include all major stakeholders</p> <p>Design and implement an ODS recovery programme for ODS equipment entering landfill</p>	<p>There is no stockpile that the Sustainable Development is aware of. However, further checks need to be made with LUCELEC, the electricity provider</p>
<p>Package and facilitate the consolidation of PCBs and PCB contaminated materials at a secure centre where they can be packaged in secure containers for future destruction or off-island disposal.</p>		<p>St Lucia had previously participated in a PCB management project with the FAO</p>
<p>Demonstrate the ESM of PCBs via the destruction of PCBs and PCB contaminated materials at an existing ESM designated hazardous waste destruction facility in the region.</p>		

**SURINAME**

Suriname was chosen for a pilot project for Component 2. Details of this pilot project is in Annex K

*Component 1: Create the enabling mechanisms in the Caribbean for effective implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs).*

<b>PROJECT SUB-ACTIVITY</b>	<b>National activities (relevance/priority)</b>	<b>Baseline Project</b>	<b>Relevant Stakeholders</b>
Assist in the Update of existing NIPs, including the conduct of in-country inventories of new POPs added to the Stockholm Convention.	<ul style="list-style-type: none"> <li>▪ Update POPs inventory (POPs conducted in first inventory)</li> <li>▪ Inventory of new POPs</li> <li>▪ Complete inventory for POPs not addressed in first inventory: some PCDD/PCDF, UPOPs, PCB</li> <li>▪ Update NIP</li> </ul>	Inventory of POPs and NIP was completed in 2011	Min of Env  IUD - Min of Trade and Ind  Pesticide Division of Min Agr  National Institute for Env  NCCR
Develop templates to improve existing legislation and enforcement mechanisms, including border controls, national legislation, import and export regulations, and prohibitions on the production and use of POPs chemicals in order to comply with the wastes and chemicals conventions and with the control of POPs and PCB entry and exit.	<ul style="list-style-type: none"> <li>▪ Improve chemical and waste management legislation to comply with the ratified chemical and waste conventions:</li> <li>▪ Amend Negative List, liability and redress, data/reporting</li> <li>▪ Passage of Env Framework Act ?</li> <li>▪ Develop coordination mechanism between ministries for the implementation and enforcement of the chemical/waste management legislation (this may take too long)</li> <li>▪ Develop PSC – maybe same committee that oversaw the NIP? SAICM Committee?</li> <li>▪ Develop and approve technical guidelines for storage, transport, handling and disposal of POPs (chemicals).</li> <li>▪ Haz Waste guidelines</li> <li>▪ SAICM recommended a Chemicals Act – are toxic chemicals covered</li> </ul>	<ul style="list-style-type: none"> <li>▪ Pesticides Act updated?</li> <li>▪ Environmental Framework drafted</li> <li>▪ Stockholm Convention ratified (2011) and Basel Convention acceded (2011)</li> <li>▪ Analyses of the SC and BC</li> <li>▪ In progress gap analyses of national legislation wrt SC and BC</li> <li>▪ Guidance document for hazardous waste developed</li> <li>▪ Min of Agr has draft of pesticides sales and storage</li> </ul>	ATM  Pesticides Division  Customs  Legal drafters from ATM  Ministry of Justice  Board of Ministers  State Council  NCCR

PROJECT SUB-ACTIVITY	National activities (relevance/priority)	Baseline Project	Relevant Stakeholders
<p>Conduct awareness building activities such as a training and education of target groups, and a regional workshop for information dissemination, and develop and implement a Public Awareness Campaign inclusive of media programmes to sensitize the general public to the need for environmentally sound management of wastes and chemicals and to communicate the NIP strategies at a country level.</p>	<p>Public awareness materials (brochures, flyers, newsletters in multiple languages) for selected target groups</p> <ul style="list-style-type: none"> <li>- General Public</li> <li>- Agricultural</li> <li>- Importers</li> <li>- Energy sector and power company</li> </ul> <p>Use of radio and tv and electronic media for general public, face-to-face meetings for farmers, targeted workshops for private companies/importers</p> <ul style="list-style-type: none"> <li>▪ Inter-agency workshops, e-mails, meetings</li> <li>▪ Government section in two newspapers</li> <li>▪ Government web-site</li> <li>▪ Develop appropriate information packages based on the stakeholders. Ensure these are complimentary to existing programmes</li> </ul>		<p>ATM</p> <p>ABS</p> <p>SAMARJA and other NGOs</p> <p>Political focal point for SC</p> <p>Competent authority – NIMOS</p> <p>Min of Agr</p> <p>Min of Transport, Communications, Tourism</p> <p>Cabinet of the President (NVD)</p> <p>Min of Regional Development</p>
<p>Strengthen the capacity of institutions within countries across the region to manage hazardous wastes and chemicals with a view to controlling the storage and abandonment of use of POPs, Obsolete Pesticides and PCBs and to establish technical guidelines for the use of alternatives to POPs and PCBs.</p>	<ul style="list-style-type: none"> <li>▪ Develop (capacity development) training plan</li> <li>▪ Training of Min of Public Works – Dept of Public Services – hazards of chemicals, use, handling, storage, disposal of haz waste</li> <li>▪ NCCR needs training in the handling of chemicals</li> <li>▪ HAZMAT training for various stakeholders (fire, agr)</li> <li>▪ Capacity training of lab personnel in the sampling, reporting, testing etc for POPs</li> <li>▪ Central Lab requires equipment to measure POPs (dioxins)</li> <li>▪ Central Lab needs trained technicians</li> <li>▪ Customs can be trained in rapid</li> </ul>		<p>Public Works</p> <p>NCCR</p> <p>Fire Services</p> <p>Min of Agr</p> <p>EBS – Energy Power Company of Suriname</p> <p>ATM</p> <p>Central Lab</p> <p>Ministry of Finance -</p>

<b>PROJECT SUB-ACTIVITY</b>	<b>National activities (relevance/priority)</b>	<b>Baseline Project</b>	<b>Relevant Stakeholders</b>
	<p>assessment of POPs. Need equipment</p> <ul style="list-style-type: none"> <li>▪ Emergency response for oil spills, handling, storage, transport and disposal of PCBS and remediation of polluted sites</li> </ul>		<p>Customs</p> <p>Ministry of Public Health</p> <p>NIMOS (National Institute of Env)</p>
<p>Develop a database of POPs, UPOPs, PCBs and other hazardous wastes and chemicals for the Caribbean and create an Information Management Systems for use by the Caribbean in keeping records of the use, storage and disposal of these wastes and chemicals.</p>	<ul style="list-style-type: none"> <li>• Develop system to collect information, look at the system used by ABS. May need some further training or improved capacity for POPs</li> <li>• Develop POPs Database. Include the POPs inventory, estimate of UPOPs, PCBs</li> <li>• Training of personnel to collect and maintain records in the POPs Database</li> </ul>	<p>Form used by Pesticides Division can be the basis for the database</p>	<p>ABS (General Bureau of Statistics)</p> <p>ATM</p> <p>Pesticides Division</p> <p>NIMOS</p>

*Component 3: Assess potential contaminated sites to determine the level of soil and groundwater contamination by POPs and ODS and develop appropriate remediation strategies*

<b>PROJECT SUB ACTIVITY</b>	<b>National activities</b>	<b>BASELINE PROJECT</b>	<b>Relevant Actors</b>
<p>Assess and identify the type of contamination existing at old dump sites where POPs/PCBs/ODS were disposed of and prioritize these sites for remediation.</p>	<ul style="list-style-type: none"> <li>▪ Training in site assessments</li> <li>▪ Site assessments of potentially contaminated sites</li> <li>▪ Sampling plans developed</li> <li>▪ Required analyses per site</li> <li>▪ Establish Risk Ranking criteria to prioritise site for remediation based on assessments (remediation, containment etc)</li> </ul> <p>- (Require technical assistance (consultant))</p>	<p>Suriname has identified twenty two (22) potentially contaminated sites.</p>	<p>Central Lab</p> <p>Min of Public Health</p> <p>ATM</p> <p>Min of Public Works</p> <p>NIMOS</p> <p>Min of Agr</p>

PROJECT SUB ACTIVITY	National activities	BASELINE PROJECT	Relevant Actors
Delineate the extent of surface and subsurface soil and ground water contamination through the use of numerical modelling.	This component will include the identification and mapping of a contaminated site to be remediated.	Waste pesticides have been re-packaged and re-located to two (2) sites	
Manage the excavation and removal for offsite treatment and disposal of all contaminated soil and/or groundwater from contaminated sites.	<ul style="list-style-type: none"> <li>▪ Site remediation design</li> <li>▪ Cleanup plan</li> </ul>		

**TRINIDAD AND TOBAGO**

*Component 1: Create the enabling mechanisms in the Caribbean for effective implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs).*

PROJECT SUB ACTIVITY	WHAT IS REQUIRED	STAKEHOLDERS	BASELINE PROJECT
<p>Assist in the Update of existing NIPs, including the conduct of in-country inventories of new POPs added to the Stockholm Convention.</p>	<ul style="list-style-type: none"> <li>-Conduct training on POPs data-gathering and management</li> <li>-UTT requested a grant from the Green Fund for capacity for POPs testing (focus on the West Coast of Trinidad)</li> <li>-IMA can conduct some of these tests, may have the equipment</li> <li>-Jamaica lab UWI also has capacity</li> <li>-Update POPs inventory(Yr2)</li> <li>-Audit NIP(Yr4)</li> <li>-Report to the SC</li> </ul>	<p>Environmental Policy and Planning Division (EPPD)</p> <p>Ministry of the Environment and Water Resources (WEWR)</p> <p>MEWR, other stakeholders</p>	<p>NIP was completed in 2013 and submitted on January 2015 to the Stockholm Convention</p> <p>Trinidad has the laboratory capacity to test for the new POPs</p>

<p>Develop templates to improve existing legislation and enforcement mechanisms, including border controls, national legislation, import and export regulations, and prohibitions on the production and use of POPs chemicals, in order to comply with the wastes and chemicals conventions and with the control of POPs and PCB entry and exit.</p>	<p>-Enact enabling legislation for the Stockholm Convention by enacting a new law or amending the Pesticides and Toxic Chemicals Act (examine the schedules)  <i>-Amend the negative list to include other POPs (PFOS to be checked)</i>  <i>-Revise Customs Regulations based on amended negative lists</i>          -Revise the OSH Act to include UPOPs as agents causing occupational disease          -Institute procedures to investigate chemicals to be listed or exempted under the Convention</p>	<p>EPPD of MEWR           MTII and C          Customs           OSH Agency</p>	<p>There are several pieces of legislation that cover hazardous chemicals. These include the Pesticides and Toxic Chemicals Act and the Environmental Management Act.</p> <p>The import of POPs is regulated under the negative list.</p>
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<p>Conduct awareness building activities such as a training and education of target groups, and a regional workshop for information dissemination, and develop and implement a Public Awareness Campaign inclusive of media programmes to sensitize the general public to the need for environmentally sound management of wastes and chemicals and to communicate the NIP strategies at a country level.</p>	<ul style="list-style-type: none"> <li>-Prepare a 1-page article on PCBs and publish in newsletters of Industry Associations</li> <li>-Institute a campaign to make the public aware of the NIP and the action plan to be instituted</li> <li>-Implement Awareness Programs for farmers, scrap dealers, public (open burning, alternatives etc),use of media</li> <li>-Limited Public Awareness Campaign</li> <li>-Industry forum to highlight issues on POPs and to make industries aware of the NIP</li> <li>-Education activities for schools (chemistry information of POPs, competitions for alternatives etc)</li> </ul> <p>Promote the use of BAT and BEP to reduce the release of UPOPs</p>	<p>PTCCB</p> <p>Energy Chamber</p> <p>Ministry of Education, PTCCB</p>	
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*Component 3: Assess potential contaminated sites to determine the level of soil and groundwater contamination by POPs and ODS and develop appropriate remediation strategies*

**NB. This was added after the national consultation**

PROJECT SUB ACTIVITY	National activities	BASELINE PROJECT
Assess and identify the type of contamination existing at old dumpsites where POPs/PCBs/ODS were disposed of and prioritize these sites for remediation.	<ul style="list-style-type: none"> <li>▪ Training in site assessments</li> <li>▪ Site assessments of potentially contaminated sites</li> <li>▪ Sampling plans developed</li> <li>▪ Required analyses per site</li> <li>▪ Establish Risk Ranking criteria to prioritise site for remediation based on assessments (remediation, containment etc)</li> </ul> <p style="text-align: center;">- (Require technical assistance (consultant))</p>	<p>Trinidad and Tobago has already began mapping potentially contaminated sites.</p> <p>The Guanapo Landfill site has been identified as one potential contaminated site that can be addressed</p>
Delineate the extent of surface and subsurface soil and ground water contamination through the use of numerical modelling.	This component will include the identification and mapping of a contaminated site to be remediated.	GIS is widely used for a number of applications including the mapping of sites. There is also expertise in groundwater modelling
Manage the excavation and removal for offsite treatment and disposal of all contaminated soil and/or groundwater from contaminated sites.	<ul style="list-style-type: none"> <li>▪ Site remediation design</li> <li>▪ Cleanup plan</li> </ul>	The country has a lot of experience in remediating hydrocarbon and lead contaminates sites

**Annex J: Demonstration Project for the Government of Belize**

<b>Demonstration Project Objective: At least 5.07g TEQ/a PCDD/Fs release reduction is achieved through implementing BAT/BEP in the management of medical waste in the Western Corridor of Belize</b>						
<b>Project Component</b>	<b>Grant Type</b>	<b>Expected Outcomes</b>	<b>Expected Outputs</b>	<b>Trust Fund</b>	<b>Grant Amount (\$)</b>	<b>Confirmed Cofinancing (\$)</b>
2.Reduce UPOPs emission by improving poor waste management practices at landfills		2.1.Improved health due to reduction and eventual elimination of UPOPs	2.1.1.Better waste management practices implemented  2.1.2. BAT/BEP demonstrated in a pilot (existing) landfill facility.		802,000	1,620,000

**A. SOURCES OF CONFIRMED COFINANCING FOR THE PROJECT BY SOURCE AND BY NAME (\$)**

Please include letters confirming co financing for the project with this form

<b>Sources of Co-financing</b>	<b>Name of Co-financier (source)</b>	<b>Type of Cofinancing</b>	<b>Cofinancing Amount (\$)</b>
Private Sector	Belize Waste Control Ltd.		800,000
National government	Solid Waste Management Authority		300,000
National Government	Government of Belize	In-kind	520,000
<b>Total Co-financing</b>			<b>1,620,000</b>

**B. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:**

<b>Component</b>	<b>Grant Amount (\$)</b>	<b>Cofinancing (\$)</b>	<b>Project Total (\$)</b>
International Consultants	62,000	5,000	67,000
National/Local Consultants	117,000	210,000	327,000

## **PART II: PROJECT JUSTIFICATION**

### **A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF**

The PIF foresaw demonstration projects to reduce unintentionally produced Persistent Organic Pollutants (UPOPs) generated in open burning processes. Three demonstration projects have been planned, mostly addressing open burning of municipal wastes, closing dump sites and providing technology transfer for sound landfill management including waste separation and recycling. UPOPs release reduction was foreseen by diverting high chlorine and bromine containing wastes from being burnt. These demonstration projects have been planned in Suriname, Barbados and Belize.

Fact finding missions of the PPG phase of the project concluded that in the case of Belize a GEF financed project (project #5094, title: Belize Chemicals and Waste Management Project) has been approved to reduce UPOPs releases from open burning activities, specifically to close several municipal dump sites in the Western Corridor and divert industrial waste streams from being burnt (further referred to as the Western Corridor project). Western Corridor includes two municipalities Belize and Cayo with a population roughly half of Belize. Facilitating and formalizing waste recycling initiatives are also foreseen by the above mentioned, UNDP implemented, project, which would also reduce UPOPs releases from sugarcane farming by introducing green harvesting technology.

The government of Belize in consultation with UNIDO decided that instead of replicating the Western Corridor project in other part of Belize the demonstration activities of the UNIDO regional project should complement the UNDP national project. The best candidate for demonstrating UPOPs release reduction in the open burning sector was medical waste disposal because of the following reasons. Number one is that both the Western Corridor project and the national solid waste management plan and strategy are silent on medical waste management. This waste stream contains chlorine rich chemicals and products and are generally mismanaged in Belize. The highest UPOPs release according to the NIP of Belize is due to waste incineration particularly medical waste incineration. Medical waste incinerators are outdated, majority of this waste stream is either open burnt or burnt in substandard incinerators. Number three is that this is the sector where private sector is planning significant invests as is reflected in the baseline project. Number four is that this is the sector where with the limited financial resources of the project the highest impact on UPOPs release reduction could be achieved.

Due to the following reasons the Government of Belize decided to address open burning and incineration of medical waste in its demonstration project. Complementing the Western Corridor project with the UNIDO regional project a coherent waste management and disposal system is going to be created at the Western Corridor. The system will provide BAT/BEP solutions for all types of wastes from municipal to hazardous including medical waste. This comprehensive, integrated system is built on the Government project with the Inter-American Development Bank, the UNDP national and the UNIDO regional GEF projects. This approach will assure cost efficient use of international resources and provides a great opportunity for other

countries of the Caribbean to learn.

#### A.4 The baseline project and the problem that it seeks to address:

##### Baseline scenario:

###### a: Overview

The Inter-American Development Bank (IDB) is financing the Belize Solid Waste Management Project with the objectives *inter alia* to support the Government of Belize, the Solid Waste Management Authority (SWMA) in:

1. Designing a National Solid Waste Management Policy that is consistent with the waste management hierarchy, resource recovery and conservation and integrated sustainable solid waste management.
2. Designing a Solid Waste Management Strategy as part of (1) above in order to deploy the Policy over a twenty year time horizon.
3. Updating the National Solid Waste Management Plan.

The government of Belize has requested the assistance of UNDP on chemicals and waste management. The GEF has approved the project “Belize Chemicals and Waste Management Project” with a total budget of 2,150,000 US\$. The UNDP project aims to assist the country in implementing its relevant obligations under the Stockholm Convention, in particular to reduce the releases of Unintentional POPs emissions, as well as to build country’s capacity to manage chemicals and waste, in line with the GEF objectives. This will be accomplished through 2 principal project components. Component 1 is Regulatory Strengthening and Environmentally sound management of chemicals and waste, including POPs. Component 2 is UPOPs release reduction in waste management operations and agriculture. The project is expected to launch in June 2014.

Both projects consistently address municipal wastes and chemicals management. However, the draft Waste Generation and Composition Study prepared by the IDB project as well as the draft National Solid Waste Management Policy and Strategy and the draft Updated National Solid Waste Management Plan are silent on medical waste. The UNDP project looks at UPOPs release reduction from the open burning of municipal waste and open burning of sugarcane angle. Open burning and incineration of medical waste are not included in the project activities.

According to the national implementation plan of Belize (NIP), the second highest source of UPOPs release is incineration, which generally means medical waste incineration. During the fact finding mission for the development of the project activities open burning of medical waste was observed and confirmed, thus medical waste disposal is a significant



and important source of UPOPs release in Belize.

The demonstration project in Belize is going to address medical waste disposal at the Western Corridor. The Western Corridor includes two municipalities; Belize (~104 000 people) and Cayo (~ 80 000 people). The population in the Western Corridor is roughly 180 000 people half of the total population of Belize.

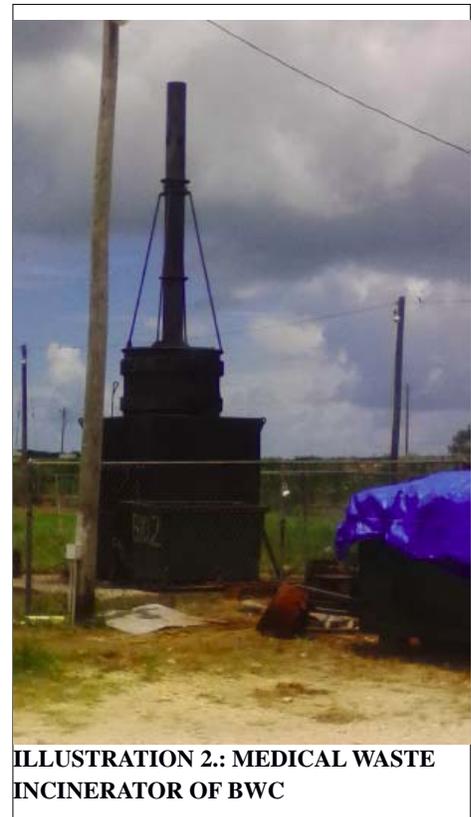
The SWMA under the Ministry of Natural Resources and Agriculture is responsible for solid waste management in Belize. The Department of Environment (DOE) is a full government entity responsible for environment. DOE is under Ministry Forestry Fisheries and Sustainable Development. SWMA is subordinate to DOE.

Belize Waste Control Ltd. (BWC) is responsible to take the municipal waste from Belize City. Because BWC has small waste collection vehicles, they take the waste to a transfer station at mile 3 of the Belize City-Belmopan highway, where it is re-loaded on larger trucks of Paca Belize, another private enterprise working in waste management. Paca Belize transfers the waste to sanitary landfill at mile 24.

Municipal waste disposal in Belize City is organized through a Public and Private Partnership. SWMA owns the Sanitary Landfill at Mile 24 (Illustration 1.). Paca Belize, a private waste management enterprise, has an agreement with SWMA that Paca Belize manages the sanitary landfill at mile 24. Paca Belize is also responsible for managing the transfer station, where BWC's trucks take the municipal waste.

BWC has contracts with two hospitals to take their medical waste as well. Karl Heushner Memorial Hospital generates approximately 8 tons (17 000 pounds) of medical wastes per month. It is the largest public hospital which serves more than just Belize City. Belize Health Care Partners the second largest hospital generates approximately 1 ton of medical waste per month. Medical waste is separately collected at the hospitals. BWC has special vehicles to transport medical waste. Their waste is incinerated in BWCs batch type incinerator at mile 3 on the Belmopan Belize City highway (Illustration 2.). The waste from other private hospitals, clinics, dentists, general practitioners (GPs) mainly end up in the municipal waste stream. According to preliminary estimates it would be approximately another 1 ton per month.

Based on the population figure of Belize City the medical waste generation of the whole Western Corridor is approximately 20 tons in a month. Out of these 20 tons, 8 tons are disposed of in a batch-type incinerator of BWC at mile 3 of the Belmopan-Belize highway; 2 tons are mixed with municipal waste and end up at the new sanitary landfill at mile 24 of the same highway. The rest



**ILLUSTRATION 2.: MEDICAL WASTE INCINERATOR OF BWC**



**ILLUSTRATION 3.: OPEN BURNING OF WASTE AT A DUMP**

approximately 10 tons of medical waste is burnt on open dump sites or at the backyard of health care facilities (Illustration 3.). The annual PCDD/PCDFs release from medical waste disposal in the Western Corridor is estimated at 5.1 g/TEQ<sup>6</sup>.

Interventions	Barriers
Outcome 2: Reduce UPOPs emission by improving poor waste management practices at landfills	The annual PCDD/PCDFs releases from inappropriate medical waste disposal in the western corridor is estimated at 5.1 gTEQ/a (fact finding mission for FSP development May 2014). The releases are due to open burning of medical wastes at backyards of hospitals, dump sites and incineration of medical wastes in batch type substandard incinerators.
Output 2.1: Better waste management practices implemented  Output 2.2: BAT/BEP demonstrated in a pilot (existing) landfill facility.	Medical waste management practices at the demonstration areas are generally substandard. Environmental contaminants such as POPs are released and deteriorating human health and environmental quality. Penalties for open burning of waste are generally low and regulatory inspections for adherence to the law is scarce.  There are seven medical waste incinerators in Belize. Out of them only one is operational. None of them meet international environmental performance standard. Solid waste management strategy and plan is silent on medical wastes consequently a country wide feasibility study for its disposal is missing. BWC lacks the necessary human resources capacity to run and maintain a state of the art disposal technology.
Output 2.3: Elimination of Open Burning in dump sites	Burning of medical waste on open dump sites or at the backyard of hospitals is a common practice. Medical waste generated at private health care institutions are regularly mixed with domestic waste which is an epidemiological and health related risk.

#### d: Baseline project

With the start of the UNDP Belize Chemicals and Waste Management Project the sanitary landfill site at mile 24 will be used for disposal of the municipal waste generated in the Western Corridor. At this location waste separation and limited recycling activities are also planned. The hazardous waste stream of the Western Corridor will also be diverted from the municipal waste stream and would be disposed of in the hazardous waste cell of the sanitary landfill. Because the draft National Solid Waste Management Policy and Strategy and the draft Updated National Solid Waste Management Plan is silent on medical waste, this waste stream would continue to be mismanaged.

With the baseline project BWC in the next couple of years would procure an incinerator and would place it on their premises, where the old incinerator is operating. The newly procured technology would not be equipped with state of the art air pollution control system. The capacity of the incinerator would be adjusted for the current load.

<sup>6</sup> For the calculation of the release the Toolkit for Identification and Quantification of Releases of Dioxins, Furans and Other Unintentional POPs, edition January 2013 was used. Source category 1/c/1 was used to calculate the release estimates of open burning of medical waste. The medical waste incinerator was classified as 1/c/2.

Because BWC would place the new incinerator on its own land, medical waste stream would take a different route as other types of waste. It would also mean that BWC would be requested to undertake an environmental impact assessment for the establishment of the facility including drilling monitoring wells, construction of a weighing station and administration building. Maintenance of the incinerator at BWC would be outsourced to the enterprise that provided the technology, BWC would continue to lack trained work force and expertise in servicing and running their technology according to BEP.

The National Solid Waste Management Policy and Strategy and the Updated National Solid Waste Management Plan would be developed and approved, but most likely medical waste disposal would not be addressed.

In the baseline project the new medical waste incinerator of BWC may not be the most appropriate option for the long term, whole country scenario as a medical waste management plan for the whole country would continue to be lacking.

ILLUSTRATION 4.: AERIAL VIEW OF THE MUNICIPAL LANDFILL AT MILE 24



Licensing and Accreditation Unit under MoH will continue the same licensing procedures for health care facilities as they use today. The licensing would have to be resubmitted annually, but the proof of environmentally sound health care waste disposal would not be required to get the license.

In the following years, the regulatory enforcement would probably continue to be the same as it is today in the medical waste disposal area. Probably more institutions would sign agreement with BWC to take their medical waste, but this would be on voluntary bases rather than due to a thorough information and awareness program. Therefore in the baseline project it is assumed that all the medical waste generated in Belize City would be treated in the newly procured incinerator (approximately 10 tons/month). The rest of the medical waste in the Western Corridor would continue to be burnt at dump sites or backyards of the hospitals. This would mean approximately 4.8 gTEQ/a PCDD/Fs release which is less than 10% improvement compared to the baseline scenario.

**A.5 Incremental /Additional cost reasoning: describe the incremental (GEF Trust Fund/NPIF) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF/NPIF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:**

#### **The GEF Project**

The GEF project would look at the medical waste generation and management in Belize to develop a medical

waste disposal plan with a feasibility study and a cost and benefit assessment for the disposal of this waste stream at the country level. These studies will ensure that the medical waste disposal technology selected for the demonstration project is in line and integrated into the whole country solution.

With GEF assistance the solution would either be state of the art incinerator or steam sterilization depending on the feasibility and cost and benefit assessment. In this case the PCDD/Fs releases from e medical waste disposal at the Western Corridor would drop to 0.03 gTEQ/a. This would mean a further 90% improvement in the releases compared to the baseline scenario.

In this scenario BWC would form a public and private partnership (PPP) with SWMA; similar to the one that is in place between Paca Belize and SWMA. This way all types of wastes from the Western Corridor would be disposed of in one facility, where land is available, monitoring wells are installed, weighing station is working and office buildings are built. SWMA would provide the land on the municipal landfill site for BWC to build the medical waste treatment site that would host the medical waste disposal technology. BWC would finance the development costs. In this case an environmental impact assessment may not be required and utilization of technical infrastructure at the sanitary landfill would be better utilized. In the GEF project the investment costs for putting in place the medical waste disposal technology would require less capital cost as national and available resources are better used.

The total area of the landfill is 350 acre. Currently the municipal landfill cell occupies 8 acres, the hazardous waste landfill cell is roughly half of the municipal cell, and thus there is enough room for the medical waste disposal facility. With this solution and integrated waste management center would be serving all types of wastes generated at the Western Corridor.

The GEF project would also seriously look at public awareness issues, which the baseline project would completely miss. Hazardous waste regulation 2009 is revised and increased penalties are inserted for open burning medical wastes. Due to dissemination workshops of the project on the disposal options available for medical waste generators of medical waste will sign agreement with the medical waste disposal facility and mismanagement of medical waste is going to decline.

By introducing high penalties for violating the regulation on open burning of medical waste and intensifying regulatory inspection in hospitals and dump sites increase compliance to the medical waste disposal plan.

Licensing and Accreditation Unit under MoH will update their licensing procedures for health care facilities. The new licensing, including the resubmitted licensing requests will require proof of environmentally sound health care waste disposal.

Medical waste disposal technology is operated and maintained by trained and experienced personnel. Employees of BWC will also be trained on the maintenance of the disposal technology, thus the operation would comply to BEP.

#### **A.6 Risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and measures that address these risks:**

<b>Risks</b>	<b>Risk Level</b>	<b>Mitigation Measures</b>
People at waste disposal facilities are excessively exposed to POPs.	L	Personal protective equipment will be provided to workers and visitors of these facilities.
Even if the licensing of health care institutions require proof for medical waste disposal, already registered institutions may continue to mix their medical waste with municipal waste.	M	Frequent regulatory inspections are planned to check if health care institutions have contracts for disposal of medical waste and that they have invoices for using such services.
Technology transfer will be successful, but the maintenance of the disposal facility may be substandard.	L	Training program is planned for operating the disposal technology according to BEP and on appropriate service and maintenance.
Employees that are trained on running and servicing the disposal technology may leave the company.	L	Study contracts will be signed with those employees that are trained on running and maintaining the transferred technology. This will assure that trained employees will not leave BWC shortly after the training.

#### **A.7 Coordination with other relevant GEF financed initiatives**

Project #5094: Belize Chemicals and Waste Management Programme was submitted by UNDP to GEF with the primary objective to strengthen national institutional, technical, and legal infrastructure and capacity for POPs phase out and sound chemicals management.

Project component No 2, UPOPs release reduction in waste management operations and agriculture aims to achieve measurable reduction in dioxin release from informal waste dumps with the following measures:

- Inventory of informal waste dumps and current open burning practices
- Waste separation procedures and recycling operations at new solid waste management facility includes consideration of minimizing UPOPs and other hazardous chemical wastes within the solid waste stream
- Clean-up of major informal waste dumps with significant risk for UPOPs releases

Activity 1.2.2. of the UNDP project will consist of i) Belize City Closure of open dump site at Mile 3/3.5 and construction of a transfer station. ii) Construction of a Regional Sanitary Landfill at Mile 24 on the Western Highway including municipal solid waste cell, hazardous waste cell, leachate ponds and lagoons, sedimentation ponds, weight bridge/wheel wash facility, administrative building, internal access road and ancillary facilities. ii) Closure of the open dump sites serving San Ignacio/Santa Elena, Caye Caulker, San Pedro Ambergris Caye, Belmopan and Boom as well as construction of transfer stations and associated infrastructure. iv) Institutional Strengthening with staff development as well as consultancies on Design Build Engineer, Social Communication Strategy, Tariff Specialist, Auditing.

Activity 1.2.2. will address waste separation procedures for planned new solid waste management facilities, the transfer station and regional landfill, include consideration of POPs and other hazardous chemical wastes

within the solid waste stream.

The planned demonstration activities of the UNIDO-GEF regional project coincided with UNDP GEF project on waste management. In order to avoid duplication of activities, the UNIDO-GEF regional project will address medical waste management which is not part of the UNDP GEF project. The UNIDO-GEF project will therefore complement the planned pilot activities in Belize, thus strengthen the demonstration value of GEF involvement.

Both projects will be implemented by the same unit in DOE thus linkages between project activities could easily be identified. If implementation work plan allows joint awareness programs could be undertaken particularly in the field of public outreach and waste disposal. The UNIDO-GEF project implementation team will liaise with the UNDP GEF implementation team so that lessons learnt in both projects are shared not only in Belize but on the regional level in the Caribbean as well.

These two projects will solve the municipal, hazardous and medical waste management in the Western Corridor of Belize particularly from the UPOPs angle and thus could be a unique opportunity for the region to learn and replicate the implemented measures.

## **B. ADDITIONAL INFORMATION NOT ADDRESSED AT PIF STAGE:**

### **B.1 Describe how the stakeholders will be engaged in project implementation**

#### **Demonstration Project Belize**

Department of Environment (DOE) will be the key executing partner for the demonstration project in Belize. DOE is under Ministry Forestry Fisheries and Sustainable Development and thus will be responsible for updating the necessary legal measures to support environmentally sound disposal of medical waste and to coordinate the activities of the demonstration activities, identify linkages with the UNDP-GEF project, hold meetings, workshops and provide logistical support for the technical teams working on the project. DOE will also lead the regulatory enforcement activities.

The Solid Waste management Authority (SWMA) under the Ministry of Natural Resources and Agriculture is responsible for solid waste management in Belize. SWMA is subordinate to DOE and owns the Sanitary Landfill at Mile 24. Their key role will be to provide the land and readily available infrastructure at the Sanitary Landfill to BWC along a public and private partnership. They will also be responsible to support the regulatory inspection at health care facilities and at the medical waste disposal facility.

Ministry of Health Licensing and Accreditation Unit (LAU) licenses health care facilities in Belize. They will be responsible to update the licensing requirements for health care institutions and participate in the regulatory inspections concerning medical waste management. They will also be key partners in information and awareness-raising activities to health care institutions.

Belize Waste Control Ltd. (BWC) is a private enterprise engaged in waste collection and disposal. They

primarily operate in Belize City. They collect medical waste from health care facilities in Belize City municipality. They will host, operate and maintain the demonstration technology for medical waste disposal. The technology will be located at the Sanitary Landfill at Mile 24, thus they negotiate and sign a public and private partnership with the SWMA to treat medical waste of the Western Corridor.

A Technical Team will be formed for executing the demonstration project. The Technical team will have members from the DOE, national and international experts. National and international experts will assist in undertaking the necessary surveys, feasibility studies, technology assessments, cost and benefit assessments for the preparation of the National Medical Waste Disposal Plan and the tender document for procurement of the medical waste disposal technology. International consultants will also be used for the training of trainers components of the demonstration activities.

**B.2 Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund/NPIF) or adaptation benefits (LDCF/SCCF):**

Concern/ baseline	Benefits of the project	Impact level	Gender dimensions
Untreated medical waste ends up mixed with municipal waste at dumps and landfills. This is a significant epidemiological risk for contiguous diseases.	Medical waste is going to be either sterilized or incinerated, thus epidemiological risks are eliminated. This has impact on global environment because birds and animals can be targets and carriers of infectious and vector born diseases found in medical waste. With the project this risk is eliminated.	Local, national and global	Men, women, children equally
Hospitals are located in the heart of cities and towns and this is where burning or incineration of medical waste takes place. Public complaints are regular if incinerators operate or medical waste is open burnt. Excessive pollution load to the environment in close vicinity of largely populated areas have negative environmental and health related impacts.	Releases of environmental pollutants from medical waste disposal in largely populated areas are eliminated. Improved air quality has positive health effects. This has positive impact on global environment as well, as air-born pollutants, such as POPs can travel large distances.	Local, national, global	In patients at hospitals and local population living close to hospitals.
The health care society is generally ignorant or uninformed concerning	Project trainings and workshops will improve the knowledge base	Local	Health care professionals, men,

Concern/ baseline	Benefits of the project	Impact level	Gender dimensions
the health related negative impacts of mismanaged medical waste.	of the health care society. Better health care system for the population		women equally
Few health care facilities have contracts for medical waste disposal.	All health care facilities at the Western Corridor will have contracts for medical waste disposal. This will require medical waste collection and disposal enterprises to increase their work force. This has positive impact on unemployment.	Local, National	Men, women, unemployed

### **B.3 Explain how cost-effectiveness is reflected in the project design:**

In the baseline project medical waste generation pattern for the country would not be known. Private sector would start investment in an uncoordinated, incoherent manner. This may lead to over or under capacity in medical waste disposal which may lead to significant losses in this business sector. With the project private sector driven investment in the medical waste disposal will be harmonized with the country medical waste disposal plan. Feasibility study will show the realistic business opportunities in this area. Private sector investments will be in line and coherent with the National Medical Waste Disposal Plan.

Less investment cost is required for BWC in the project scenario as would be required in the baseline project as they can use the facilities already available at the sanitary landfill site, such as the weigher, truck washer, office buildings, monitoring wells, etc. An environmental impact assessment may not be required as the site already has one. These benefits will be clearly presented in the public and private partnership agreement between SWMA and BWC.

In the baseline scenario the waste generated by the medical waste incinerator would need to be transported to the Sanitary Landfill at mile 24. With the project the waste generated by the medical disposal technology can be treated on site. If the feasibility study justifies steam sterilization as the preferred treatment for medical waste disposal, the generated waste stream could be considered as non hazardous waste. In this sense cost efficiency will also be reflected in the disposal price of the generated waste by the medical waste disposal facility.

### **C. DESCRIBE THE BUDGETED M & E PLAN:**

#### **Key impact indicators for the demonstration project in Belize**

<b>Key Impact Indicator</b>	<b>Baseline</b>	<b>Target (at Year 5)</b>	<b>Means of Verification</b>	<b>Frequency of verification</b>	<b>Location</b>
PCDD/Fs releases	5.1 gTEQ/a	0.03 gTEQ/a	PCDD/F estimates as per dioxin and furan toolkit of the SC.	Annual	Belize Western Corridor, DOE
Adherence to sound medical waste management	To be measured at project start	99% of the health care institutions dispose of medical waste according to BEP.	Regulatory inspection reports	Annual	Belize Western Corridor, DOE
BAT/BEP adopted in medical waste disposal	0	1	Copy of operation permit	Startup year 4 and project closure	Belize Western Corridor, DOE

## TIMELINE: DEMONSTRATION PROJECT FOR BELIZE

YEAR	1												2												3												4												5																								
Quarter	1			2			3			4			1			2			3			4			1			2			3			4																																							
Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12													
Interventions																																																																									
Outcome 2: Reduce UPOPs emission by improving poor waste management practices at landfills																																																																									
Output 2.1: Better waste management practices implemented																																																																									
Activity 2.1.1: Upgrade the licensing requirements for health care institutions																																																																									
Activity 2.1.2: Sensitize private health care institutions on appropriate medical waste management practices																																																																									
Activity 2.1.3: Undertake targeted inspections at health care institutions on waste management																																																																									
Activity 2.1.4: Introduce penalties for open burning of waste																																																																									
Activity 2.1.5: Increase regulatory inspections on dump sites and landfill sites																																																																									
Output 2.2: BAT/BEP demonstrated in a pilot (existing) landfill facility.																																																																									
Activity 2.2.1: Develop National Medical Waste Disposal Plan with feasibility study and cost																																																																									



## Annex K: Demonstration Project for the Government of Suriname

**Demonstration Project Objective: At least 8.86 gTEQ/a PCDD/Fs release reduction is achieved through implementing BAT/BEP in the management of metal rich, waste electrical and electronic equipment (WEEE) and polybrominated diphenyl ethers (PBDE) containing wastes.**

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Grant Amount (\$)	Confirmed Cofinancing (\$)
2. Reduce UPOPs emission by improving poor waste management practices at landfills.		2.1.Improved health due to reduction and eventual elimination of UPOPs	2.1.1.Better waste management practices implemented 2.1.2. BAT/BEP demonstrated in a pilot (existing) landfill facility. 2.1.3. Elimination of Open Burning in dump sites		1,308,000	3,295,000

### 1. SOURCES OF CONFIRMED COFINANCING FOR THE PROJECT BY SOURCE AND BY NAME (\$)

Please include letters confirming co financing for the project with this form

Sources of Co-financing	Name of Co-financier (source)	Type of Cofinancing	Cofinancing Amount (\$)
National Government	Ministry of Public Works		3,000,000
National Government	Ministry of Public Works		55,000
Other Multilateral Agency(ies)	The Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean	In-kind	50,000
National Government	Ministry of Labor, Technological Development and Environment	In-kind	190,000
<b>Total Co-financing</b>			<b>3,295,000</b>

### B. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

Component	Grant Amount (\$)	Cofinancing (\$)	Project Total (\$)
International Consultants	67,000		67,000
National/Local Consultants	119,000	180,000	299,000

## **PART II: PROJECT JUSTIFICATION**

### **A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF**

The PIF foresaw demonstration projects to reduce unintentionally produced Persistent Organic Pollutants (UPOPs) generated in open burning processes. Three demonstration projects have been planned mostly addressing open burning of municipal wastes, closing dump sites and providing technology transfer for sound landfill management including waste separation and recycling. UPOPs release reduction was foreseen by diverting high chlorine and bromine containing wastes from being burnt. These demonstration projects have been planned in Suriname, Barbados and Belize.

While the demonstration project in Belize looks at medical waste disposal linked to the government current approach to solving the solid waste disposal problem of the Western Corridor, in Suriname the demonstration project will look at other important waste streams in the generation of UPOPs. These waste streams are the metal rich wastes, the waste electrical and electronic equipment (WEEE) and those plastic wastes which may contain polybrominated diphenyl ethers (PBDE). The generation of these waste streams is increasing dramatically in the developing countries, where solutions for their environmentally sound disposal/recycling are scarce.

Metal rich wastes, such as electrical cables, large electrical appliances, car parts with wires and plastic covers are prevalent in dump sites, where scavengers burn the plastics to recover the metal parts. Because plastic covers and parts of these wastes may contain PVCs or polybrominated diphenyl ethers (PBDE) as softeners and flame retardants, open burning of these waste streams require particular attention in a project addressing UPOPs. Recycling of plastics is an emerging business in developing countries, particularly selling the different fractions on the international market. The way plastics are separated and prepared for recycling is generally low-cost, and largely undocumented. It has particular importance in the case of POPs, especially PBDE containing wastes, because these wastes could easily be recycled into sensitive items, such as children toys, household equipment where humans can excessively be exposed of.

Recycling of POPs is not allowed as per Article 6 paragraph 1 d iii and paragraph 1 d iv of the same article also requests parties to the SC to take appropriate measures so that POPs containing waste, including products and articles upon becoming waste, are not transported across international boundaries without taking into account relevant international rules, standards and guidelines.

In the case of Suriname separated plastic waste fractions are shipped abroad regularly for recycling, and there is a high probability that POPs containing wastes are recycled in this way.

The proposed demonstration project for Suriname will therefore address these waste streams with the aim to avoid open burning of metal rich, WEEE and potential PBDE containing wastes, and provide a pretreatment technology for dismantling, crushing, cleaning, sorting, compacting metal rich, WEEE and PBDE containing wastes streams into a) sell able fractions and b) fuel for the waste to energy facility, the

government of Suriname is currently planning. Appropriate documentation of this process is also planned.

The Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean has also recognized this problem and will, as a first step, undertake an inventory of the generated WEEE. The government of Suriname is planning a 60 million USD investment in planning a waste to energy facility at the main dump site serving district Paramaribo, district Wanica and parts of district Saramacca. This demonstration project will build on national and international initiatives, will assure cost efficient use of international resources and provides a great opportunity for other countries of the Caribbean to learn.

#### **A.4 The baseline project and the problem that it seeks to address:**

##### **a: Baseline scenario:**

The National Implementation Plan (NIP) of Suriname (published in July 2011) concluded that the majority of UPOPs releases are due to uncontrolled combustion processes; particularly open burning of waste at dump sites. The major cause of high UPOPs releases in this sector is the combustion of chlorine rich plastics especially if metals are present. These waste streams are waste electrical and electronic equipment (WEEE) and scrap metals. The NIP of Suriname particularly mentions that burning of electrical cables and electronic waste is a common practice at dump sites.

The PCDD/PCDF inventory conducted that 21.33 g TEQ PCDD/Fs are released into the environment in Suriname annually. Uncontrolled combustion processes ranked first with an emission of 20.18 g TEQ/year (94.6% of total releases). The main contributor came from uncontrolled domestic waste burning with an estimated releases of 17.39 g (81.5% of total releases), followed by agriculture residues burning (2.65 g; 12.4% of total releases), and accidental fires in houses and factories (0.14 g; 0.66%).

The current legislation does not provide clear guidance on how metal rich, WEEE and potentially PBDE containing wastes should be managed. Generators of this waste streams are either keep these wastes or dispose of them in an environmentally unsound manner. Penalties for burning of metal rich, WEEE or PBDE containing wastes are low and enforcement in this field is generally weak. Waste tracking from generation to final disposal is non-existing; however Ministry of Public Works is currently working on a waste classification system.

The generation of metal rich, WEEE and potentially PBDE containing wastes have increased in the past decade. The current waste management network is scattered and inappropriate to handle these waste streams in an environmentally sound manner. The disposal of these waste streams are unsolved from legal point of view, the government cannot provide clear guidance on the preferred ways of disposal and cannot penalize the wrong doings. The NIP identified this weakness and includes an action plan to solve this problem.

The Hindrance Act G.B. 1930 No. 64 amended by S.B. 2001 no. 63 prohibits pollution of air through rules for the establishment of enterprises in Article 1 states that it is prohibited to establish an enterprise which can cause danger, damage or hindrance without a permit from the District Commissioner. Article 39a of the Police Criminal Law G.B. 1915 No. 77 amended by S.B. 1990 No. 24 penalizes the disposal of waste on

public places and the Articles 224, 225 of the Penal Code G.B. 1911 No. 1 as amended penalizes contamination of water resources with chemicals.

While these laws touch on waste management issues and introduce some ways of penalties, the major law in this area, the Law on Sustainable Environmental Management is in a draft form as well as the regulations for the safe removal of waste (Afvalstoffen-wet) is also a draft that awaits government approval.

Operation permits need to be requested from the District Commissioner DC under the Ministry of Regional Development. Enterprises need to submit their development plans and process description to the DC for prior to construction. Neighbors are also asked to consent the activity. If the plans are approved the investment can occur. After the investment is made, the applicant has to request an operating license from the DC. The DC will invite several authorities such as National Institute of Environment and Development Suriname (NIMOS), Ministry of Labor Technology and Environment (ATM), Labor Inspections, Ministry of Public Health (BOG).

Most of the generators of metal rich, WEEE and potentially PBDE containing wastes do not have contracts for disposal of these waste streams. Their wastes either end up mixed with municipal waste and got burnt at dump sites or backyards or they just keep them on their premises. Almost all offices have a corner where waste EEE are piled up and collects dust.

There is no information on the generation pattern of waste electrical and electronic equipment and other types of metal rich plastic containing wastes, such as electrical cables, scrap cars, car upholstery items, etc. These waste streams may contain POPs, such as PBDE or upon burning may generate significant amount of POPs.

The public landfill, Ornamibo, located in district Wanica, is approximately 20 hectares with a lifetime of 20 – 25 years (Illustrations 1 and 2.). Since 2002, the public landfill has been in the state of rehabilitation, to be transformed into a controlled landfill, to include the collection and disposal of chemical waste, but even today it is rather a dump site than a landfill. Ornamibo collects mostly waste from greater Paramaribo and the district of Wanica. With respect to the other districts, the DCs assign a public landfill for their respective district; in reality, it is not regularly supervised. The following table presents the waste dumping pattern of Paramaribo The figures are in m3 (Source: Suriname’s National Implementation Plan to the Stockholm Convention

Waste type	2007	2008	2009
Household waste	151,536	142,596	145,236
Agricultural waste	8,328	6,036	5,160
Enterprise waste <sup>12</sup>	31,332	30,432	29,460
Dangerous waste materials	3,888	4,116	4,200
Asbestos & glass	228	252	132
Total	197,319	185,440	186,197

July, 2011, page 26).

According to statistics the amount of waste disposed of at Ornamibo has decreased. However, the volume of hazardous materials has increased.

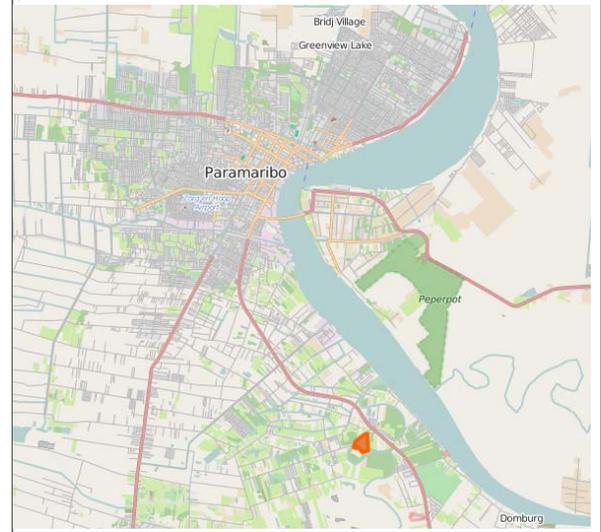
The NIP concluded that the municipal garbage landfill could be considered an open dump and it presents great risks for the soil, groundwater and neighboring surface water contamination, as well as air pollution (methane emissions and odor), all leading to serious health risks for the local people. Scavengers regularly operate on the landfill (Illustration 3.).

The baseline scenario considers that 9% of the total waste generated in the demonstration area is open burnt and 3% of the burnt waste is metal. The estimated PCDD/Fs releases from the Ornamibo landfill is 11.07 gTEQ/a.

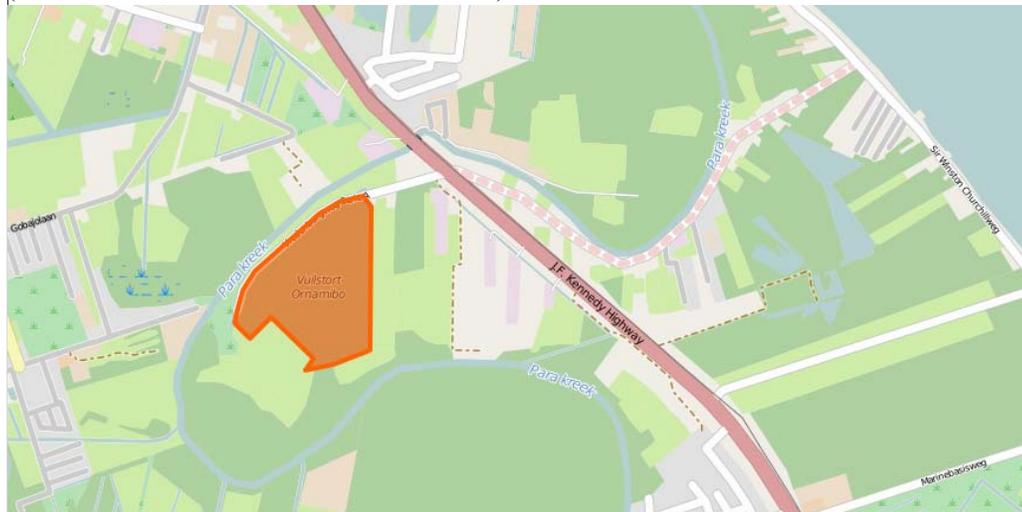
Ministry of Public Works is responsible to collect municipal waste. They also collect waste from private and public sectors. Municipal waste is transported to dump sites where many times it is burnt by scavengers who collect the valuable metal and plastic parts.

The necessary human resources capacity to run and maintain a state of the art pretreatment technology for

**ILLUSTRATION 1.: PARAMARIBO AND THE ORNAMIBO LANDFILL SITE**  
(SOURCE:HTTP://WWW.OPENSTREETMAP.ORG)



**ILLUSTRATION 2.: ORNAMIBO LANDFILL SITE**  
(SOURCE:HTTP://WWW.OPENSTREETMAP.ORG)



dismantling, crashing, cleaning, sorting, compacting metal rich, WEEE and PBDE containing wastes streams is also lacking as currently mostly scavengers do this kind of work on a paid by weight basis. Documentation of the amount and type of dumped waste is also missing.

Regulatory inspections are scarce on dump sites and landfill sites. This leads to open burning of all types of wastes including metal rich, WEEE and POPs containing wastes.

**ILLUSTRATION 3.: PICTURES AT ORNAMIBO LANDFILL (SOURCEZUILEN L. (2006) PLANNING OF AN INTEGRATED SOLID WASTE MANAGEMENT SYSTEM IN SURINAME: A CASE STUDY IN GREATER PARAMARIBO WITH FOCUS ON HOUSEHOLDS. PHD THESIS, GHENT UNIVERSITY, P 93, 95.)**



The barrier analysis of the demonstration project is as follows:

Interventions	Barriers
Outcome 2: Reduce UPOPs emission by improving poor waste management practices at landfills	It is a common practice to burn metal containing wastes, such as electrical wires and WEEE at dump sites to recover scrap metals. The annual PCDD/PCDFs releases from this practice has not yet been assessed and quantified, however it was mentioned in the NIP as an important source of UPOPs.
Output 2.1: Better waste management practices implemented	Metal rich, WEEE and potentially PBDE containing waste management practices at the demonstration area is generally substandard. Environmental contaminants such as POPs are released into the environment or the likelihood of recycling PBDE containing plastics into sensitive products, such as toys may deteriorate human health and environmental quality. Penalties for open burning of these waste streams are generally low, non-discouraging and regulatory inspections for adherence to the law is scarce.
	Open air thermal wire reclamation and open burning of WEEE is a common practice. Metal rich, WEEE and potentially PBDE containing wastes are regularly mixed with domestic waste which ends up at dump sites. There are limited low scale low cost metal and plastic recovery practices, mostly undertaken by scavengers at the dump sites. This is an immense environmental and human health risk.

Interventions	Barriers
<p>Output 2.2: BAT/BEP demonstrated in a pilot (existing) landfill facility.</p>	<p>There are several small scale recycling facilities in Suriname that collect metals, PET bottles, paper and electronic wastes. Their access to these waste streams is limited as these waste streams are generally mixed with municipal waste. These enterprises operate in certain neighborhoods, where they separately collect recyclables. They usually have waste collection programs in schools, but these efforts are unsustainable and do not address WEEE. The collected WEEE is generally low in volume and does not get separated into fractions, demanded by the market. These recycling facilities need to pay for the export of bulk WEEE. Currently this waste stream is a problem rather than a business.</p> <p>Scrap metals are generally sorted and compacted before their local recycling or export. Plastics are sorted, crushed and cleaned before their package into big bags and export. Plastic is not analyzed for PBDE content, thus the likelihood of recycling of potential POPs containing waste into sensitive products is existing.</p>

#### **d: Baseline project**

The NIP of Suriname has identified waste management a pressing problem. One of the top priorities of Suriname was UPOPs management including improvement of PCDD/PCDF inventory, improvement of waste management, implementation of Best Available Techniques and Best Environmental Practices and public awareness activities.

The NIP further included an action plan on Improvement of Waste Management (harmonization with other WM activities). In this action plan the improvement of the legislation by supporting the 3 R methodology for reduction, reuse and recycling of wastes is foreseen. The Reduction of UPOPs releases from open burning (open waste burning, landfill fires, agriculture burning, and forest fires) sources receives also close attention. The action plan also aims to establish a general waste catalog and a database for waste generation for Suriname.

This action plan has a designated activity for WEEE in establishing a management scheme for electronic and electrical waste, including a case study for the management of new POPs containing wastes with particular attention on PBDE containing waste.

The implementation of this action plan would further establish a cost sharing system for waste generators which would rely on the polluter pays principal. The total budget for this action plan is 190 000 USD.

The baseline project considers that the action plan on Improvement of Waste Management will be undertaken by the government.

Ministry of Public Works has already started the development of a waste classification system, which will be an important step towards tracking waste generation and transport.

The pressing need for WEEE management in the Caribbean has also culminated in a project of the Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean, which will assess the

magnitude of this problem by making inventories of WEEE. Suriname is also participating in this project.

The government of Suriname has decided to solve the municipal waste management problem of the most inhabited areas of the country, district Paramaribo, district Wanica and parts of district Saramacca where more than 70% of the total population roughly 400 000 people live.

The current dump site at Ornamibo 20km from Paramaribo towards the airport will be turned to a waste to energy facility. Ministry of Public Works has signed an agreement with Electricity Company of Suriname (EBS) to take the generated electrical energy. The continuous state-of-the-art incineration technology with a 200 000m<sup>3</sup>/year waste capacity is expected to generate 9MW electricity. The investment cost is roughly 60 million USD. The detailed planning has started and the construction is expected in the second half of 2015. Ministry of Public Works will establish a public enterprise to operate the facility.

A conveyor belt feeding system is planned where pickers will take out all non-burnable materials. The non-burnable and the bottom ash from the incinerator will be landfilled at the site. According to the decree on operating licenses for enterprises (S.B 1981 No 145) the operating license will require the development of an environment impact assessment (EIA) including social impact assessment for this facility.

The establishment of this facility will eliminate open burning of municipal waste at the Ornamibo dump site, but the question remains as to what happens with the dumped non-burnable wastes like metals and WEEE. The baseline project assumes that scavengers would continue to operate there and use burning to clean and recover the valuable parts. Potential PBDE containing plastic waste streams would continue to be sold on the national and international markets and eventually be recycled into consumer products.

The baseline project considers that 70% of the total waste collected in greater Paramaribo is burnt in the waste-to-energy facility, while open burning of the preselected metal-containing parts will continue to be practiced. The PCDD/Fs releases in the baseline project would drop to 8.25 gTEQ/a.

**A.5 Incremental /Additional cost reasoning: describe the incremental (GEF Trust Fund/NPIF) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF/NPIF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:**

### **The GEF Project**

The demonstration project for Suriname would address metal rich, WEEE and potentially PBDE containing waste management in district of Paramaribo, district Saramacca and district Wanica. The GEF project would put in place the necessary legal infrastructure to track the generation and transport of these types of wastes. The national waste classification system would be in place which is connected with a waste generation and tracking database. This would allow government bodies to make informed decisions in this field.

Ministerial order for licensing enterprises will be revised and special requirements will be developed for waste recycling enterprises. Increased penalties for open burning of waste especially metal rich, WEEE and

potentially PBDE containing wastes will be set by revising the necessary legislations. The National Institute for Environment and Development in Suriname (NIMOS) will maintain a database for tracking waste generation, movement, recycling and disposal operations. Consequently updated operating procedures will be developed for site inspections of waste recycling facilities.

A public awareness program is planned to inform the public and private sector that their metal rich, WEEE and potentially PBDE containing wastes can be disposed of in an environmentally sound manner. Scrap dealers will be trained on detection of PBDE containing wastes, and these types of waste will not be allowed for recycling.

In the demonstration area generators of metal rich, WEEE and potentially PBDE containing wastes will be required to have contracts with disposal/treatment facilities. Scavengers will not be allowed to be present at the Oramibo facility and to burn wastes to recover metals.

Complementary to the government intention to establish a waste-to-energy facility at Oramibo the GEF intervention would further process the out sorted non-burnable WEEE and other metal containing wastes into recyclable fractions. The plastic fraction could either be sold on national or international markets or be fed to the incinerator whichever is more cost-efficient, whilst the metal parts, circuit boards and other waste streams could be sold and would increase the financial sustainability of the waste-to energy facility. This way the amount of waste that would be landfilled could further be reduced which would increase the life expectancy of the landfill.

The GEF intervention will be used to finance the feasibility study and cost and benefit assessment for the demonstration technology. The studies are expected to rely on the WEEE inventory of the Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean, which is expected to be completed in 2015. Based on these studies the size, the design and the tender document for the procurement of the demonstration technology for dismantling, crashing, cleaning, sorting and compacting metal rich, WEEE and PBDE containing wastes would be developed.

The GEF project would further assist in evaluating the tender documents, selecting the most beneficial offer and providing assistance to the technology transfer, including obtaining the necessary operating approvals.

The GEF resources will be used to provide training for the staff that will work and operate the demonstration technology. It is crucial that well-trained and committed staff operate the technology. During the training BEP of the demonstration technology will be elaborated.

With the pretreatment technology for dismantling, crashing, cleaning, sorting, compacting and documenting metal rich, WEEE and PBDE containing wastes another important environmental objective could be efficiently addressed, because often the plastic parts of electrical and electronic goods contain POPs, which upon getting recycled to new sensitive plastics such as children toys could harm human health. By burning this kind of plastic waste stream in the waste to energy facility would eliminate this risk as well.

Targeted awareness program is planned for large generators of WEEE through the Chamber of Commerce with the primary objective to inform them on the available pretreatment options for metal rich, WEEE and

potentially PBDE containing wastes.

A public awareness program such as TV advertisement is planned to inform the public on how they can dispose of their WEEE in an environmentally sound manner. Simultaneously the Ministry of Public Works will organize a WEEE collection program therefore the piling up of waste electrical and electronic equipment at households and enterprises could be solved in the capital city of Suriname and neighborhoods.

The major output of GEF intervention will be that open burning of WEEE, metal rich and PBDE containing waste at waste dumps in the demonstration area will be completely eliminated, with this it is expected that the PCDD/Fs releases would be reduced to 2.21 gTEQ/a which is 8.86 gTEQ/a release reduction compared to the baseline scenario.

During the implementation of the project the UPOPs release estimates at the baseline scenario, baseline project and incremental project will be reassessed.

**A.6 Risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and measures that address these risks:**

Risks	Risk Level	Mitigation Measures
People at waste disposal facilities are excessively exposed to POPs	L	Personal protective equipment will be provided to workers and visitors of these facilities.
Even if generators of metal rich wastes, WEEE and potentially PBDE containing wastes will be required to have agreements with appropriate waste management enterprises they may dispose of their waste haphazardly.	M	Frequent regulatory inspections are planned to check if generators of metal rich, WEEE and potentially PBDE containing wastes have contracts for disposal of their wastes and they regularly request waste disposal services.
Technology transfer will be successful, but the maintenance of the disposal facility may be substandard.	L	Training program is planned for operating the demonstration technology according to BEP and on its appropriate service and maintenance.

Risks	Risk Level	Mitigation Measures
Ministry of Public Works may decide to operate only the waste to energy facility.	L	During the development of the project document several local enterprises engaged in the waste recycling business expressed their interest in a state of the art WEEE and scrap metal processing technology line. The project will then facilitate a public and private partnership with Ministry of Public Works and a selected private sector stakeholder to operate the demonstration technology.
<p>Employees that are trained on running and servicing the disposal technology may leave the company.</p> <p>Even if the project puts in place an appropriate technology for the disposal of metal rich, WEEE and potentially PBDE containing wastes, the public would continue to either collect these wastes or throw them into the household trash, thus the collection rate would remain low.</p>	<p>L</p> <p>L</p>	<p>Long term study contracts with appropriate guarantee will be signed with those employees that are trained on running and maintaining the transferred demonstration technology to assure that trained staff do not leave.</p> <p>With a thorough public awareness campaign people would be aware of the new disposal technology for metal rich, WEEE and potentially PBDE containing wastes and would separate them or take them to the recycling centers. Ministry of Public Works would organize bi annual collection programs for these types of wastes in the demonstration area.</p>

### A.7 Coordination with other relevant GEF financed initiatives

Project #5407: Disposal of Obsolete Pesticides including POPs, Promotion of Alternatives and Strengthening Pesticides Management in the Caribbean project was submitted by FAO to GEF with the primary objective to promote the sound management of pesticides in the Caribbean throughout their life-cycle in ways that lead to the minimization of significant adverse effects on human health and the global environment. The project also addresses PCB stocks in the Caribbean.

In Suriname the pesticides and PCB stocks have been re packaged for shipment and the government is intending to move the stocks into a temporary storage location close to port of Paramaribo. The government intends to further maintain this temporary storage for further POPs wastes, which may be identified through the detailed inventories planned in the near future. If during the implementation of the present

demonstration project any POPs stocks were identified, particularly during presorting of the waste at the demonstration facility, these POPs wastes would be transferred and stored at this temporary storage until final disposal is undertaken.

Project #5126: Mainstreaming Global Environment Commitments for Effective National Environmental Management project was submitted by UNDP with the objective to generate global environmental benefits through improved decision-support mechanisms and improved local planning and development processes in Suriname, by harmonizing existing information systems that deal with the Rio Conventions (climate change, biodiversity conservation, and land degradation) integrating internationally accepted measurement standards and methodologies. This project is in its PIF phase. During the implementation of the demonstration project possible linkages, particularly in the field of waste management will be identified.

Project #2325: Initial Assistance to Enable Suriname to Fulfill its Obligations Under the Stockholm Convention on POPs project was submitted by UNDP to identify means to support Suriname's own sustained capacity to fulfill its obligations in the context of the Stockholm Convention, including the preparation of a National Implementation Plan focused on Persistent Organic Pollutants (POPs), that will more widely cover aspects important to the safe and environmentally sound management of chemicals and wastes, as called for in Chapters 19 and 20 of Agenda 21. The project is near to completion as the NIP is ready. The demonstration project builds on the achievements of project #2325, particularly by selecting one of the action plans as the demonstration project for Suriname.

## **B. ADDITIONAL INFORMATION NOT ADDRESSED AT PIF STAGE:**

### **B.1 Describe how the stakeholders will be engaged in project implementation**

**The National Institute for Environment and Development in Suriname** (Nationaal Instituut voor Milieu & Ontwikkeling in Suriname, NIMOS) was established in 1998. Currently there is no EIA legislation in Suriname and therefore no formal (legal based) environmental permits are issued. However, NIMOS has prepared a set of guidelines based on World Bank recommendations for Environmental Impact Assessments. NIMOS uses similar categories and terminologies as the World Bank recommends. Furthermore, NIMOS allows public disclosure through their office and website for the general public. Their responsibility will be to maintain the waste related database and information, to undertake site inspections and being involved in the issuance of the operational permit for the demonstration facility.

**Ministry of Public Works** is in charge of roads, public drainage and sewerage systems and waste management. Ministry of Public Works owns the Ornamibo dump site. They will be the key executing partners for the implementation of the demonstration project in Suriname. Their key role will be to undertake the investments for the establishment of the Ornamibo Wastes Energy Facility, to coordinate the implementation activities of the demonstration project. They will also be responsible to develop the necessary legal instruments for waste classification and management as well as supporting the regulatory inspections at dump sites and recycling facilities.

**Ministry of Labor, Technological Development and Environment.** The ministry has a separate department for general environmental issues. The ministry has set up NIMOS to take over some of the monitoring and enforcing tasks. The Labor department deals with labor issues, such as working hours, safety and contracts. The responsibility of Ministry of Labor, Technological Development and Environment will be to develop the environment related legislations concerning waste tracking, developing the database system for collecting information on waste generation and transport.

**Ministry of Public Health Office of Public Health.** This department safeguards the public health on behalf of the ministry. They check water quality in Paramaribo at few points in the network and are also involved in the operating licensing procedures. They will participate in the enforcement related activities such as site inspections.

A Technical Team will be formed for executing the demonstration project. The Technical team will have members from the Ministry of Public Works, Ministry of Labor, Technological Development and Environment, NIMOS, Ministry of Public Health, national and international experts. National and international experts will assist in undertaking the necessary surveys, feasibility studies, technology assessments, cost and benefit assessments for the preparation of the technology transfer plan and the tender document for procurement of the waste pretreatment technology. International consultants will also be used for the training of trainers' components of the demonstration activities.

**B.2 Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund/NPIF) or adaptation benefits (LDCF/SCCF):**

Concern/ baseline	Benefits of the project	Impact level	Gender dimensions
Scavengers working at the dump sites are excessively exposed to infectious diseases and environmental pollutants.	With the project open burning at dump sites will be eliminated. Scavengers will not be allowed to operate on the landfill site. They may have opportunity to work at the separation lines to assist in sorting the wastes. Pay by weight self employment work will be formalized.	Local, national	Least educated, marginal population of the society
Unemployment figures in Suriname is high. Unskilled workers have limited opportunity to get employed.	With the establishment of the demonstration technology approximately 15 to 25 people will be employed in three shifts as the incinerator will be continuously working. This will provide employment opportunities for unskilled and skilled workers.	Local, national	Skilled and unskilled people living close to the demonstration facility. Both genders equally.

Concern/ baseline	Benefits of the project	Impact level	Gender dimensions
Potential PBDE containing plastics are sold on national and international markets. Recycling of these plastics into sensitive products such as toys, kitchenwares may unintentionally expose children and other humans	The demonstration project will divert all potentially PBDE containing plastics and recyclable materials to the incineration plant. Thereby PBDE contaminated, or PDBE containing wastes will be disposed of. Potential exposure to humans by recycling will be eliminated.	Global, national, local	Children, women, men equally

### B.3 Explain how cost-effectiveness is reflected in the project design:

According to European Union's action on Community Waste Strategy, different waste treatment and disposal methods were grouped into a Waste Management Hierarchy which is:

- prevention/minimization (reducing the quantity and toxicity of waste in products and materials),
- materials recovery (reusing materials and products, recycling, composting),
- incineration (incineration with/without energy recovery) and
- landfilling.

This generally accepted waste hierarchy lists activities in terms of preference starting with activities that have the least social, economic and environmental cost and ending with those which have the highest costs<sup>7</sup>.

In the baseline project, which is the waste to energy plant, the cost recovery is from the generated electricity alone. The non-burnable materials, such as metals and WEEE parts are planned to be dumped at the landfill. In this case this waste will occupy space in the landfill, potential burnable plastic parts will be landfilled thus the energy efficiency of the waste will not be fully utilized. Valuable metal parts will be landfilled.

The project scenario would further separate metal wastes into fractions that could be sold, such as iron, copper, aluminum, etc., refundable glasses would also be recovered as well as electronic wastes would be separated into fractions that could be sold on international markets.

An earlier study on the total waste generation of greater Paramaribo found that approximately 66 234

<sup>7</sup> Bartelings H., 2003. Municipal solid waste management problems: an applied general equilibrium analysis (Doctor Proefschrift, Wageningen Universiteit, Nederland), 243 p.

tons of municipal waste was generated in 2004. Approximately 2% of the household waste was found to be metal, mostly aluminum<sup>8</sup>. Therefore annually approximately 1 324 tons of aluminum could be recovered. Selling this alone on the international market would generate 2.3 million USD (1.76 USD/kg) income. Other waste streams such as circuit boards, iron, and copper would also generate additional income.

The plastic parts of the WEEE could be fed to the incinerator and would further improve the cost-efficiency of the waste to energy facility. Detailed cost and benefit assessment will be undertaken during the implementation of the demonstration project.

### **C. DESCRIBE THE BUDGETED M & E PLAN:**

#### **Key impact indicators for the demonstration project in Suriname**

<b>Key Impact Indicator</b>	<b>Baseline</b>	<b>Target (at Year 5)</b>	<b>Means of Verification</b>	<b>Frequency of verification</b>	<b>Location</b>
PCDD/Fs releases	11.07 gTEQ/a (reassessed at project start)	2,21 g TEQ/a	PCDD/F estimates as per dioxin and furan toolkit of the SC.	Annual	Suriname, NIMOS
Adherence to better waste management practices (% of complying enterprises)	To be measured at project start	75 % of the enterprises comply to improved waste management	Regulatory inspection reports	Annual	Suriname, NIMOS
No of created jobs	0	10	Employment reports	Annual	Suriname, Ministry of Public Works
Demonstration technology for pretreatment	0	1	Copy of operation permit	Startup year 4 and project	Suriname, Ministry of Public Works

<sup>8</sup> Zuilen L. (2006) Planning of an integrated solid waste management system in Suriname: a case study in Greater Paramaribo with focus on households. PhD thesis, Ghent University, 366 p.

<b>Key Impact Indicator</b>	<b>Baseline</b>	<b>Target (at Year 5)</b>	<b>Means of Verification</b>	<b>Frequency of verification</b>	<b>Location</b>
of metal rich, WEEE and potentially PBDE containing wastes				closure	
Weight of PBDE containing plastics avoided from being recycled	0	2 tons	Progress report	annual	Suriname, demonstration facility





