



## Supporting a Green Economy - Decoupling Hazardous Waste Generation from Economic Growth in Rwanda

### Part I: Project Information

**GEF ID**

10373

**Project Type**

FSP

**Type of Trust Fund**

GET

**CBIT/NGI**

CBIT

NGI

**Project Title**

Supporting a Green Economy - Decoupling Hazardous Waste Generation from Economic Growth in Rwanda

**Countries**

Rwanda

**Agency(ies)**

UNDP

**Other Executing Partner(s)**

**Executing Partner Type**

**Other Executing Partner(s)**

Rwanda Environment Management Authority (REMA)

**Executing Partner Type**

Government

**GEF Focal Area**

Chemicals and Waste

**Taxonomy**

Focal Areas, Chemicals and Waste, Persistent Organic Pollutants, Polychlorinated Biphenyls, Open Burning, Pesticides, Best Available Technology / Best Environmental Practices, Plastics, Mercury, Cement, Industrial Emissions, Influencing models, Transform policy and regulatory environments, Demonstrate innovative approaches, Strengthen institutional capacity and decision-making, Deploy innovative financial instruments, Stakeholders, Local Communities, Type of Engagement, Consultation, Partnership, Information Dissemination, Participation, Communications, Awareness Raising, Behavior change, Public Campaigns, Beneficiaries, Private Sector, Capital providers, SMEs, Large corporations, Individuals/Entrepreneurs, Civil Society, Academia, Non-Governmental Organization, Gender Equality, Gender Mainstreaming, Gender-sensitive indicators, Women groups, Sex-disaggregated indicators, Gender results areas, Capacity Development, Participation and leadership, Access to benefits and services, Knowledge Generation and Exchange, Capacity, Knowledge and Research, Learning, Innovation, Knowledge Exchange, Knowledge Generation

**Rio Markers****Climate Change Mitigation**

Climate Change Mitigation 0

**Climate Change Adaptation**

Climate Change Adaptation 0

**Duration**

60 In Months

**Agency Fee(\$)**

598,500

**Submission Date**

10/10/2019

**A. Indicative Focal/Non-Focal Area Elements**

<b>Programming Directions</b>	<b>Trust Fund</b>	<b>GEF Amount(\$)</b>	<b>Co-Fin Amount(\$)</b>
CW-1-1	GET	3,780,000	20,000,000
CW-1-2	GET	1,890,000	8,300,000
CW-2-3	GET	630,000	2,444,580
	<b>Total Project Cost (\$)</b>	<b>6,300,000</b>	<b>30,744,580</b>

## B. Indicative Project description summary

### Project Objective

The project aims to support the Government of Rwanda and its private and public sector in decoupling hazardous waste generation and harmful releases from economic growth by enhancing the introduction of the 4R approach (Reuse, Reduce, Recycle and Recovery) in priority industries and economic sectors, while at the same time enhancing private sector led national waste treatment capacity to ensure the sound management of wastes, generate income, create jobs and protect human health and the environment.

<b>Project Component</b>	<b>Financing Type</b>	<b>Project Outcomes</b>	<b>Project Outputs</b>	<b>Trust Fund</b>	<b>GEF Amount(\$)</b>	<b>Co-Fin Amount(\$)</b>
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Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
<p>Component 1: Establishment of an enabling policy/regulatory framework to create (financial) incentives for the sound management of chemicals, the introduction of safer alternatives, minimization of hazardous waste generation and its environmentally safe treatment.</p>	<p>Technical Assistance</p>	<p>1.1 Creation/ improvement of the regulatory framework, tools and (financial) incentives that allow private sector and government to improve the management of chemicals and hazardous wastes.</p>	<p>1.1.1 Approval of drafted PCB law facilitated.</p> <p>1.1.2 POPs/Hg legislative/regulatory framework strengthened to support the phase-out of mercury/POPs and products that contain them, and support the introduction of safer alternatives.</p> <p>1.1.3 Regulations/ guidelines on the handling/treatment of priority hazardous waste streams developed and disseminated.</p> <p>1.1.4 Industry incentives introduced to generate less (hazardous) waste (e.g. through introduction of resource efficient and cleaner production, best performer awards).</p> <p>1.1.5 Extended Producer Responsibility (EPR) framework developed and introduced to finance treatment of priority waste products/ streams.</p> <p>1.1.6 Capacity of the customs administration to identify hazardous waste at entrance</p>	<p>GET</p>	<p>500,000</p>	<p>2,000,000</p>

<b>Project Component</b>	<b>Financing Type</b>	<b>Project Outcomes</b>	<b>Project Outputs</b>	<b>Trust Fund</b>	<b>GEF Amount(\$)</b>	<b>Co-Fin Amount(\$)</b>
Component 2: Minimize hazardous waste generation through the introduction of safer alternatives and cleaner (production) processes in selected industries and priority sectors.	Technical Assistance	<p>2.1 Reduction in hazardous waste generation and releases from selected industries and other priority sectors achieved and safer alternatives introduced.</p> <p>2.2 Technical capacities of industries and major hazardous wastes generators strengthened to develop and implement innovative and environmental best practices.</p>	<p>2.1.1 Web-based hazardous waste inventory and database (with a focus on Chemicals Conventions) and web/phone based monitoring tool for private sector/enforcement entities established.</p> <p>2.2.1 Selected industries and priority economic sectors (e.g. agriculture, textile, paint, healthcare) supported in avoiding/reducing the generation of (hazardous) waste and releases through the introduction of cleaner production practices and safer alternatives (e.g. to POPs/Hg/chemicals of concern).</p>	GET	2,000,000	11,000,000

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
Component 3: Improve private sector and institutional capacity for the sound environmental treatment and disposal of hazardous waste streams.	Technical Assistance	<p>3.1 Increased capacity of the private sector and government entities to sustainably handle and treat:</p> <p>1) Existing stockpiles of hazardous and obsolete chemicals;</p> <p>and</p> <p>2) Various hazardous waste streams which cannot be avoided.</p> <p>3.2. Capacity and environmental performance of hazardous wastes treatment facilities improved.</p>	<p>3.1.1 Remaining PCB containing equipment phased-out/disposed of.</p> <p>3.1.2 One (1) PCB contaminated site remediated (e.g transformer maintenance site)</p> <p>3.1.3 Obsolete POPs &amp; non-POP pesticides safely disposed of.</p> <p>3.2.1 Potential for valorization of priority waste streams assessed and initiated through engagement of research institutes/universities and private sector partners.</p> <p>3.2.2 Environmental performance of existing waste treatment facilities enhanced and national treatment capacity for hazardous waste increased (volume + diversification) through the introduction of new locally suitable disposal/treatment solutions.</p> <p>3.2.3 Capacity improved of existing hazardous waste interim storage facilities (e.g. interim storage PCB facilities)</p>	GET	3,000,000	14,500,000

<b>Project Component</b>	<b>Financing Type</b>	<b>Project Outcomes</b>	<b>Project Outputs</b>	<b>Trust Fund</b>	<b>GEF Amount(\$)</b>	<b>Co-Fin Amount(\$)</b>
Component 4: Raise awareness to support behavioral change, capture and disseminate experiences, lessons-learned and environmental best practices.	Technical Assistance	<p>4.1 Improved Awareness of waste generators on how to introduce alternatives, cleaner and safer processes and better practices.</p> <p>4.2 Project results sustained and replicated.</p>	<p>4.1.1 Awareness raised of 7,500 people (4,000 female and 3,500 male) on the sound management of POPs and Hg and related wastes through tailored training and awareness raising activities.</p> <p>4.2.1 Results, lessons-learned and best practices captured in knowledge products and disseminated at national, regional and global level to support replication (incl. development and implementation of an awareness raising and knowledge management plan).</p> <p>4.2.2 M&amp;E and adaptive management applied in response to needs and Mid-Term Evaluation findings.</p>	GET	500,000	2,044,580
<b>Sub Total (\$)</b>					<b>6,000,000</b>	<b>29,544,580</b>
<b>Project Management Cost (PMC)</b>						

**Project Management Cost (PMC)**

	GET	300,000	1,200,000
	<b>Sub Total(\$)</b>	<b>300,000</b>	<b>1,200,000</b>
	<b>Total Project Cost(\$)</b>	<b>6,300,000</b>	<b>30,744,580</b>

**C. Indicative sources of Co-financing for the Project by name and by type**

<b>Sources of Co-financing</b>	<b>Name of Co-financier</b>	<b>Type of Co-financing</b>	<b>Investment Mobilized</b>	<b>Amount(\$)</b>
Private Sector	Private Investor for Nduba Landfill Management / WASAC	Equity	Investment mobilized	8,500,000
Government	WASAC / City of Kigali / sectors (waste collection fees from households and enterprises)	In-kind	Recurrent expenditures	11,750,000
Private Sector	Dépôt Pharmaceutique Kalisimbi – investment in an additional incinerator and an autoclave	Equity	Investment mobilized	1,700,000
Private Sector	Enviroserve – investment in a recycling line for acid-lead batteries	Equity	Investment mobilized	1,000,000
Private Sector	Coca-Cola/COPED – PET collection	Grant	Investment mobilized	80,000
Private Sector	Agroplast – PET recycling	Equity	Investment mobilized	120,000
Government	Cleaner Production Center / NIRDA – greening of garages, tea plantations/factories, beer companies	Grant	Investment mobilized	450,000
Private Sector	CIMERWA – disposal of PCB contaminated oils and/or waste oils	Grant	Investment mobilized	45,000
Government	REMA	In-kind	Recurrent expenditures	5,099,580

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
GEF Agency	UNDP TRAC	Grant	Investment mobilized	500,000
Private Sector	Enviroserve – recurrent expenditures in the operation of the e-waste recycling facility	In-kind	Recurrent expenditures	1,500,000
<b>Total Project Cost(\$)</b>				<b>30,744,580</b>

**Describe how any "Investment Mobilized" was identified**

It is essential to note the central role of the Implementing partner, the Rwanda Environment Management Authority (REMA), in this process of identifying investment mobilized as part of the co-financing. REMA plays a very proactive role coordinating initiatives across the country in terms of environment policy, protection, promotion of green technologies, support to investment in the country related to environment protection – and this extends to the management of hazardous and related waste addressed through this project. A specific mission was conducted for the preparation of this PIF, which allowed the consultation of stakeholders and potential organizations to provide investment, mobilized as co-financing to this project. REMA, following the mission and the expression of interest by these co-financing partners, followed up to provide the more detailed estimates of these amounts that are now indicated in the PIF document.

**D. Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds**

<b>Agency</b>	<b>Trust Fund</b>	<b>Country</b>	<b>Focal Area</b>	<b>Programming of Funds</b>	<b>Amount(\$)</b>	<b>Fee(\$)</b>	<b>Total(\$)</b>
UNDP	GET	Rwanda	Chemicals and Waste	POPs	5,040,000	478,800	5,518,800
UNDP	GET	Rwanda	Chemicals and Waste	Mercury	1,260,000	119,700	1,379,700
<b>Total GEF Resources(\$)</b>					<b>6,300,000</b>	<b>598,500</b>	<b>6,898,500</b>

**E. Project Preparation Grant (PPG)**

**PPG Amount (\$)**

160,000

**PPG Agency Fee (\$)**

15,200

<b>Agency</b>	<b>Trust Fund</b>	<b>Country</b>	<b>Focal Area</b>	<b>Programming of Funds</b>	<b>Amount(\$)</b>	<b>Fee(\$)</b>	<b>Total(\$)</b>
UNDP	GET	Rwanda	Chemicals and Waste	POPs	128,000	12,160	<b>140,160</b>
UNDP	GET	Rwanda	Chemicals and Waste	Mercury	32,000	3,040	<b>35,040</b>
<b>Total Project Costs(\$)</b>					<b>160,000</b>	<b>15,200</b>	<b>175,200</b>

## Core Indicators

Indicator 9 Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products (metric tons of toxic chemicals reduced)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
164.00	0.00	0.00	0.00

Indicator 9.1 Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)

POPs type	Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
Select Polychlorinated biphenyls (PCB)	125.00			<input type="checkbox"/>
Select Tetrabromodiphenyl ether and pentabromodiphenyl ether	35.00			<input type="checkbox"/>
Select	0.00			<input type="checkbox"/>
Select Lindane	3.00			<input type="checkbox"/>

Indicator 9.2 Quantity of mercury reduced (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
1.00			

Indicator 9.3 Hydrochlorofluorocarbons (HCFC) Reduced/Phased out (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.4 Number of countries with legislation and policy implemented to control chemicals and waste (Use this sub-indicator in addition to one of the sub-indicators 9.1, 9.2 and 9.3 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
1			

**Indicator 9.5** Number of low-chemical/non-chemical systems implemented, particularly in food production, manufacturing and cities (Use this sub-indicator in addition to one of the sub-indicators 9.1, 9.2 and 9.3 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
5			

**Indicator 9.6** Quantity of POPs/Mercury containing materials and products directly avoided

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
35,040.00			

**Indicator 10** Reduction, avoidance of emissions of POP to air from point and non-point sources (grams of toxic equivalent gTEQ)

Grams of toxic equivalent gTEQ (Expected at PIF)	Grams of toxic equivalent gTEQ (Expected at CEO Endorsement)	Grams of toxic equivalent gTEQ (Achieved at MTR)	Grams of toxic equivalent gTEQ (Achieved at TE)
24.50			

**Indicator 10.1** Number of countries with legislation and policy implemented to control emissions of POPs to air (Use this sub-indicator in addition to Core Indicator 10 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
1			

**Indicator 10.2** Number of emission control technologies/practices implemented (Use this sub-indicator in addition to Core Indicator 10 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
2			

**Indicator 11** Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
<b>Female</b>	150,000			
<b>Male</b>	150,000			
<b>Total</b>	300000	0	0	0

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

**Note for Indicator 9.1 Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)** The project will dispose of 1.28 tonnes of Lindane and 1.748 of Endosulphan (total POPs pesticides = 3.028 tonnes), and 44.7 tonnes of obsolete (non-POPs) pesticides will be disposed of. The breakdown of all obsolete pesticides can be listed and quantified as below:

kg	tonnes	Burried POPs pesticides - 2015 NIP Inventory
Lindane +Thiram (Fernasan)	45 % WP 1,280	1.28
Endosulfan	3% Dust 1,748	1.748
Pyrimiphos methyl	11,931	11.931
Thiophanate+Diazinon+Thiram	6,806	6.806
Mancozeb	1,875	1.875
Benomyl	1,900	1.9
Chlorothalonyl + copper oxychloride	3,000	3
Other formulation	283	0.283
<b>Burried POPs pesticides 2015 NIP Inventory</b>	<b>28,823 (kg)</b>	<b>28.823 (tonnes)</b>

(Burried/temporarily stored at the Nyanza-Kicukiro site former public waste site. Bulk consists of solid products, including lindane and endosulfan. 28,823 kg is contained in plastic drums fertilizers wastes) Content and quantity of the solid waste temporarily stored in Nyanza-Kicukiro site

kg	tonnes
Chlopyriphos-ethyl	155
Diazinon	200
Dimethoate	75
Fenthion	175
Glyphosate	5
Methamidophos	200
Paraquat+diquat	5
Parathion methyl	1,000
Pendimethaline	900
Propiconazole	100
Satunil	100
Other formulation	115
<b>Total</b>	<b>3,030 (kg)</b>

3.03 (tonnes) (Liquid products temporarily burried at Nyanza former public wastes site) Non-POPs (confiscated prohibited pesticides) 2015 NIP Inventory

kg	tonnes
Dimethoate 40% EC (Tafgor)	3.00
Dichlorvos 100% EC (Lava)	0.50
Dimethoate 40% EC (Agrithoate)	0.40
Glyphosate 48% EC (Willosate)	13.25
Glyphosate 48% EC (Willosate)	50.00
<b>Prohibited pesticides (subtotal)</b>	<b>67.15 (kg)</b>

0.06715 (tonnes) Non-POPs Obsolete Pesticides (Solid) 2015 NIP Inventory

kg	tonnes
Copper oxychloride	500
WP	138
Tricyclazole 75%	64
Ridomil 72 WP	5
Malathion 2% + Permethrin 0.3% Dust	473
Funguran 50 WP	5
Ridomil 72 WP	78
Ridomil 72 WP	130
Micronized sulphur 80% WP	7
<b>Solid obsolete pesticides (subtotal)</b>	<b>900 (kg)</b>

0.9 (tonnes) Non-POPs Obsolete Pesticides (Liquid) 2015 NIP Inventory

kg	tonnes
Chloropyrifos ethyl 48%EC	425
Imidachlorprid 200 SL	2
Dimethoate 40%EC	88
Pirimiphos methyl 50%EC	5
Tebuconazole 25EW	24
Cloropyrifos 48% EC	6
Tebuconazole 25% EC	118
<b>Liquid obsolete pesticides</b>	<b>668 (kg)</b>

0.668 (tonnes) Methamidophos 50% EC 2015 NIP Inventory 200 (kg) 0.2 (tonnes) (Drum hermetically closed containing the pesticide Methamidophos 50% EC at Kabuye/Riziculture/JABANA Sector) Pirimiphos methyl (Actellic) & Mancozeb (2015 NIP inventory) 14,000 (kg) 14 (tonnes) (burried at Nyamagabe) Total 47.68815 (47.7 tonnes) -- Note for Indicator 9.6: - The first line represents the POPs-containing waste. WEEE: 2,500 (min) - 7,000 (max) tonnes WEEE/yr which amounts to 12,500 (min) – 35,000 (max) tonnes of WEEE over the span of the project. - The second line represents the Mercury-containing waste. Assumption: on average 2.8 g of Hg per bed per year is released into the atmosphere. Rwanda's healthcare sector (according to the World Bank[1]) has 1.6 hospital beds per 1,000 inhabitants. With Rwanda having a population of 12,734,297[2], this comes to a total of 20,375 hospital beds, which would then result in the release of ~ 57 kg of mercury per year (0.057 tonnes/yr). Mercury is only released when a thermometer is broken, and because a thermometers contains on average 0.5 grams of mercury, that implies that per year 114,000 thermometers are broken. If we assume a mercury-containing thermometer weighs on average 0.35 kg (350 grams), the total weight of thermometers assumed to break in Rwanda on a yearly basis would be 39,900 kg, thus 40 tonnes.

## Part II. Project Justification

### 1a. Project Description

#### A.) THE GLOBAL ENVIRONMENTAL AND/OR ADAPTATION PROBLEMS, ROOT CAUSES AND BARRIERS THAT NEED TO BE ADDRESSED (SYSTEMS DESCRIPTION)

Rwanda is a landlocked country situated in central Africa, also known as “the land of a thousand hills”. Rwanda’s Volcanoes National park in the Virunga volcanic mountains with its high altitude forests, is world famous for mountain gorillas and golden monkeys. In the southwest is Nyungwe National Park, with ancient mountain rainforests providing a habitat for chimpanzees and other primates.

Rwanda is part of two water catchments, the River Nile and the Congo Basin. The River Nile catchment area (through the Akagera River, which is the most important tributary of Lake Victoria from which flows the River Nile) is shared with the country’s neighbors Burundi, Tanzania and Uganda, while Rwanda shares the Congo Basin catchment area (through the Rusizi River and Lake Kivu) with the Democratic Republic of Congo. Rwanda is an important source of water for its own inhabitants and those of the countries benefiting from the Nile and the Congo Basin.

Rwanda has one of the highest population densities in Africa (1,060/sq mi) with a young, mostly rural population. In 2019, the population is estimated at 12.79 million, an increase from 2013's estimate of 11.8 million<sup>[1]</sup>.

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[1] <http://worldpopulationreview.com/countries/rwanda-population/>

For 25 years (since the war and the 1994 genocide, which destroyed major parts of the country’s human and economic capitals) Rwanda has been developing very quickly. As such, like many other countries around the world, Rwanda is faced with the growing challenge of managing municipal, hazardous and toxic wastes as well as minimizing the environmental consequences of rapid industrialization impacting land, air and water quality and threatening the health of humans, water bodies and ecosystems.

The country has made great strides through a number of well-known waste related interventions. For example, Rwanda is renowned for its excellent policy on the banning of plastic bags. The plastic ban policy entered in force in 2008, and it has had a tremendously beneficial impact on the nature of the country, and inspired other countries worldwide

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(in particular developing countries) to replicate similar measures. Moreover, the collection of waste in large municipalities, like Kigali, is effective and is ensured by a proper collaboration between private operators and the government. Another waste related highlight is the partnership between EnviroServe, FONERWA (the Rwanda Green Fund) and the Government, which led to the construction of an e-waste recycling facility that started operations in 2018.

On the other hand however, there remain significant shortcomings that expose the country to the severe impacts of improper waste management, while rapidly growing sectors like industry, agriculture and healthcare are not implementing (with the exception of a few inspiring initiatives) cleaner production measures.

As a result these sectors lead to releases of POPs and mercury through air emissions, waste disposal, effluent discharge and soil contamination such as unintentional POPs (from the unsafe incineration or open burning of waste containing chlorinated chemicals, point sources like cement kilns), POPs and mercury (which may be contained in products such as old computer monitors, end-of-life vehicles, spent batteries, paints, obsolete chemicals, empty chemical containers, mercury containing medical devices, etc.). Releases of such chemicals, in particular releases to water sources and air, have a global impact.

The main root causes and barriers that need to be addressed to overcome the challenges mentioned are the following:

- **A growing population and economy, which without applying the 4R approach (Reuse, Reduce, Recycle and Recovery) is leading to the generation of increased emissions, releases and waste volumes of hazardous and toxic chemicals**, putting pressure on existing waste management facilities and disposal options, which are in short supply and do not conform with best practices/international standards.
- **A policy and regulatory environment that does not promote/incentivize or prescribe cleaner production, the assessment and introduction of POPs/Hg-free alternatives, or management/treatment for hazardous waste streams**, etc. in economic sectors such as industry, agriculture and healthcare, resulting in POPs and mercury releases to the environment. E.g. the implementation of a Polluter Pays Principle might be one of the incentives for industry to minimize waste generation, emissions or effluent discharge (with support provided by the NIRDA Cleaner Production Center), while the country also needs to ensure that POPs and mercury regulations (to support phase-out) are put in place in order to meet obligations under related chemicals related Conventions, and regulations on how to reduce the generation of hazardous wastes and its management/treatment/disposal are developed and put in place.
- **Limited investment opportunities to launch new businesses in waste recovery, reuse, recycling or disposal/treatment**, as interest rates are very high and the country does not have in place an Extended Producer Responsibility (EPR) framework that could provide the necessary and sustainable financing for the treatment of certain priority waste products/streams which cannot be avoided. Opportunities need to be created for the private sector to be able to make investments, benefit from seed funding (e.g. FONERWA), sustain business operations and create jobs in the recovery, reuse, recycling or disposal/treatment of (hazardous) waste.

□ **Limited understanding of the main hazardous waste flows** because waste data is not regularly collected, monitored or managed (except for a few limited baseline studies) and an **increase in the complexity of hazardous waste streams** because of urbanization and industrialization which directly affects the complexity of its management. There is a need for a detailed Hazardous Waste Inventory to obtain a better understanding for which waste streams recovery, recycling or reuse would be viable, potential for valorization of priority waste streams needs to be assessed and initiated through engagement of research institutes/universities and private sector partners, and capacity on waste separation at source needs to be built to facilitate its management.

□ **Too few adequate, compliant landfills, hazardous waste treatment facilities or interim storage facilities**, which hinders the safe storage, disposal/treatment of all waste streams and results in POPs and mercury releases to the environment. The capacity of existing hazardous waste treatment/disposal facilities requires expansion (in terms of volume and type of waste streams that can be treated) and environmental performance of existing facilities require improvements to minimize releases. Furthermore, there are a few waste streams (e.g. pure PCB containing transformers, obsolete POPs and non-POPs pesticides) that the country does not have (or will have) the capacity to treat and which need to be exported. Systems need to be put in place to allow the country to do so.

## **B) THE BASELINE SCENARIO AND ANY ASSOCIATED BASELINE PROJECTS**

National Implementation Plans, MIA and waste/chemicals inventories

In 2006 (GEF-3), the Government of the Republic of Rwanda and the Rwanda Environment Management Authority (REMA), with UNIDO support, completed the first National Implementation Plan (NIP) of the Stockholm Convention on Persistent Organic Pollutants (POPs). With UNEP support (GEF-4), Rwanda received further assistance for Capacity Strengthening and Technical Assistance for the Implementation of Stockholm Convention National Implementation Plans (NIPs), while in 2016 (GEF-5), the NIP was updated with UNIDO support.

In July 2014, REMA completed the “Short and Medium Term Hazardous, Toxic and Radioactive Waste Control Strategy and Plan in Rwanda” and in August 2014 its “National Implementation Plan for the Basel Convention on the Control of Transboundary movements of Hazardous wastes and their disposal (2014 – 2021)”. In July 2015, Rwanda completed an “Environmental Assessment and Audit of Paint Manufacturing Industries in Rwanda.” Finally, in August 2018, REMA undertook with UNEP/UNITAR support a “National Survey of Mercury and Mercury Compounds used in mining with particular attention on ASGM and in other sectors of development” (Health, ICT, Industry, Water, Construction, etc.). As such the baseline situation with respect to chemicals and waste has been fairly well established (although exact and detailed data/information is not always provided/available and assessments often “skim the surface”).

The Government of Rwanda has indicated that follow-up inventory activities would preferably focus on uploading and managing collected information in a web-based hazardous waste database and further advancing the web-based database system with the design and launch of a monitoring tool that would be used by 1) Private sector to report on waste

generation and releases; b) Enforcement entities to better monitor industry activities; and 3) Government entities to have access to a detailed hazardous waste inventory in order to obtain insights in the types, volumes and locations of hazardous waste generation, which in turn can inform interventions in the area of chemicals and waste management.

Unfortunately, interventions to achieve the reduced use, consumption or release of chemicals of concern, in particular those covered under the Stockholm and Minamata Conventions, have not been undertaken (with the exception of the 886,700 US\$ GEF-4 PCB project). As such many priorities remain to be tackled to achieve Global and National Environmental Benefits.

## **POPs management**

### **PCBs**

In terms of NIP priorities the only POPs project that has been funded and implemented to date, was the 886,700 US\$ GEF/UNDP (GEF-4) project entitled “Management of PCBs stockpiles and equipment containing PCBs”. Even though the project was limited in scope (mostly because of limited funding allocations) the project established the technical and legal capacity for the environmentally safe disposal of PCBs. Under the project, a test burn of oil contaminated by low levels of PCBs (with concentrations ranging from 50 ppm up to 1000 ppm) was successfully undertaken at the newly constructed CIMERWA cement kiln, entailing stack PCDD/F measurements before and during the burning of contaminated oil. When the PCB project came to an end, 55.2 tonnes of PCB liquid waste (at a cost of ca. 900 US\$/ton) had been incinerated by CIMERWA.[1]

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[1] “the plant is suitable for burning oil with an average concentration of PCB in the oil up to 1000 ppm, at an average flow rate of about 300 L/h fed through the main burner.” as reported by the laboratory that completed this independent technical assessment.

The PCB waste oil incineration significantly enhanced the capacity of CIMERWA for the safe handling of PCBs and created an important partnership between CIMERWA and the Government for the future management/disposal of low concentration contaminated transformer oils.

Due to a shortage of funds, the project was not able to fully implement the establishment of an Hazardous Waste Manifest system for the transport of PCB contaminated waste. For example, all identified equipment containing pure PCBs as well as highly contaminated equipment (3 PCB-containing Askarel transformers[1] with a combined estimated weight of 975 kilograms and 4 highly contaminated in-service transformers with a combined weight of about 1.3 tonnes), were not able to be shipped abroad for safe incineration as planned. This equipment is still in use or stored by the PCB holders.

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[1] Four (4) transformers are still in service: 2 at Mironko Plastic Industries in Kigali, 1 at Ruhengeri Hospital (Musanze), and 1 at La Palisse hotel.

The project also succeeded in building an interim storage facility for PCB containing waste. Currently drained and rinsed transformers (of which the oil has been incinerated at CIMERWA) are stored at this facility, and are awaiting a final PCB contamination test to determine whether they can return to service or need to be rinsed once more. The facility

(for now remaining under the management of REMA) has additional capacity that could potentially be used for the interim storage of other hazardous wastes (e.g. obsolete pesticides).

With support provided by the PCB project, national technical capacity for the environmentally sound management of PCBs was strengthened and enhanced through elaboration and adoption of four technical guidelines on various aspects of the PCB waste management cycle. Unfortunately, the project did not succeed in getting the PCB Law approved and enacted because the country was at the same time going through a revision of the Organic Law on Environment. Consequently, the legislative process for the new law on PCB was put on hold (which was beyond the control of the project). Since then the framework Organic Law on Environment has been enacted and it would be important to relaunch the approval process of the PCB law to ensure the sound management of PCBs in the future.

The momentum and political and private sector will be there to continue and complete the PCB phase-out in Rwanda by building on what has been achieved so far and continuing the strengthening of the institutions in the management of PCB waste. By finalizing PCB related interventions, Rwanda would be able to tie up loose ends with respect to PCB management and be in an excellent position to meet the 2028 Stockholm deadline.

Follow-up PCB activities would preferably focus on:

- 1) Phase-out and disposal abroad of transformers containing pure PCBs and transformers containing high concentrations of PCBs;
- 2) Conducting a comprehensive sampling and analysis of transformers in Rwanda;
- 3) Putting in place a long-term agreement with CIMERWA to allow for the incineration of PCB contaminated oils (up to 1,000 ppm) – PCB contaminated transformers – mostly distribution transformers - are estimated to total 120 tonnes of PCB contaminated equipment, including ~ 36 tonnes of contaminated oil);
- 4) Testing of the drained and rinsed transformers currently stored at the interim PCB storage facility;
- 5) Support the approval of the PCB Law; and,
- 6) At the REG transformer maintenance site (Gikondo Industrial Park), test the level of PCB contamination and support the site's remediation once the REG transformer maintenance workshop has been moved to a new industrial economic zone (the Government of Rwanda is actively relocating industries from wetlands and other environmentally vulnerable zones to newly constructed industrial economic zones which provide safe infrastructure as well as joint water treatment solutions).

#### POPs Pesticides & Highly Hazardous Pesticides (HHP)

According to the 2016 NIP update, Rwanda has 3,028 kg of obsolete POPs pesticides (Lindane 25% and Endosulfan 3% dust) in storage, 67.15 kg of confiscated stockpiles of prohibited pesticides, 900 kg of solid and 668 liters of liquid obsolete pesticides, and 12,500 kg of obsolete fertilizers<sup>[1]</sup>. Furthermore, 28,823 tonnes of obsolete pesticides have been temporarily buried at the former Kicukiro Nyanza dumping site (including some of which are POPs pesticides), while at the Nyamagabe disposal site (dumping site currently in use) 14 tonnes of obsolete pesticides (Pirimiphos) and fungicides (Mancozeb) have been temporarily buried.

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[1] Short and medium term hazardous, toxic and radioactive wastes control strategy and plan in Rwanda, 2008

The main challenge Rwanda is facing with respect to the sound management of pesticides is not necessarily with the disposal of POPs pesticides, as volumes are low and existing stockpiles could relatively economically be recovered/excavated and exported for treatment along with the country's remaining PCBs.

The country's main future challenge is to avoid the heavy reliance on the use of pesticides/fertilizers in its agricultural sector, some of which are Highly Hazardous Pesticides (HHPs). It would be worthwhile for the country and the proposed project to focus on the introduction of safer alternatives in its agricultural sector (e.g. tea plantations, cash crops) while putting in place the necessary bans and control to limit the import and use of "new" POPs pesticides and HHPs (in line with FAO's guidance on HHPs, in particular).

New POPs (E-waste)

In 2015, Rwanda completed its National e-Waste Management Policy and started the implementation of a 1.5 million US\$ FONERWA (Rwanda's Government supported Green Fund)/Ministry of Trade supported project focusing on the design and implementation of a national e-waste management strategy, including a national framework for e-waste recycling, an incentive based country-wide collection scheme and the establishment of a dismantling facility.

In partnership with EnviroServe which operates the facility, an electronic and electrical (e-waste) management and dismantling facility was established in the Bugesera district (Eastern province) which is located 35 kilometres out of Kigali city in a newly established industrial zone, next to the bordercrossing with Burundi. The facility started operating approximately 2 years ago and is the second of its kind in Africa. Although there are several e-waste treatment facilities of different scope and size, Africa's only other similar facility is found in South Africa.

Even though Rwanda has banned the import of used computers, Rwanda has the potential of generating between 10,000 and 15,000 tonnes of e-waste per year, which could reach 20,000 tonnes by 2020 (Enviroserve analysis, 2015). The current facility is able to process 7,000 tonnes of e-waste annually, however the actual processed amount is 2,500 tonnes/year, being caused by bottlenecks such as low awareness, no existing collection points and the absence of a national EPR framework.

When e-waste is delivered, it is sorted, tested, then dismantled. Computers with minor defects are repaired and donated to schools or sold to individuals. The e-waste facility does not ask for treatment/disposal costs, instead it recovers its expenses through the recovery and sale of (precious) metals extracted from e-waste. The facility dismantles 15 different types of e-wastes and recovers aluminium, copper and steel, which are sold on to recyclers and smelters. Mother boards are shipped to the Dubai-based EnviroServe e-waste recycling facility to extract precious metals.

Plastic electronics casings are removed and POPs flame retardant containing ones are separated from POPs-free casings, shredded and stored. Rechargeable batteries are removed and stored for now, as well as mercury containing lamps and switches. The facility also removes the toxic components from CRT monitors, but the toxic remnants are currently

stored in the filters of the suction equipment. The facility is looking into solutions for the safe environmental disposal/treatment of these complicated waste streams in which the proposed project could play a key role.

In terms of expansion, EnviroServe is looking into the treatment of mercury lamps as well as Acid-Lead batteries. Furthermore, it is working on increasing the collection of used electronics through 3 types of partnerships: 1) business to business (companies/institutions which would like to dispose of their used electronics in a responsible manner; 2) Drop-off collection points (e-waste, also batteries and lamps); 3) Through a partnership with COPED – a municipal and healthcare waste collection company (COPED separates e-waste from collected municipal waste). The facility is also looking into the treatment of e-waste from the neighboring countries in the sub-region.

Remaining challenges that the e-waste dismantling/recycling facility would like to address include: 1) Increasing the collection rates of e-wastes, as too much e-waste remains with end-users or end up being mixed with regular waste; 2) The economically viable treatment of more complex hazardous waste streams (cables, batteries, mercury-containing lamps, toxic dust from CRT monitors, POPs-containing plastics, etc.).

#### UPOPs (Healthcare Waste Management)

Rwanda has in place a National Policy on Injection Safety, Prevention of Transmission of Nosocomial Infections and Healthcare Waste Management (MINISANTE, May 2009), as well as National Guidelines on Health-Care Waste Management (2016). The policy on environmental health is currently under review, a policy on HCWM has been approved, while the approval of the HCWM strategy is pending.

In terms of the treatment of healthcare waste, the country counts approximately 35 incinerators which have been procured with Global Fund and WHO support (ATI Mollier (France) and Inciner8, both have double chambers and can process approximately 50 kg/hr, none of these incinerators are provided with even an elementary Air Pollution Control System (ACPS), and few of them are equipped with a secondary burning chamber). The large referral hospital in Kigali has its own incinerator, while the incinerator of Kigali City (located at Nduba landfill) and the Kigali military hospital treat the wastes of several other hospitals. The main challenge with current installed capacity (which is a challenge that is very common to developing countries) is that due to a lack of maintenance and technical expertise most have broken down or are not operating according to specifications, hence resulting in UPOPs releases as well as mercury releases (as mercury containing medical devices have not been phased-out yet – see next subsection).

In addition, there is a private company (Dépôt Pharmaceutique Kalisimbi) which is operating since 2012 a BAT conform incinerator (it is currently in the process of procuring an additional incinerator and autoclave) and which treats the HCW of 10 different hospitals. The incineration company has entered into contracts with these hospitals for the collection (making use of a private collection company COPED) and treatment of infectious HCW, and in addition also treats expired pharmaceuticals (after inspection and approval from REMA, the Rwanda Food and Drug Authority and the Rwanda Revenue Authority (RRA)).

By law, hospitals, healthcare facilities and pharmacies require a contract with a Rwanda Utilities Regulatory Authority (RURA) licensed waste treatment company, without which they won't obtain a permit for operation. During inspections, such contracts and the use of these contracts (invoices) are verified. This regulatory requirement provides a great incentive for waste generators to dispose of their wastes properly and enter into contracts with waste collectors/treatment companies. At the same time this creates financial incentives for private entities to operate in this sector.

Although decentralized HCW treatment is practiced to some extent in Rwanda, and BAT-conform treatment technologies are present, there are a number of challenges that need to be overcome to further reduce waste generation and environmental releases. First and foremost, HCFs need to be supported to introduce better waste separation at source as well as replace PVC and mercury-containing products with PVC/Hg-free alternatives. Such measures would significantly reduce the amount of infectious waste that would need to be treated and will directly reduce UPOPs and mercury releases. Furthermore, a maintenance and repair plan for installed (decentralized) capacity needs to be urgently put in place to ensure that equipment remains functioning and operates according to environmental standards, to avoid that infectious waste instead is burned in the open or ends up on the dumpsite. Finally, expansion of private sector involvement in the collection, management and treatment of HCW would ensure sustainability, as equipment used is more environmentally friendly and operates according to set standards.

#### UPOPs (Municipal Waste Management)

Rwanda is renowned for its extremely successful policy on the banning of plastic bags which came into force in 2008. Law no. 57/2008 of 10/09/2008 relating to the prohibition of manufacturing, importation, use and sale of polyethylene bags in Rwanda has had a tremendously beneficial impact on the nature of the country and has inspired other developing countries to do the same. Moreover, the collection of waste in the large municipalities, like Kigali, is effective and is ensured by a proper collaboration through Private Public Partnerships between 36 private operators/waste collectors and the government, municipalities and districts (sectors). However, one should not underestimate the value of the country's nationwide community work day called "Umuganda" which can be translated as "coming together in common purpose to achieve an outcome," a practice that has long existed in Rwandan culture but only recently became mandatory. On the last Saturday of every month, from 8:00 AM to 11:00 AM, businesses close and traffic halts as citizens across the country take to their neighborhoods, shovels and hoes in hand, and together try to make them a little bit better than they were the month before. Projects range from digging drainage ditches to street sweeping. All able-bodied citizens between the ages of 18 and 65 are expected to participate, and dodging the civic duty can result in severe sanctions. While some projects focus more on infrastructural developments like building schools and housing for those in need, a significant percentage of Umuganda efforts center on environmental protection and public cleanup. As a result Kigali is often cited as the "cleanest city in Africa."

However, on the side of disposal, there are significant shortcomings that expose the country to the severe impact of improper waste management and disposal. Cities have experienced a large increase in population after 1994, both as the effect of the return of refugees from different areas and a manifestation of more employment and business opportunities. As a result, waste generation has been rapidly increasing. Mixed waste (including hazardous waste from industries) is dumped at the Nduba dumping site in the City of Kigali after the Nyanza Kicukiro dumping site was closed. The Nduba dump receives approximately 400 tonnes of mixed waste each day and uses bulldozers and compactors to spread out the waste and cover the waste with soil at certain intervals. As a result the dumpsite is not smoking and there are no fires. Nevertheless, the leachate from the

dumpsite containing all sorts of pollutants continuously enters the environment. The dumpsite uses a special section where incinerator ash is dumped, but again, no environmental protection measures are in place.

In terms of recycling, efforts need to be significantly increased. Waste pickers go through waste when it is disposed of at the dump, and collect metal scrap, aluminium, cardboard and plastics which are sold onto recyclers. PET is currently not being recycled, but a partnership between the bottle industry (Coca-Cola), waste collectors, recyclers and the government is being negotiated. There are a number of recycling companies present in Rwanda<sup>[1]</sup> however because segregation at source is not practiced, the recovery rate of recyclables is very low, and because recyclables have been mixed with other wastes, they are filthy and need excessive cleaning before processing, which increases costs.

[1] One company recycles white paper into toilet paper; 1 company recycles carton into egg trays – the rest of the carton is exported; metal scrap is sold to two steel industries; Aluminium is exported; 4 LDPE recycling plants which manufacture tubing, plastic sheets and bin liners; and HDPE is turned into plastic chairs and jerry cans.

The Nduba dump is currently managed by the Water & Sanitation Corporation (WASAC) which is negotiating with private sector investors the construction and operation of a new sanitary landfill under a PPP agreement. Negotiations with a Portuguese investor have significantly advanced and entail a plan consisting of multiple phases: Phase I: Sanitary landfill; Phase II: Organic Waste Cell/Management; Phase III: Hazardous Waste cell/management. The Government/World Bank also have plans to remediate the old closed dumpsite (Nyanza Kicukiro) and manage gas formation. As such significant efforts are planned to put in place solutions for municipal waste management and its disposal.

There is insignificant formation of UPOPs releases from the dumpsite (as it is not smoking or on fire) therefore the main outstanding challenge to be addressed by the proposed project would be avoiding the generation of hazardous waste in industry, agriculture and other priority economic sectors reducing its mixing-up with municipal waste and ending up on the current dumpsite or in the future on the sanitary landfill. Secondly, it would be critical to create investment opportunities for private sector enterprises in order to operate viable businesses in the recycling industry.

## **Mercury Management**

Rwanda accessed the Minamata Convention on Mercury by Presidential Order no. 130/01 of 24/02/2017 in February 2017 and completed in 2018 a UNITAR/UNEP supported “National survey of mercury and mercury compounds used in mining with particular attention on artisanal small scale gold mining, and in other sectors of development (health, ICT, Industry, Water, Construction, Etc)”. The survey provides an overview of the situation with respect to mercury in Rwanda, however the survey does not provide any information on the amount of mercury used or released in Rwanda, as a Mercury inventory (level I or Level II) was not conducted.

The national survey identified the following national priorities:

- 1) To assess the national capacity to implement the Convention through policy analysis, institutional capacity strengthening and to conduct in depth countrywide mercury and mercury compounds inventory;
- 2) To improve the policy and regulatory framework governing the management of hazardous waste and mercury and mercury compounds specifically;
- 3) To undertake awareness raising among priority groups and build capacity through training on mercury management;
- 4) To improve waste management practices for mercury and wastes containing mercury compounds;
- 5) To phase-down and to phase-out the use of mercury and mercury-containing products;
- 6) To improve monitoring and reporting capacity on mercury concentrations in all concerned environmental compartments (soil, water and air) as well as in foods; and,
- 7) To control and reduce emissions of mercury and mercury compounds to the atmosphere from waste incineration facilities; smelting and roasting processes used in the recycling of metals and cement production plants.

In terms of baseline activities, with the exception of the National Survey of Mercury; the collection/storage of mercury-containing batteries by the e-waste recycling facility (small-scale) while awaiting a treatment/disposal solution and some minor activities that involve a bulb crusher (owned by COPED), there is no capacity in place to implement the Minamata Convention.

Considering the looming 2020 Minamata deadline, Rwanda requires urgent support and action to:

- 1) Conduct a quick Level I and Level II Mercury Inventory;
- 2) Start the immediate phase-out of mercury and mercury-containing products (the country did not apply for a deadline extension);
- 3) Improve the policy and regulatory framework to support the phase-out of mercury-containing products, as well as the management of mercury and mercury containing wastes (as part of a hazardous waste management regulation); and
- 4) Control and reduce emissions of mercury and mercury compounds to the atmosphere from waste incineration facilities; smelting and roasting processes used in the recycling of metals and cement production plants.

### **Phase-out, Management and Disposal of Hazardous Chemicals/Chemicals of Concern and Wastes**

Although Rwanda has been successful in the implementation of certain activities that are related to the management of hazardous chemicals and wastes (plastic bag ban; establishment of Africa's 2nd e-waste recycling facility; Rwanda's first PCB management project; nationwide community work day "Umuganda") there are many challenges outstanding. These challenges are two-fold. Firstly, there is insufficient capacity to ensure that important economic sectors like industry and agriculture operate in a manner that is safe for human health and the environment. Secondly, the sound management of hazardous waste from sectors like industry, agriculture and education/research is virtually absent, on the side of collection as well as disposal.

Visits undertaken by UNDP experts in the course of the preparation of the Rwanda Basel Convention Report found large amounts of waste pending disposal from the paint and dye industry, consisting of empty containers and drums, dried chemical sludge from septic tanks, untreated waste water contaminated by solvents and other uncharacterized chemicals. Metal waste, including empty drums and cans previously containing paints or other chemicals, were recycled by Steelrwa (currently closed, at least temporarily, as of August 2019, due to breaches of some environmental regulations). As there is no a quality policy for metal waste, the scrap contaminated with paint, oil, or chemicals is thought to generate a large amount of U-POPs during the melting process. The Basel Convention report also indicated that there currently are no existing facilities for storing both solid and liquid expired chemical reagents from laboratories. In practice, these wastes are either kept in the laboratories, thrown untreated in the environment, or mixed with municipal waste.

Priorities that are cited by ministries, industry and development partners to address these challenges (in addition to those listed in sections above), include the need for: i) Assessing and introducing safer alternatives to replace chemicals of concern (and products containing such chemicals) in priority economic sectors; ii) Reducing the generation of hazardous/toxic emissions, releases and wastes from priority economic sectors; iii) Improving the capacity of waste collection, management and treatment facilities to increase the amount and types of hazardous wastes that can be managed, reused, valorized or treated; iv) Strengthening the regulatory framework pertaining to the reduction of hazardous waste generation and its handling, treatment, etc.

In terms of associated baseline projects, there are a number of projects that should be mentioned. These include associated baseline projects which have been mentioned previously (EnviroServe's E-waste facility; Dépôt Pharmaceutique Kalisimbi's HCW incinerator; WASAC/Portuguese investment into a new sanitary landfill - including a hazardous waste cell), CIMERWA's capacity to incinerate hazardous waste streams as demonstrated under the first PCB project, and REMA's interim PCB storage facility that could be expanded to include additional hazardous waste streams).

Additional baseline projects which should be mentioned are the following:

- The Government is actively moving industry to new industrial zones where centralized water treatment is provided. Industries are required to put in place their own specific water treatment to ensure that treated effluents can be received by the centralized water treatment system. This initiative has led to a number of industries moving to new industrial zones (priority industries are those located upstream of wetlands) and their original sites being demolished, remediated and turned into parks. Throughout the proposed project the move of industries will continue.
  
- The Cleaner Production and Climate Innovation Centre hosted by the National Industrial Research and Development Agency (NIRDA) is currently working with garages, tea plantations/factories and beer companies to introduce cleaner production practices. In garages, this entails the responsible management and disposal of paints and oils, while at tea plantations this entails the introduction of alternatives to hazardous pesticides. The NIRDA initiative could be significantly expanded with the support of the proposed project.

□ In 2014 REMA undertook a “National Implementation Plan for the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (2014 – 2021)” in 2015 REMA concluded an “Environmental Assessment and Audit of Paint Manufacturing Industries in Rwanda”, while in 2018 REMA, with support of the University of Rwanda (Dr. Christian Sekomo) conducted a “Short and Medium Term Hazardous, Toxic and Radioactive Wastes Control Strategy and Plan in Rwanda.” This latter study included a preliminary hazardous waste inventory.

### **Policies and regulatory framework pertaining to the management of chemicals and hazardous wastes**

There are a number of improvements that the Government of Rwanda would need to make to the policy and regulatory framework pertaining to the management of chemicals and wastes in order to meet its obligations under the Stockholm and Minamata Conventions, to ensure the sound management of chemicals and their wastes in the future and to create an enabling environment for investments in the management, disposal and treatment of various waste streams.

As mentioned earlier, four technical guidelines related to the waste management cycle of PCB waste management were developed, but unfortunately the PCB Law was not approved due to the revision and approval process of the framework Organic Law on Environment. It would be important to relaunch the approval process of the PCB law now that the Organic Law has been approved to ensure the sound management of PCBs in the future.

Furthermore, the government of Rwanda has not domesticated any of the new and old POPs (with the exception of old POPs pesticides) into its regulations. Similarly, no policy or regulations actions have been undertaken to tackle the management of mercury, and in particular the phase-out of mercury-containing products as stipulated in Annex 1 of the Minamata Convention. These are pressing issues that would need to be addressed as soon as possible, as these would play a part in the creation of the enabling environment for, among else, the phase-out of Hg and POPs-containing products.

In terms of hazardous waste treatment, the current policy on sanitation does not provide details on how to handle hazardous wastes, but it touches on the subject. Regulations on the management and treatment of (hazardous) waste should therefore be elaborated as currently it is very unclear to hazardous waste generators (except for HCW and waste water treatment) what actions they are required to undertake and does not create opportunities for enforcement.

Finally, additional incentives for generators of hazardous releases and wastes (through a Polluter Pays Principle) as well as financial incentives for industry to get involved in the management of various waste streams (through the establishment of an Extended Producer Responsibility scheme for priority waste products) would preferably be put in place to allow Rwanda to finance the collection, management, disposal and treatment of priority wastes.

## **C) THE PROPOSED ALTERNATIVE SCENARIO WITH A BRIEF DESCRIPTION OF EXPECTED OUTCOMES AND COMPONENTS OF THE PROJECT**

**COMPONENT 1: Establishment of an enabling policy/regulatory framework to create (financial) incentives for the sound management of chemicals, the introduction of safer alternatives, minimization of hazardous waste generation and its environmentally safe treatment.**

**Project Outcome 1.1 - Creation/ improvement of the regulatory framework, tools and (financial) incentives that allow private sector and government to improve the management of chemicals and hazardous wastes.**

**Project Output 1.1.1** Approval of drafted PCB law facilitated.

As part of the GEF-4 project “Management of PCBs stockpiles and equipment containing PCBs” national technical capacity for the environmentally sound management of PCBs was strengthened and enhanced through elaboration and adoption of four technical guidelines on various aspects of the PCB waste management cycle. Unfortunately, the project did not succeed in getting the PCB Law approved and enacted because the country was at the same time going through a revision of the Organic Law on Environment. Consequently, the legislative process for the new law on PCB was put on hold (which was beyond the project’s control). Due to the PCB law not being approved and enacted, the PCB guidelines are being applied on a voluntary basis. Since the PCB project came to an end, the framework Organic Law on Environment has been enacted and it would be important to relaunch the approval process of the PCB law to ensure the sound management of PCBs in the future and adherence to the PCB guidelines by PCB holders. The project therefore aims to support the revision and approval process of the PCB law.

**Project Output 1.1.2** POPs/Hg legislative/regulatory framework strengthened to support the phase-out of mercury/POPs and products that contain them, and support the introduction of safer alternatives.

The government of Rwanda has not domesticated any of the Stockholm Convention's controls on the new POPs (with the exception of POPs pesticides) into national regulations. Neither has the country regulations in place that support a reduction/phase-out of mercury and mercury containing products.

This is a pressing issue that would need to be addressed as soon as possible, as POPs/Hg regulations play a critical part in the creation of the enabling environment for the phase-out of old and new POPs, mercury as well as the products that contain them. Currently the Government of Rwanda is not in compliance with the Stockholm and Minamata Conventions, which seriously hampers meeting Convention deadlines such as the 2020 Minamata Convention deadline on mercury-added products.

The project will therefore start with undertaking a legislative assessment to identify which legislative and regulatory gaps exist and how to address these gaps as early as possible in the project’s implementation. Subsequently the project will support the Government in drafting the regulatory measures related to import, phase-out, management, disposal and/or treatment as well as environmental standards for POPs/Hg in various media. In this manner the project will be able to create an enabling environment that would support POPs/Hg phase-out and the introduction of alternatives as supported through project interventions described in Components 2 and 3.

**Project Output 1.1.3** Regulations/guidelines on the handling/treatment of priority hazardous waste streams developed and disseminated.

In terms of hazardous waste treatment, the current policy on sanitation does not provide details on how to handle hazardous wastes, but it touches on the subject. Regulations on the management and treatment of (hazardous) waste, in particular those wastes which contain POPs/Hg should therefore be elaborated as currently it is very unclear to hazardous waste generators (except for HCW and waste water treatment) what actions they are required to undertake. As a result, hazardous waste is disposed of along with regular household waste and ends up on the municipal dumpsite, or is stored under conditions that are not adequate and thus jeopardize environmental and human health. Furthermore, the absence of regulations/guidelines on hazardous waste management does not allow for enforcement. In light of the establishment of the new economic zones and the relocation of industry to these zones, clear regulations would greatly support the smooth operation, management and monitoring of these new zones.

The project will support the Government of Rwanda in drafting regulations/guidelines on the handling/treatment of priority hazardous waste streams, with the GEF project focusing its support on Convention chemicals and related wastes.

**Project Output 1.1.4** Industry incentives introduced to generate less (hazardous) waste (e.g. through introduction of resource efficient and cleaner production, best performer awards).

Incentives to reduce the generation of (hazardous) wastes by waste generators through the introduction of the Polluter Pays Principle (PPP) should be put in place to transfer costs for remediation and pollution management to waste generators. Generally this provides an incentive for polluters to start working on reducing environmental releases and wastes, while it also provides environmental enforcement entities with a mandate to monitor these aspects when inspections are carried out. The project therefore aims to support the Government of Rwanda in operationalizing a Polluter Pays Principle system, building on on-going efforts of the Government in integrating language related to the Polluter Pays Principle into the new law on Sanitation Services, which also sets the level of penalties.

**Project Output 1.1.5** Extended Producer Responsibility (EPR) framework developed and introduced to finance treatment of priority waste products/ streams.

In order to finance the treatment/disposal of priority waste streams/products (e.g. acid lead batteries, new POPs containing products, electronics, among others) and create financial incentives for entities to get involved in the collection, management and disposal/treatment of more “difficult” waste streams, it is important to put in place an Extended Producer Responsibility (EPR) framework to generate financial inputs that can be applied towards the life cycle management of such products (in particular those that cannot be avoided and that the country will have to continue to deal with). Rwanda has not put an EPR framework in place yet, therefore the proposed project, in consultation with the government and the private sector, will, based on the outcomes of the hazardous waste inventory (Output 2.1.1), propose a number of products for which an EPR framework will be useful. Subsequently, the project will support the design and implementation of the EPR framework.

**Project Output 1.1.6**      Capacity of the customs administration to identify hazardous waste at entrance and act on it with adequate measures in cooperation with REMA.

The work with Customs will be essential to ensure there is a minimum level of awareness on the Stockholm and Minamata Conventions' requirements and that the tools are in place for screening, evaluating risks and compliance with the regulations, and transmitting information to REMA for potential action. A comprehensive strategy for dealing with identification of hazardous waste potentially entering the country will be developed, with Standard operating procedures developed and solutions planned, for example, for interim storages of suspected items. This will be done in cooperation with the World Customs Organization, which has introductory on-line courses available for customs administration officers on Chemicals-related MEAs (for example the Green Customs Initiative's modules).

**COMPONENT 2: Minimize hazardous waste generation through the introduction of safer alternatives and cleaner (production) processes in selected industries and priority sectors.**

**Project Outcomes 2.1 - Reduction in hazardous waste generation and releases from selected industries and other priority sectors achieved and safer alternatives introduced.**

**Project Output 2.1.1** Web-based hazardous waste inventory and database (with a focus on Chemicals Conventions) and web/phone-based monitoring tool for private sector/enforcement entities established.

As outlined in Section 2 – Baseline Scenario, the baseline situation with respect to chemicals and waste has been fairly well established (although exact data is not always easy to come by and mercury-related information is lacking entirely) through development of the NIP and its updates, the MIA/NAP, Basel inventory, hazardous waste inventory, among other assessments.

The Government of Rwanda has indicated that follow-up inventory activities would have to focus on uploading and managing collected information in a web-based hazardous waste database and advancing the web-based database system with the design and launch of a monitoring tool that would be used by 1) Private sector to report on waste generation and releases; b) Enforcement entities to better monitor industry activities; and 3) Government ministries to have access to a detailed hazardous waste inventory. Such a system would make industry responsible for reporting on its waste generation and releases and ease the task of enforcement agencies which can then focus on conducting regular checks and providing guidance where necessary. Finally the system would provide insight in the types, volumes and locations of hazardous waste generation and releases, which can inform future interventions in the area of chemicals and waste management.

The project would support the design, establishment and population of the web-based inventory and work with private sector and enforcement agencies to design a web/phone-based tool to make reporting and inspections as easy as possible.

**Project Outcomes 2.2 Technical capacities of industries and major hazardous wastes generators strengthened to develop and implement innovative and environmental best practices.**

**Project Output 2.2.1** Selected industries and priority economic sectors (e.g. agriculture, textile, paint, healthcare) supported in avoiding/reducing the generation of (hazardous) waste and releases through the introduction of cleaner production practices and safer alternatives (e.g. to POPs/Hg/chemicals of concern).

As outlined in Section 2 – Baseline Scenario, Rwanda has already received support from the GEF and some other donors in undertaking Enabling Activities and conducting assessments, but in terms of actually phasing out and disposing/treating POPs/Hg and other chemicals of concern, very little has been achieved to date (with the exception of the UNDP/GEF supported PCB disposal project and the private sector led e-waste recycling facility). The country is struggling with hazardous waste disposal and treatment as there are few suitable options available while phase-out deadlines (like the one under Minamata for mercury-added products) are looming.

Through project activities envisaged under project component 1, the national legislative enabling environment will be strengthened to support the phase-out of mercury/POPs-containing products and introduction of safer alternatives, while under project component 3 capacity of the private sector and institutions will be increased to sustainably handle and treat hazardous waste that cannot be avoided.

That said, the main avenue through which to reduce environmental releases and hazardous waste generation, is by introducing safer alternatives and cleaner production processes and practices in selected industries and economic sectors of concern.

The project aims to partner with the Cleaner Production and Climate Innovation Centre (hosted by NIRDA) to support selected industries and priority economic sectors which have been identified as the main sources of releases and wastes which contain chemicals of concern. Industries/sectors which have been identified (through assessments) are large-scale crop farms (e.g. tea plantations/factories), the health-care sector, paint industries, textile industries and industries that generate waste oils.

Proposed project interventions would build on cleaner production interventions that are currently being supported by NIRDA (and which are considered as baseline/co-financing activities), with the GEF- financed interventions predominantly focusing on the introduction of safer alternatives to mercury- and POPs- containing products and other chemicals of concern (e.g. HHPs in the agricultural sector). Focus of the project will also be on the reduction of UPOPs releases where applicable.

In each sector the project would work with 2 industries/entities to support the phase-out of Hg, POPs, HHP-containing products/chemicals and reducing UPOPs releases, while further developing the capacity of the Cleaner Production and Climate Innovation Centre to replicate successes across the entire sector.

A different approach will be taken regarding mercury-containing products. As the 2020 deadline will likely not be achieved (considering that this proposed project will not start early enough to help meet that deadline), the project aims to support the phase-out of all mercury-containing products across Rwanda (listed in Annex A of the Minamata Convention).

### **COMPONENT 3: Improve private sector and institutional capacity for the sound environmental treatment and disposal of hazardous waste streams.**

**Project Outcome 3.1 Increased capacity of the private sector and government entities to sustainably handle and treat: 1) Existing stockpiles of hazardous and obsolete chemicals; and 2) Various hazardous waste streams which cannot be avoided.**

**Project Output 3.1.1** Remaining PCB-containing equipment phased-out/disposed of.

As outlined in Section 2 – Baseline Scenario, there are a few minor outstanding PCB related disposal activities that the Government of Rwanda through this proposed project is eager to address to ensure that Rwanda is able to meet its commitments under the 2028 Stockholm Convention deadline. These activities include:

- 1) Phase-out and disposal (abroad) of remaining PCB-containing transformers and transformers containing high concentrations of PCBs (3 PCB-containing Askarel transformers<sup>[1]</sup> with a combined estimated weight of 975 kilograms and 4 highly contaminated in-service transformers with a combined weight of about 1.3 tonnes);
- 2) Conducting a comprehensive sampling and analysis of transformers in Rwanda;
- 3) Putting in place a long-term agreement with CIMERWA to allow for the incineration of PCB-contaminated oils (up to 1,000 ppm) at a cost that is significantly lower than through export and incineration abroad. Remaining PCB-contaminated transformers – mostly distribution transformers - are estimated to total 120 tonnes of PCB-contaminated equipment, including ~ 36 tonnes of contaminated oil); and
- 4) Testing of the drained and rinsed transformers currently stored at the interim PCB storage facility to ensure that these can be safely scrapped or returned to service after refilling with new transformer oil, or alternatively (if PCB levels prove too high), to support another rinsing cycle.

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[1] Four (4) transformers are still in service: 2 at Mironko Plastic Industries in Kigali, 1 at Ruhengeri Hospital (Musanze), and 1 at La Palisse hotel.

**Project Output 3.1.2** One (1) PCB contaminated site remediated (e.g transformer maintenance site).

The REG transformer maintenance site (Gikondo Industrial Park) is suspected to be a PCB-contaminated site. The Government of Rwanda is in the process of actively relocating industries from wetlands and other environmentally vulnerable zones (and subsequently remediating former industry sites) to newly constructed industrial economic zones which provide safe industry infrastructure as well as joint water treatment solutions. It is proposed that after the relocation of the REG maintenance shop to an economic zone, soil is tested for PCB contamination and a remediation plan for the site is designed and implemented using local private sector entities involved in hazardous waste management, with the potential of testing and applying innovative bioremediation measures which could avoid costly export for treatment.

**Project Output 3.1.3** Obsolete POPs & non-POPs pesticides disposed of.

According to the 2016 NIP update, Rwanda has 3,028 kg of obsolete POPs pesticides (Lindane 25% and Endosulfan 3% dust) in storage, 67.15 kg of confiscated stockpiles of prohibited pesticides, 900 kg of solid and 668 liters of liquid obsolete pesticides, and 12,500 kg of obsolete fertilizers[1]. Furthermore, 28.823 tonnes of obsolete pesticides have been temporarily buried at the former Kicukiro Nyanza dumping site (including some of which are POPs pesticides), while at the Nyamagabe disposal site (dumping site currently in use) 14 tonnes of obsolete pesticides (Pirimiphos) and fungicides (Mancozeb) have been temporarily buried.

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[1] Short and medium term hazardous, toxic and radioactive wastes control strategy and plan in Rwanda, 2008

Volumes/quantities of obsolete pesticides are relatively low and can relatively easily (using limited project funds) be recovered/excavated, exported and disposed of along with pure PCB oils and remaining PCB transformers (see project outputs 3.1.1 and 3.1.2) which require export as the local CIMERWA facility can only dispose of low-concentration PCB oils.

In order to support export procedures, the project aims to build the capacity of private sector operators to recover or excavate, repack and safely transport obsolete POPs pesticides to the interim storage facility (currently only used for PCB wastes), while building capacity of government institutions to support the export of POPs pesticides (as well as PCB and Hg-containing wastes) to a facility(ies) abroad that has/have the capacity to dispose of these wastes in an environmentally sound manner.

With respect to the disposal of obsolete non-POPs pesticides/fertilizers, the project aims to advance the partnership with CIMERWA (which already has the capacity to dispose of low concentration PCB oils) to assess and test whether disposal of non-POPs obsolete pesticides/fertilizers would be a viable environmental, financial and technical solution. If not, the project will redirect this activity after the Mid-Term Evaluation to explore and assess other viable options for the disposal/treatment of obsolete stockpiles.

**Project Outcome 3.2 Capacity and environmental performance of hazardous wastes treatment facilities improved.**

**Project Output 3.2.1** Potential for valorization of priority waste streams assessed and initiated through engagement of research institutes/universities and private sector partners.

One of the ways to further reduce the amount of waste that requires treatment or disposal (after reducing the amount of wastes that are being generated through Output 2.1.1) is to find ways to valorize priority waste streams. The project aims to explore potential for the valorization of waste streams through partnerships with the private sector, research institutes and universities as well as the Cleaner Production and Climate Innovation Centre.

Various assessments conducted in Rwanda have indicated that large quantities and varieties of waste and hazardous waste are produced and either inadequately stored or indiscriminately disposed of at the municipal dump site. There is very little valorization of waste taking place, other than the recycling of paper/carton/metal scrap/aluminium and some plastics, but even that type of recycling is conducted at a very low scale/capacity.

As mentioned earlier, the project aims to explore potential for waste stream valorization based on the outcomes of the waste inventory (conducted as part of Project Output 2.1.1) by undertaking a waste valorization assessment in partnership with interested private sector partners, research institutes and universities as well as the Cleaner Production and Climate Innovation Centre. In addition, the project might support a waste valorization challenge competition to spread awareness, which might create innovative ideas originating from stakeholders such as SMEs, NGOs, individuals, investors, etc.

The outcomes of the assessment and waste valorization challenge competition will inform the design of a number of waste valorization pilots. The project will provide support to the pilot projects on how to scale up a waste valorization idea into a viable economic activity, will facilitate engagement of investments (incl. FONERWA and private sector), and build technical and financial capacity to implement the pilot projects.

**Project Output 3.2.2** Environmental performance of existing waste treatment facilities enhanced and national treatment capacity for hazardous waste increased (volume + diversification) through the introduction of new locally suitable disposal/treatment solutions.

Rwanda counts a limited number of waste treatment facilities (e.g. EnviroServe's e-waste recycling facility, CIMERWA and a few centralized healthcare waste incinerators). These facilities are quite instrumental in treating wastes which cannot be avoided while they are also considered rather innovative (e.g. CIMERWA is able to treat low PCB contaminated transformer oils as one of the few facilities in Africa, the EnviroServe facility is the second of its kind on the African continent, while centralized healthcare waste incinerator operators have entered into contractual agreements with healthcare facilities for the centralized treatment of healthcare waste which is uncommon for countries where no HCWM projects have been implemented yet).

However, there are three (3) improvements that could be made to these facilities. Firstly, environmental performance of the processes applied by these centralized waste facilities could be further improved in order to reduce releases of UPOPs, heavy metals, POPs, Hg and other hazardous substances.

The project aims to conduct facility-specific assessments, and in partnership with the Cleaner Production and Climate Innovation Centre, introduce process measures that would reduce releases from these facilities and improve their environmental performance (linked to up-stream support provided to waste generators through Project Output 2.1.1 to ensure waste is minimized and properly segregated).

Secondly, the amount of waste that could potentially be treated by these facilities could be significantly increased. The e-waste facility for example has a capacity of 7,000 to 10,000 tons per year (depending on the number of shifts) but in reality only treats 2,500 tons per year, which has primarily to do with a low e-waste collection rate. Similarly, the centralized healthcare waste treatment facilities have a higher capacity than currently is being used, The same goes for CIMERWA, which has demonstrated that it has the capacity for the disposal of waste oils but besides the disposal of low concentration PCB oils as part of the UNDP/GEF project, it has not treated additional waste oils since. In order to support an increase in the quantity/volumes of waste treated (and to avoid these are diverted to waste dumps or indiscriminately disposed of) the project aims to support (through component 1) the development of an enabling policy/regulatory environment as well as incentives, and (through component 4) undertake awareness raising of waste generators to ensure an increase in the amount of properly collected and treated wastes.

Thirdly, the types of waste that could potentially be treated by waste treatment facilities in Rwanda could be diversified. As part of this output, the project aims to conduct waste treatment assessments for priority waste streams to identify locally suitable disposal/treatment solutions for hazardous waste streams (as identified and prioritized by the waste inventory conducted as part of Project Output 2.1.1, e.g. products containing new POPs, lead batteries, Hg-containing waste, end-of-life vehicles, waste oils, among others).

If the assessment indicates that treatment of such waste streams could be considered to be technically and economically viable at national level, the project will conduct a number of pilot projects to test locally suitable disposal/treatment solutions for hazardous waste streams and verify whether indeed treatment of such waste streams could be taken on by existing or new waste facilities, while meeting environmental performance requirements.

The project will also bring together potential investors (like FONERWA and other banks/investors), existing private sector waste operators, as well as interested parties to encourage and facilitate investments in the waste management sector. In parallel (project component 1) through regulatory interventions (PPP, EPR, etc.) and the introduction of incentives (also as part of component 1) the project increase the economic viability of the hazardous waste management sector.

**Project Out 3.2.3** Capacity improved of existing hazardous waste interim storage facilities (e.g. existing interim PCB facility) to handle additional hazardous waste streams.

One of the main challenges that has been identified by hazardous waste inventories is that obsolete wastes (including obsolete pesticides and laboratory wastes) are stored in locations and under conditions that are unfit and inadequate for such wastes (district offices, police stations, Ministry of Agriculture (MINAGRI) or Energy Utility Corporation limited (EUCL) stores, research labs, school, universities, etc.).

The PCB project succeeded in building an interim storage facility for PCB containing waste. Currently, drained and rinsed transformers (of which the oil has been incinerated at CIMERWA) are stored at this facility. The facility (for now remaining under the management of REMA) has additional space available that could potentially be used for the interim storage of other hazardous wastes (e.g. obsolete pesticides, POPs/Hg containing wastes) awaiting disposal/treatment.

Based on the detailed hazardous waste inventory that will be supported by the project through output 2.1.1, the project also aims to assess what types of wastes present/generated in Rwanda would require interim storage at national/regional level (while awaiting disposal/treatment), as well as what type of measures would need to be put in place to ensure safekeeping of these wastes.

Based on the outcomes of the assessment, recommendations will be made for required capacity and type of interim storage of hazardous wastes that is needed. As a follow-up project intervention, existing infrastructure and systems are expected to be upgraded/expanded in order to accommodate additional waste streams containing chemicals of concern.

#### **COMPONENT 4: Raise awareness to support behavioral change, capture and disseminate experiences, lessons-learned and environmental best practices.**

**Project Outcome 4.1 Awareness raised of 7,500 people (4,000 female and 3,500 male) on the sound management of POPs and Hg and related wastes through tailored training and awareness raising activities.**

**Project Output 4.1.1** Awareness raised of 7,500 people (4,000 female and 3,500 male) on the sound management of POPs chemicals and Hg and related wastes through tailored training and awareness raising activities.

The project will support the design and implementation of an awareness raising plan which will focus on a number of axes and specific target groups:

- 1) The phase-out of mercury containing products (in order to meet the 2020 deadline as soon as possible);
- 2) Increasing the collection of waste streams for which already valorization and/or recycling options exist (e.g. e-waste, medical waste, plastics, used motor oil);
- 3) Increasing awareness and capacity of interested private sector entities to explore opportunities and potential investments (e.g. FONERWA) related to the collection, management, treatment and disposal of chemicals and waste of concern;
- 4) Increasing awareness of customs, private sector, enforcement entities, ministries, etc. on the type of products which contain POPs and Hg and their suitable alternatives.

**Project Outcome 4.2 Project results sustained and replicated.**

**Project Output 4.2.1** Results, lessons-learned and best practices captured in knowledge products and disseminated at national, regional and global level to support replication (incl. development and implementation of an awareness raising and knowledge management plan).

Rwanda serves as an example to many African nations as well as many other developing nations. Firstly this is the result of successful interventions in the area of the management of chemicals and waste (e.g. the policy on the banning of plastic bags which entered in force in 2008 has had a tremendously beneficial impact on the nature of the country, and

inspired other countries worldwide, in particular developing countries, to replicate similar measures. Moreover, the collection of waste in large municipalities, like Kigali, is effective and is ensured by a proper collaboration between private operators and the government. Finally, in partnership with EnviroServe, FONERWA (the Rwanda Green Fund) and the Government, the 2nd ever Africa-based e-waste recycling facility started operation in 2018. These initiatives have given Rwanda a reputation among other countries which is looked up to. Secondly, Rwanda has served as an example to other nations as it is quite well equipped in communicating success – both nationally and internationally. The right communication is key in ensuring replication both in-country and beyond.

The project will develop a knowledge management (KM) plan. As part of the implementation of the KM plan, the project will extract, compile and disseminate experiences, lessons-learned, knowledge and best practices from all the projects interventions through the development of a number of knowledge products in order to support national, regional and global replication.

**Project Output 4.2.2** M&E and adaptive management applied in response to needs and Mid-Term Evaluation findings.

This output will focus on the application of standard UNDP/GEF M&E and adaptive management processes in response to project oversight needs and Mid-Term Evaluation findings, as well as the implementation of a Gender Action Plan to mainstream gender throughout project activities.

#### **D) ALIGNMENT WITH GEF FOCAL AREA AND/OR IMPACT PROGRAM STRATEGIES**

The proposed project is fully aligned with the GEF-7 Programming Directions ([http://www.thegef.org/sites/default/files/publications/GEF-7%20Programming%20Directions%20-%20GEF\\_R.7\\_19.pdf](http://www.thegef.org/sites/default/files/publications/GEF-7%20Programming%20Directions%20-%20GEF_R.7_19.pdf)) of April, 2018 and its Chemicals and Waste Focal Area Strategy. The project is aligned with the GEF-7 investment framework that aims (among other objectives) to:

- Eliminate/restrict/control emissions of the chemicals listed in Annex A, B and C of the Stockholm Convention**
- Eliminate emissions and releases of mercury in activities and processes listed in Annexes A, B, C and D of the Minamata Convention on Mercury**, particularly those activities that emit or use the highest level of mercury as well as support the control of supply and trade, waste and sound management and storage of mercury and mercury containing waste;
- Support the objectives of the Strategic Approach to International Chemicals Management**, specifically in supporting the global phase out of the manufacture of lead based paint, building capacity for management and disposal of e-waste, elimination of chemicals of global concern from the supply chain of commercial and domestic products and support to countries to control and prevent the unsafe use and disposal of highly hazardous pesticides.

**Industrial Chemicals Program (Program 1):** The project is aligned with the **Industrial Chemicals Program (Program 1)** of the GEF-7 Chemicals and Waste Focal Area, which seeks to eliminate or significantly reduce chemicals subject to better management by:

- The Stockholm Convention on Persistent Pollutants
- The Minamata Convention on Mercury
- The Strategic Approach to International Chemicals Management

Through supporting projects and programs that address:

- Chemicals and Waste at the end of life
- Chemicals that are used or emitted from or in processes and products
- Management of the waste, or waste containing these chemicals

The Chemicals and Waste MEA specific areas that will be addressed by the proposed project in line with the GEF-7 Industrial **Chemicals Program (Program 1)**, are the following:

**Chemicals and Waste at end of life:**

- Elimination of the use of polychlorinated biphenyls (PCBs) in equipment by 2025.
- Environmentally sound waste management/disposal of mercury/mercury containing waste or persistent organic pollutants including liquids containing PCBs and equipment contaminated with PCBs having a PCB content above 0.005%, in accordance with paragraph 1 of Article 6 and part II of Annex A of the Convention, as soon as possible and no later than 2028.
- Prevention of waste/products containing persistent organic pollutants from entering material recovery supply chains (including e-waste management with the aim of preventing e-waste from entering solid waste).

**Chemicals used/emitted from/in processes and products:**

- Introduction and use of best available techniques and best environmental practices to minimize and ultimately eliminate releases of unintentionally produced POPs and mercury from major source categories included in both the Stockholm and Minamata Conventions including, but not limited to, cement manufacturing, coal fired power plants, various metallurgical processes, waste incineration;
- Elimination of the use of mercury and persistent organic pollutants in products (including brominated flame retardants, PFOS and short chained paraffins) as well as the use of mercury in products (as specified in Annex A of the Minamata Convention) by phasing out manufacturing of the pure chemicals and introduction of alternatives in the products with a preference to non-toxic chemicals;
- Phase out of the manufacture of lead based paints.

**Agriculture Chemicals Program (Program 2):** The project is also aligned with the **Agriculture Chemicals Program (Program 2)** of the GEF-7 Chemicals and Waste Focal Area, which seeks to address the agricultural chemicals that are listed as Persistent Organic Pollutants under the Stockholm Convention and agricultural chemicals that contain mercury or its compounds. The Chemicals and Waste MEA specific areas that will be addressed by the proposed project in line with the GEF-7 **Agriculture Chemicals Program (Program 2)**, are the following:

- Where the chemicals are in use, investments will be made to introduce alternatives.
- The program will target the reduction of Endosulphan, Lindane and highly/severely hazardous pesticides that enter the global food supply chain as well as address end of life, waste and obsolete POPs and mercury based agricultural chemicals and management and safe disposal of agricultural plastics contaminated by POPs and mercury based agricultural chemicals.

**Least Developing Countries and Small Island Developing States Program (Program 3):** The project is also aligned with the **Least Developing Countries and Small Island Developing States Program (Program 3)**, as Rwanda is classified as an LDC. Program 3 seeks to address the sound management of chemicals and waste through strengthening the capacity of sub-national, national and regional institutions and strengthening the enabling policy and regulatory framework in these countries. The program aims to support the development of public-private partnerships specifically adapted to the circumstances of LDCs and SIDS to enable the sound management of chemicals and waste. The Chemicals and Waste MEA specific areas that will be addressed by the proposed project in line with the GEF-7 **Least Developing Countries and Small Island Developing States Program (Program 3)**, are the following:

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

## **E) INCREMENTAL/ADDITIONAL COST REASONING AND EXPECTED CONTRIBUTIONS FROM THE BASELINE, THE GEFTF, LDCF, SCCF, AND CO-FINANCING**

Contributions from the baseline are predominantly originating from i) Chemicals and Waste related inventory activities, both financed by the GEF as well as the Government; ii) Capacity built under the GEF-4 PCB management project, the establishment of an interim storage facility, the drafting of the PCB law and guidelines as well as capacity built at a newly constructed cement kiln (CIMERWA) which resulted in the disposal of 52.2 tonnes of PCB contaminated oil (<1,000 ppm); iii) Existing capacity for the collection, dismantling and export of e-waste at the EnviroServe/GoR/FONERWA facility; iv) Existing capacity for the collection, treatment and disposal of healthcare waste at a number of centralized incinerators; v) Existing capacity of approximately 35 companies in the collection, transport and disposal of municipal waste at the current Nduba dumpsite.

Co-financing contributions from partners that will help advance the project's objectives are the construction and management of the new sanitary landfill (WASAC/City of Kigali/private investor) as well as the waste collection fees from households and enterprises; Expansion of the Dépôt Pharmaceutique Kalisimbi's capacity for healthcare waste treatment through procurement of a BAT incinerator and BAT autoclave; Enviroserve's investment in a recycling line for acid-lead batteries & recurrent expenditures in the operation of the e-waste recycling facility; and, the introduction of cleaner production practices in garages, tea plantations/factories and beer companies through the Cleaner Production Center at NIRDA.

The project, using GEFTF contributions, will build on these baseline activities and complement co-financing interventions to further strengthen the enabling policy/regulatory framework to create (financial) incentives for the sound management of chemicals, the introduction of safer alternatives, minimization of hazardous waste generation and its environmentally safe treatment. Without GEFTF support, advances in improving the policy and regulatory framework would not be fast enough to keep up with the rapidly growing industrial sector in Rwanda or allow Rwanda to meet its commitments under Stockholm and Minamata Conventions.

GEFTF contributions will also focus on phasing-out mercury containing products (Minamata Conventions's deadline being 2020 for Rwanda); introducing POPs and Hg alternatives; minimizing hazardous waste generation and harmful releases through the introduction of safer alternatives and cleaner (production) processes; further enhancing the environmental performance and treatment capacity of waste treatment facilities; and initiating waste valorization through engagement with research institutes/universities and private sector partners. Without GEF support these types of interventions would not be as actively pursued by the private sector and additional project support is expected to make the difference between a status quo situation and innovative industry actions.

GEFTF contributions will also be used to further engage potential investors (such as FONERWA - the Rwanda Green Fund) to create the capacity of interested private sector partners to apply for FONERWA seed funding to launch new endeavours to green their operations/processes or start the production of green products. The project would also provide the necessary support to support the implementation of "greening" efforts at facility/industry level, which without project support might less likely take place or be less successful.

## **F) GLOBAL ENVIRONMENTAL BENEFITS (GEFTF) AND/OR ADAPTATION BENEFITS (LDCF/SCCF); AND**

The project's Global Environmental Benefits (GEBs) can be summarized as follows:

§ Export and eliminate/dispose abroad of 3 pure PCB-containing Askarel transformers<sup>[1]</sup> and 4 highly contaminated in-service transformers with a combined weight of about 5 tonnes (total of 7 transformers).

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[1] Four (4) transformers are still in service: 2 at Mironko Plastic Industries in Kigali, 1 at Ruhengeri Hospital (Musanze), and 1 at La Palisse hotel.

- Eliminate/dispose of remaining PCB-contaminated transformers estimated to total 120 tonnes of PCB contaminated equipment, including ~ 36 tonnes of contaminated oil.
- Phase-out/eliminate/dispose of 1 tonne of mercury through the phase-out of products containing mercury.
- Dispose of 47.7 tons of obsolete pesticides, of which 3,028 tonnes of POPs pesticides.
- Eliminate (in an environmentally sound manner) up to 35,000 tons of waste containing brominated PBDEs (equivalent to 35 tonnes of brominated POPs).
- Reduction of up to 24.5 g-TEQ from the incineration of waste through the introduction of BEP and BAT in hazardous waste treatment facilities.

## **G) INNOVATION, SUSTAINABILITY AND POTENTIAL FOR SCALING UP**

**Innovation:** The proposed project for Rwanda is considered innovative. First and foremost, Rwanda is one of the few countries in the world where a ban on single use plastic bags has been fully and effectively implemented, and for more than a decade now. Based on experiences and lessons-learned from the introduction and implementation of this plastic bag ban, it is expected that the phase-out of mercury and POPs containing products, and the introduction of safer alternatives under the project will be implemented as effectively and successfully, and will demonstrate to other countries located in the region and beyond, that the introduction and implementation of such measures is doable, feasible and viable.

Furthermore, the country is one of the few in Africa where an e-waste facility has been established with Private Sector (Enviroserve) and Government Support (through provision of seed money from the Rwanda Green Fund) and is operating in a manner that is achieving compliance with international standards. The project will build on the activities of the e-waste facility and jointly explore with the facility (as part of project activity 3.2.3) a) the feasibility of locally suitable disposal/treatment solutions for additional hazardous waste streams (e.g. lead batteries, Hg containing waste); 2) Subsequently introduce management/treatment processes for new hazardous waste streams; and 3) further enhance the environmental performance of waste treatment facilities. Such achievements would be a first in the region.

Additional innovative interventions proposed by the project would focus on further enhancing the environmental performance of CIMERWA as well as assessing opportunities for expanding the type of hazardous waste streams that could be treated by the cement kiln and would be suitable options as alternative fuels and/or sources of income (e.g. plastics, waste oils from garages, etc). As described in the baseline section, as part of the UNDP/GEF project “Management of PCBs stockpiles and equipment containing PCBs” which was recently concluded, capacity of the new cement kiln (CIMERWA) was built and the process adjusted to enable the facility to dispose of PCB contaminated oil (a total of 52.5 tonnes of PCB contaminated transformer oil was treated in that manner). Furthermore, the project might look at formalizing CIMERWA’s offer of PCB-contaminated waste oil disposal for REG, to allow for additional identified contaminated oils to be disposed of in the future (in case more will be identified). Finally, the project could also assess opportunities for disposal of PCB-contaminated oil from neighboring countries in the region (with a contamination lower than the limit recommended under the PCB project).

Furthermore, the project will also look at suitable remediation options for the contaminated REG transformer maintenance site. The project will await the move of the REG maintenance site to an industrial zone, then test the site and assess the opportunity to remediate the site using innovative bioremediation solutions that would be in line with best available technologies (BAT) and best environmental practices (BEP) as included in the guidelines of the Stockholm Convention.

**Sustainability:** In terms of sustainability, the proposed project will:

A. Put in place regulatory measures/incentives to ensure the availability of long-term financial resources for the treatment of hazardous waste streams (e.g. development of an Extended Producer Responsibility (EPR) framework – initially focusing on a number of priority products, Introduction and implementation of the Polluter Pays Principle (PPP); Strengthening of the national legislative framework pertaining to POPs/Hg);

B. Build on on-going efforts driven by the private sector (e.g. Enviroserve e-waste facility; HCW centralized treatment facility; CIMERWA; recycling companies) to improve their performance and increase their capacity to expand services to additional hazardous waste streams, while focusing on waste streams of which the treatment or valorization can create income and generate livelihoods/jobs.

C. Create capacity of interested private sector partners to apply for FONERWA seed funding to launch new endeavours in waste management, waste valorization, waste recycling and waste treatment, in order to reduce the risks of initial investments.

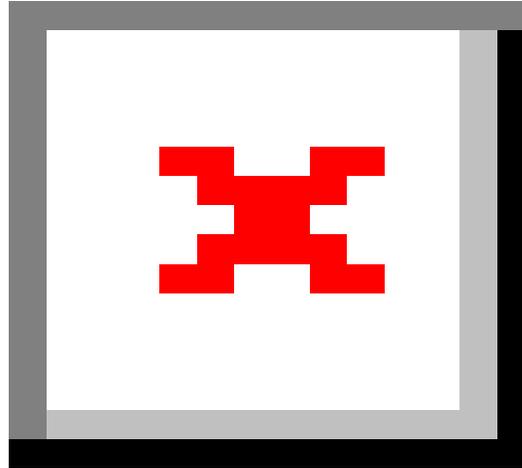
**Potential for scaling-up:**

There is substantial potential for scaling-up within the country, as well as within the African continent. Initially the project will predominantly focus on the capital Kigali, but potential for scaling up lies in the expansion to secondary cities as well as newly established industrial zones.

The potential for scaling-up within the African continent predominantly lies in the fact that Rwanda is a great example for other African countries and is demonstrating new approaches (and their successful implementation) which could be replicated in other countries. These approaches range from the implementation of bans on single use plastics, to the treatment of complicated hazardous waste streams, to the greening of their industry and its relocation to industrial zones. The synergy of this project with the Rwanda innovation funds such as FONERWA is also to be underlined as great potential to foster replication and scale-up in Rwanda; it also enables to draw lessons for implementation of such funds in other developing countries.

**1b. Project Map and Coordinates**

**Please provide geo-referenced information and map where the project interventions will take place.**



## **2. Stakeholders**

Select the stakeholders that have participated in consultations during the project identification phase:

**Indigenous Peoples and Local Communities**

**Civil Society Organizations** Yes

**Private Sector Entities** Yes

If none of the above, please explain why:

In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement.

Table 1: Stakeholder Engagement throughout Project Preparation

Type of stakeholder	Name or description	How stakeholder will be engaged in the project's preparation	Potential role of stakeholder in the project
Private Sector Entities	PCB holders: Electrical Power Sector Company (REG), Banks, Hotel	Companies will be engaged to help design project Component 1, Output 1.1.1 & Component 3, Output 3.1.1 and 3.1.2	Support the phase-out of remaining PCB-containing /contaminated equipment owned by REG, 2 banks and a hotel; the disposal/treatment of PCB-containing/contaminated equipment; the remediation of a PCB-contaminated transformer maintenance site; and, support the approval of the drafted PCB law.

<p>Hazardous waste treatment facilities (Enviroserve e-waste recycling facility; CIMERWA cement kiln; Health-care waste treatment facilities - Dépôt Pharmaceutique Kalisimbi, among others)</p>	<p>Companies will be engaged to help design project Component 1, Outputs 1.1.2 – 1.1.7; Component 2, Output 2.1.1; Component 3, Outputs 3.1.1 – 3.2.4; Component 4, Output 4.1.1.</p>	<p>Provide inputs into and review new legislation/guidelines pertaining to their fields of operation;</p> <p>Provide relevant data for inclusion in the Hazardous Waste Inventory;</p> <p>Improve the Environmental performance of waste treatment facilities and increase treatment capacity (volumes/ additional hazardous waste streams);</p> <p>Build/further improve capacity for the collection, packaging, transportation, storage, treatment/disposal of POPs/Hg containing wastes;</p> <p>Support the assessment/feasibility of locally suitable disposal/treatment solutions for hazardous waste streams;</p> <p>Support pilot projects to demonstrate new approaches for the valorization/treatment/disposal of hazardous waste streams;</p> <p>Provide co-financing in the form of investments in technologies/infrastructure to treat hazardous wastes (including those wastes containing Industrial POPs/Hg/chemicals of concern);</p> <p>Support the design of an awareness raising plan/campaign, to increase collection rates of particular hazardous waste streams.</p>
<p>§ Chemical companies (manufacturers and distributors)</p> <p>§ Tea factories; Agro-companies</p> <p>§ Textile Industry</p> <p>§ Distributors of electrical and electronic equipment</p> <p>§ Private healthcare facilities</p>	<p>Companies will be engaged to help design project Component 1, Outputs 1.1.2 – 1.1.7; Component 2, Outputs 2.1.1 – 2.1.3; Component 3, Outputs 3.2.1, 3.2.3 and 3.2.4; Component 4, Output 4.1.1.</p>	<p>Provide inputs into and review new legislation/guidelines pertaining to their fields of operation;</p> <p>Provide relevant data for inclusion in the Hazardous Waste Inventory;</p> <p>Support the design and testing of the web-based hazardous waste monitoring tool;</p> <p>Support and participate in the implementation of pilot projects to avoid the generation of (hazardous) waste through the introduction of cleaner production practices, improved stock management, waste segregation, the phase-out of harmful chemicals; the selection and introduction of safer alternatives; valorization of waste streams; improving capacity for safe interim waste storage and the selection of suitable final treatment solutions.</p>

<p>Waste collection and disposal companies (e.g. 36 waste collection companies + landfill operator)</p>	<p>Companies will be engaged to help design project Component 1, Outputs 1.1.2 – 1.1.7; Component 2, Output 2.1.1; Component 3, Outputs 3.2.1 – 3.2.4; Component 4, Output 4.1.1.</p>	<p>Provide inputs into and review new legislation/guidelines pertaining to their fields of operation;</p> <p>Provide relevant data for inclusion in the Hazardous Waste Inventory;</p> <p>Support the assessment/feasibility of locally suitable disposal/treatment solutions for hazardous waste streams</p> <p>Support pilot projects to demonstrate new approaches for the valorization/treatment/disposal of hazardous waste streams;</p> <p>Provide co-financing in the form of investments in technologies/infrastructure to treat hazardous wastes (including those wastes containing Industrial POPs/Hg/chemicals of concern).</p> <p>Support the design of an awareness raising plan/campaign, to increase collection rates of particular waste streams (in particular recyclables).</p>
<p>Waste valorisation and recycling companies (ecoplastic, agroplast, Ameki plastic, etc.)</p>	<p>Companies will be engaged to help design project Component 1, Outputs 1.1.2 – 1.1.7; Component 2, Output 2.1.1; Component 3, Outputs 3.2.1; Component 4, Output 4.1.1.</p>	<p>Provide inputs into and review new legislation/guidelines pertaining to their fields of operation;</p> <p>Provide relevant data for inclusion in the Hazardous Waste Inventory;</p> <p>Support pilot projects to demonstrate new approaches for the valorization of (hazardous) waste streams;</p> <p>Provide co-financing in the form of investments in technologies/infrastructure to support the recycling of wastes;</p> <p>Support the design of an awareness raising plan/campaign, to increase collection rates of particular waste streams (in particular recyclables).</p>

Public sector	Rwanda Environmental Management Authority (REMA)	REMA will lead the development of all project activities and coordinate the development of the PRODOC with project stakeholders and beneficiaries	<p>REMA will be the Implementing Partner for this project. The Implementing Partner is responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of GEF and UNDP resources;</p> <p>Lead the development of new legislation/guidelines pertaining to PCBs, POPs, Hg and hazardous wastes;</p> <p>Lead the development of the Hazardous Waste Inventory;</p> <p>Lead the design and testing of the web-based hazardous waste monitoring tool;</p>
	Ministry of Health and Social Protection (MINISANTE)	MINISANTE will support the design of project Component 1, Outputs 1.1.2 – 1.1.7; Component 2; Component 3, Outputs 3.2.2 and 3.2.3; and Component 4.	<p>Support the development of new legislation/guidelines pertaining to PCBs, POPs, Hg and hazardous wastes,</p> <p>Support the development of an elimination plan for products and waste containing mercury used in the health sector;</p> <p>Support and guide the introduction of BAT/BEP in the separation at source, management, treatment and disposal of health-care waste.</p>
	Ministry of Infrastructure (MININFRA) & Water and Sanitation Cooperation (WASAC)	Support the design of project components and activities related to control the trade of Industrial POPs and the products that contain them (Component 2 & 3).	<p>Implementation of investment and labour intensive Water and Sanitation projects, funding sanitation projects, prepare, monitor and regulate water quality and hygiene standards, setting policies related to sanitation, water supply, infrastructure, urbanization and settlements, support districts in the construction of water supply systems, latrines and hygiene promotion.</p> <p>WASAC: Water production and distribution in countrywide; responsible for urban sewerage systems and sludge emptying services, coordination of all activities related to the programmes aimed at development of water and sanitation, sensitization of users of water in any way possible, as well as sanitation infrastructure, proper management of water and sanitation, funding the construction of sanitation and water facilities, waste management</p>

Rwanda Utilities Regulatory Authority (RURA)	RURA will be engaged to help design project Component 1, Outputs 1.1.2 – 1.1.7; Component 2; Component 3, Outputs 3.2.2 and 3.2.3; and Component 4.	<p>Ensure that basic services including Water and Sanitation are provided according to the required standards and that there are good conditions for fair completion in provision of those public services (i.e. water and sanitation);</p> <p>Provide inputs into and review new legislation/guidelines pertaining to POPs/Hg/chemicals of concern &amp; hazardous wastes;</p>
Rwanda Bureau of Standards (RBS)	RBS will be engaged to help design Component 1, Outputs 1.1.2 – 1.1.7;	<p>Participate in inspection of Sanitation systems of hotels and other businesses along with MINISANTE, REMA and the City of Kigali;</p> <p>Provide inputs into and review new legislation/guidelines pertaining to POPs/Hg/chemicals of concern &amp; hazardous wastes;</p> <p>Provide technical expertise to project beneficiaries (healthcare, waste treatment facilities, hotels, among others) in introducing cleaner production practices;</p> <p>Support the introduction of mercury-free alternatives.</p>
Rwanda Revenue Authority (RRA) – Customs Department	RRA will be engaged to help design Component 1, Output 1.1.4 and Component 4, Output 4.2.1.	<p>Help increase Rwanda customs services awareness of waste streams controlled by the Stockholm and Minamata Conventions and set SOPs with REMA in order to take appropriate action in case of suspected irregularities; embed introductory modules on waste in primary and recurrent training programmes for customs officers.</p>

	Universities/research institutes/school (e.g. University of Rwanda, NIRDA/CPC)	Universities/research institutes will be engaged to help design project Component 1, 2, 3 and 4.	<p>Provide inputs into and review new legislation/guidelines pertaining to POPs/Hg/chemicals of concern &amp; hazardous wastes;</p> <p>Provide technical expertise to the development of the Hazardous Waste Inventory;</p> <p>Provide technical expertise to project beneficiaries (industry, agriculture, healthcare, waste treatment facilities, among else) in introducing cleaner production practices, supporting the phase-out of harmful chemicals and the identification/assessment/introduction of safer alternatives (e.g. to POPs/Hg/chemicals of concern);</p> <p>Support the assessment of the potential for valorization of priority waste streams;</p> <p>Support the assessment of the feasibility of locally suitable disposal/treatment solutions for hazardous waste streams (e.g. new POPs, e-waste, lead batteries, Hg containing waste, end-of-life vehicles);</p> <p>Support the introduction of new/enhanced treatment processes introduced led by the private sector.</p>
Local Communities	Communities located in poor urban and rural areas that are living close to contaminated sites, industry or waste dumps.	Representatives of local communities, will be engaged to help design project Component 4.	Communities, in partnership with local and national NGOs/CBOs and environmental authorities, will support the monitoring of project activities carried out in their areas (e.g. remediation of contaminated site) and participate in the development of a comprehensive communication strategy (Component 4) as well as provide inputs to project activities that are relevant to the general public (e.g. waste segregation at source, phase-out of mercury-containing products, increasing collection rates for e-waste, etc.); green jobs to be created will benefit local communities as well.
CSO / NGOs	Global Green Growth Initiative Rwanda - GGGI (and potentially other NGOs/CBOs)	NGOs will be engaged to help design project Component 4.	<p>Participate in the development of a comprehensive communication and knowledge management strategy for all project activities.</p> <p>Support awareness raising activities, in partnership with local CBOs and NGOs in order to reach project beneficiaries and stakeholders.</p> <p>Support dissemination of project results at national, regional and global level.</p>

### 3. Gender Equality and Women's Empowerment

**Briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis).**

In daily life, men, women, and children are exposed to different kinds of chemicals in varying concentrations. Biological factors — notably size and physiological differences between women and men and between adults and children — influence susceptibility to health damage from exposure to toxic chemicals. Social factors, primarily gender-determined occupational roles, also have an impact on the level and frequency of exposure to toxic chemicals, the types of chemicals encountered, and the resulting impacts on human health.

As is standard practice during the preparation of UNDP-GEF projects (during the project's **PPG** phase), a detailed **Gender Analysis** will be conducted that will identify potential gender-responsive measures that can be introduced during project implementation in order to address gender gaps, promote gender equality, improve women's participation and decision-making (women empowerment) with respect to the sound management of chemicals and wastes.

The gender analysis will include the collection of sex-disaggregated data working closely with experts, organizations and/or institutions that have expertise on gender issues. The gender analysis will in particular focus on workers, children, pregnant women and fertile populations as well as other vulnerable population groups who might be exposed to chemicals and its negative impacts.

To ensure that gender is effectively mainstreamed in the project, even at PIF submission stage, a **preliminary Social and Environmental Screening Procedure (pre-SESP)** has been carried out for this project to flag all potential risks. Some of the risks identified in the pre-SESP include reinforcement of discrimination against women and other forms of gender inequality. Therefore, in the course of the PPG, this will be examined more closely through extensive engagement with local communities and a **Gender Action Plan** will be developed to mainstream gender throughout the project's activities, to upscale the opportunities for women to get training and employment and to collect gender-disaggregated data wherever possible.

UNDP guidance such as **"How to conduct a Gender Analysis"** and **"Guide into Mainstreaming Gender into UNDP Chemicals & Waste Projects"**, will be used to support the development of a context appropriate gender plan. This should help towards gender-responsive and gender-transformative results, and actively engage women and other vulnerable groups as change agents and active citizens, and not only as victims of inequalities.

**Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?** Yes

**closing gender gaps in access to and control over natural resources;**

**improving women's participation and decision-making; and/or** Yes

**generating socio-economic benefits or services for women.** Yes

**Will the project's results framework or logical framework include gender-sensitive indicators?**

Yes

#### **4. Private sector engagement**

**Will there be private sector engagement in the project?**

Yes

**Please briefly explain the rationale behind your answer.**

The proposed project is predominantly building on and enhancing private sector initiatives. The project aims to work with private sector entities from various sectors, including but not limited to: the electrical power sector, banks, hotels, tea plantations/factories as well as commercial farms, waste collection companies, waste treatment companies (waste incineration companies, CIMERWA), waste recycling companies (e-waste recycling, plastics recycling), textile factories, paint industry, among else.

As mentioned in Part II: 2 – ‘The baseline scenario and any associated baseline projects’, there is a significant number of private sector initiatives/activities which the project will support.

As part of **Component 1** (Strengthen the policy/regulatory framework to create (financial) incentives for the sound management of chemicals, the introduction of safer alternatives, minimization of hazardous waste generation and its environmentally safe treatment), private sector entities will be engaged and consulted during the development and review of new/revised chemicals and waste related policies/regulations that would have an impact on their operations and/or might create future opportunities.

As part of **Component 2** (Minimize hazardous waste generation through the introduction of safer alternatives and cleaner (production) processes in industry and other priority sectors), the project will engage with the private sector to conduct a detailed hazardous waste inventory and develop a web-based hazardous waste monitoring tool that would allow/enable entities (both private and public) to record and track their waste generation.

Furthermore, this project component will work with industry and private entities in priority economic sectors (e.g. commercial agriculture, private healthcare facilities) in introducing cleaner production practices, which will include the phase-out of harmful substances/products and the assessment/selection and introduction of safer alternatives, improved stock management (to avoid the generation of obsolete chemicals and pharmaceuticals), waste segregation at source, and a reduction in hazardous releases and hazardous waste generation.

As part of **Component 3** (Improve private sector and institutional capacity for the sound environmental treatment and disposal of hazardous waste streams), the project will engage with the private sector on the phase-out/replacement of PCB containing/contaminated electrical equipment (electrical power sector, banks, hotels) and work with the private sector on the removal and disposal/treatment of PCB wastes and (potentially) the bio-remediation of 1 contaminated REG maintenance site. Furthermore, the project will work with the private sector on the removal, packaging and disposal of obsolete POPs and non-POPs pesticides (potentially in-country by CIMERWA or otherwise through export).

**Component 3** will also work with research institutes, universities and private sector partners on assessing the potential for valorization of priority (hazardous) waste streams that if proven viable can be taken up by the private sector. In addition the project will work with these partners on identifying, assessing and introducing locally suitable disposal/treatment solutions for hazardous waste streams that the country is currently unable to handle/treat (e.g. new POPs, lead batteries, Hg containing waste, end-of-life vehicles). Furthermore, the project will work with existing waste recycling/treatment facilities to improve their environmental performance and support these private sector led initiatives in further enhancing and increasing their capacity (better service provision, less environmental releases, higher treatment capacity and diversification in hazardous waste streams treated).

Finally, **Component 4** (Raise awareness to support behavioral change, capture and disseminate experiences, lessons-learned and best practices) will work with private sector waste generators, collectors and waste treatment facilities on raising the awareness on how to introduce safer alternatives and better, cleaner and safer practices/processes, improve waste segregation and make use of economic incentives to turn waste collection and treatment into viable business opportunities.

## **5. Risks**

**Indicate risks, including climate change, potential social and environmental risks that might prevent the Project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the Project design (table format acceptable)**

**Table 2:** Risks and proposed mitigation measures

Risk	Mitigation Measure
Difficulties in obtaining the data/information required to develop a detailed Hazardous Waste Inventory and populate the web-based hazardous waste monitoring tool.	The project will ensure during its development and implementation to fully engage all stakeholders and to raise adequate awareness on the importance of the inventory, the monitoring of waste generation rates as well as the ultimate objectives of the inventory to keep workers, the population and the environment safe.
Authorities, civil servants, private sector and other stakeholders may lack the knowledge and skills necessary for the environmentally sound management of chemicals.	An awareness-raising and training/capacity building plan will be developed and implemented for national authorities, civil servants, private sector and other stakeholders who are working on aspects related to chemicals and waste management, to ensure that they obtain the necessary knowledge, expertise and experience to perform their tasks properly.
National waste treatment facilities in Rwanda are unable to eliminate priority hazardous waste streams/(Industrial) POPs/Hg containing wastes in an environmentally-sound manner, or they do not have sufficient capacity to do so.	The project will assess installed and operational capacity/technologies in Rwanda and determine if technology changes can be made to existing installations to treat/dispose of hazardous waste streams/POPs/Hg. As a last resort, the project might export POPs/Hg-containing wastes for sound disposal/treatment.
Industries and priority economic sectors (agriculture, healthcare) are reluctant to replace chemicals of concern/or products containing them with alternative substances.	The project will compile and share technical information on feasible substitutes for Industrial POPs/Hg-containing products/chemicals of concern (including agro-chemicals) and their application. The project, in partnership with NIRDA/Cleaner Production Centre, will conduct facility/entity assessments and subsequently train industries and private sector entities on the assessment/selection and introduction of alternatives into existing processes, the optimization of production processes (cleaner production) and familiarize them with the benefits of safer alternatives and cleaner production processes.
Environmental, health and trade authorities do not actively participate in the development and implementation of project activities.	A project team as well as a project steering committee will be established and will be made up of representatives from all involved authorities and main stakeholders, in order to regularly share results of the project and to plan for upcoming activities. Meetings will be held with executives from different government organizations to communicate the relevance of their participation in the project. Project partners will benefit from the awareness-raising and training/capacity building programme, which will further increase their project participation, engagement, ownership and commitment.

<p>Private sector partners are reluctant to invest in the management, collection, treatment/disposal of less viable (more complicated) hazardous waste streams.</p>	<p>The project will support the drafting/revision and approval of PCB/POPs/Hg laws/regulations; regulations/guidelines on the handling/treatment of priority hazardous waste streams; Industry incentives to generate less (hazardous) waste (e.g. Polluter Pays Principle introduced) and develop an Extended Producer Responsibility (EPR) framework. These regulatory measures will help put in place economic incentives for waste disposal/treatment facilities to enter into the management/disposal/treatment of additional hazardous waste streams.</p> <p>Furthermore, the project will also collaborate with FONERWA – the Rwanda Green Fund – which is interested in providing seed funding to support the private sector on greening (FONERWA financially supported Enviroserve in setting up the e-waste facility). The project and FONERWA, in partnership with NIRDA/CPC will provide training on how to develop the necessary documentation in order to be eligible for FONERWA support.</p>
<p>Extreme weather events, such as extreme rainfall, might lead to flooding, flash floods or landslides impacting waste related infrastructure (landfills, dumpsites, hazardous waste storage facilities, contaminated sites, etc.) or the infrastructure of the waste processing/recycling facilities.</p>	<p>The project will undertake the necessary risk assessments during the PPG phase (including updating the Social and Environmental Screening – SESP, and preparing an Environmental and Social Management Framework - ESMF or an Environmental and Social Management Plan - ESMP) to determine the suitability of project locations and locations where project interventions will be carried out.</p> <p>At the same time the vulnerability to the consequences of climate change of existing waste storage/disposal/treatment/recycling facilities that will be involved in the proposed project will also be assessed.</p>

## 6. Coordination

**Outline the institutional structure of the project including monitoring and evaluation coordination at the project level. Describe possible coordination with other relevant GEF-financed projects and other initiatives.**

### **Institutional structure of the project**

The project will be implemented following UNDP’s national implementation modality (NIM, according to the Standard Basic Assistance Agreement between UNDP and the Government of Rwanda, and the Country Program Action Plan (CPAP). The **Implementing Partner** for this project is the **Rwanda Environment Management Agency (REMA)**. The Implementing Partner is responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources.

The project organization structure is as follows:

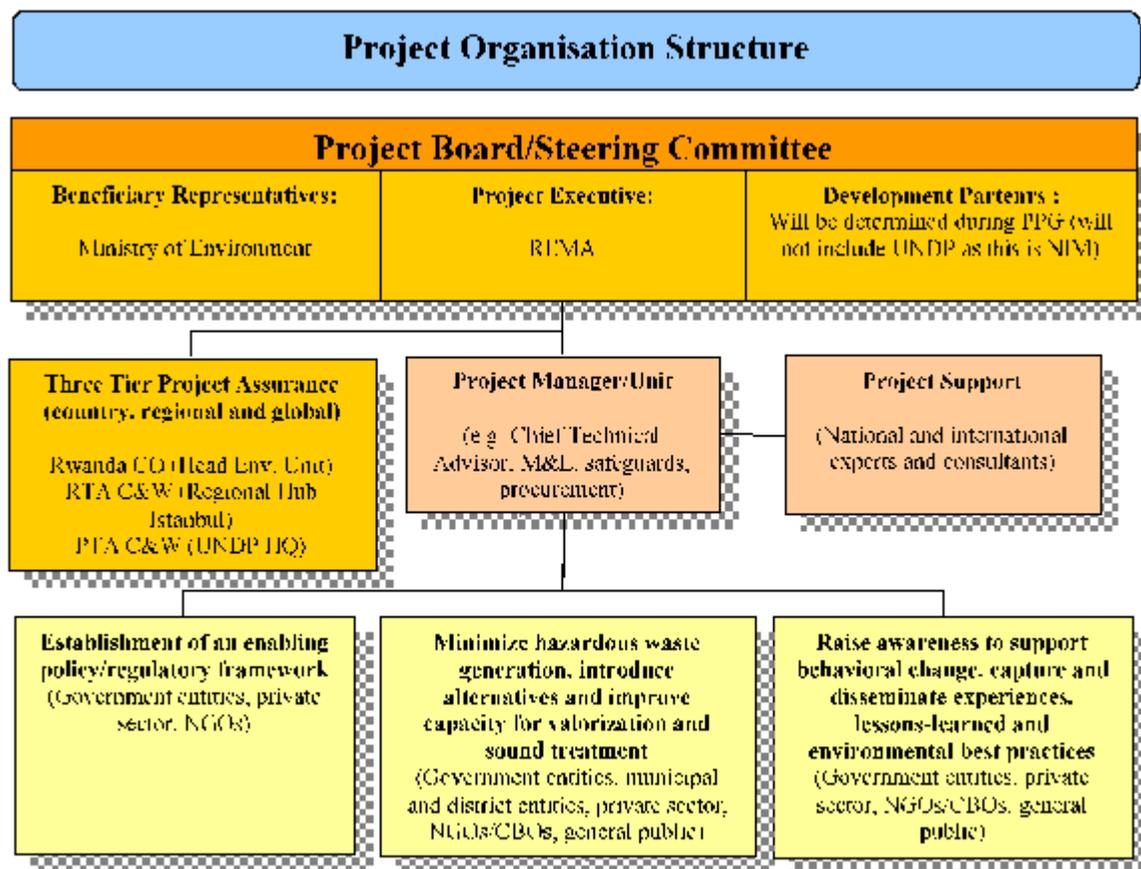


Figure 1. Project Organization Structure

**Project Board:** The Project Board (also called Project Steering Committee) is responsible for taking corrective action as needed to ensure the project achieves the desired results. In order to ensure UNDP's ultimate accountability, Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition.

In case consensus cannot be reached within the Board, the UNDP Resident Representative (or their designate) will mediate to find consensus and, if this cannot be found, will take the final decision to ensure project implementation is not unduly delayed.

Specific responsibilities of the Project Board include:

- Provide overall guidance and direction to the project, ensuring it remains within any specified constraints;
- Address project issues as raised by the project manager;
- Provide guidance on new project risks, and agree on possible mitigation and management actions to address specific risks;
- Agree on project manager's tolerances as required, within the parameters set by UNDP-GEF, and provide direction and advice for exceptional situations when the project manager's tolerances are exceeded;
- Advise on major and minor amendments to the project within the parameters set by UNDP-GEF;
- Ensure coordination between various donor and government-funded projects and programmes;
- Ensure coordination with various government agencies and their participation in project activities;
- Track and monitor co-financing for this project;
- Review the project progress, assess performance, and appraise the Annual Work Plan for the following year;
- Appraise the annual project implementation report, including the quality assessment rating report;
- Ensure commitment of human resources to support project implementation, arbitrating any issues within the project;
- Review combined delivery reports prior to certification by the implementing partner;
- Provide direction and recommendations to ensure that the agreed deliverables are produced satisfactorily according to plans;
- Address project-level grievances;
- Approve the project Inception Report, Mid-term Review and Terminal Evaluation reports and corresponding management responses;

- Review the final project report package during an end-of-project review meeting to discuss lessons learned and opportunities for scaling up.

The composition of the Project Board will include the following roles:

- Project Executive:** Is an individual who represents ownership of the project and chairs the Project Board. The Executive is normally the national counterpart for nationally implemented projects. The Project Executive is: REMA, represented by the Director General.
- Beneficiary Representative(s):** Individuals or groups representing the interests of those who will ultimately benefit from the project. Their primary function within the board is to ensure the realization of project results from the perspective of project beneficiaries. Often civil society representative(s) can fulfil this role. The Beneficiary representative is: The Ministry of Environment.
- Development Partner(s):** Individuals or groups representing the interests of the parties concerned that provide funding and/or technical expertise to the project. The Development Partner(s) will be determined during the PPG phase. As this is a NIM project, this role will not be played by UNDP.
- Project Assurance:** UNDP performs the quality assurance role and supports the Project Board and Project Management Unit by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. The Project Board cannot delegate any of its quality assurance responsibilities to the Project Manager. UNDP provides a three – tier oversight services involving the UNDP Country Offices and UNDP at regional and headquarters levels. Project assurance is totally independent of the Project Management function.

**Project Manager:** The Project Manager has the authority to run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the Project Board. The Implementing Partner appoints the Project Manager, who must be different from the Implementing Partner’s representative in the Project Board.

The Project Manager’s primary responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. The Project Manager will inform the Project Board and the Project Assurance roles of any delays or difficulties as they arise during implementation so that appropriate support and corrective measures can be adopted. The Project Manager will remain on contract until the Terminal Evaluation report and the corresponding management response have been finalized and the required tasks for operational closure and transfer of assets are fully completed.

Specific responsibilities include:

- Manage the overall conduct of the project.
- Plan the activities of the project and monitor progress against the approved workplan.

- Execute activities by managing personnel, goods and services, training and low-value grants, including drafting terms of reference and work specifications, and overseeing all contractors' work.
- Monitor events as determined in the project monitoring plan, and update the plan as required.
- Provide support for completion of assessments required by UNDP, spot checks and audits.
- Manage requests for the provision of UNDP financial resources through funding advances, direct payments or reimbursement using the FACE form.
- Monitor financial resources and accounting to ensure the accuracy and reliability of financial reports.
- Monitor progress, watch for plan deviations and make course corrections when needed within project board-agreed tolerances to achieve results.
- Ensure that changes are controlled and problems addressed.
- Perform regular progress reporting to the project board as agreed with the board, including measures to address challenges and opportunities.
- Prepare and submit financial reports to UNDP on a quarterly basis.
- Manage and monitor the project risks – including social and environmental risks - initially identified and submit new risks to the Project Board for consideration and decision on possible actions if required; update the status of these risks by maintaining the project risks log;
- Capture lessons learned during project implementation.
- Prepare revisions to the multi-year workplan, as needed, as well as annual and quarterly plans if required.
- Prepare the inception report no later than one month after the inception workshop.
- Ensure that the indicators included in the project results framework are monitored annually in advance of the GEF PIR submission deadline so that progress can be reported in the GEF PIR.
- Prepare the GEF PIR;
- Assess major and minor amendments to the project within the parameters set by UNDP-GEF;
- Monitor implementation plans including the gender action plan, stakeholder engagement plan, and any environmental and social management plans;
- Monitor and track progress against the GEF Core indicators.

- Support the Mid-term review and Terminal Evaluation process.

#### **Monitoring and evaluation coordination at the project level:**

The project results as outlined in the project results framework will be monitored annually and evaluated periodically during project implementation to ensure the project effectively achieves these results. Supported by Component 4: Raise awareness to support behavioral change, capture and disseminate experiences, lessons-learned and best practices.

Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the UNDP POPP and UNDP Evaluation Policy. The UNDP Country Office will work with the relevant project stakeholders to ensure UNDP M&E requirements are met in a timely fashion and to high quality standards. Additional mandatory GEF-specific M&E requirements (as outlined below) will be undertaken in accordance with the GEF M&E policy and other relevant GEF policies ([https://www.thegef.org/gef/policies\\_guidelines](https://www.thegef.org/gef/policies_guidelines)).

In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report. This will include the exact role of project target groups and other stakeholders in project M&E activities including the GEF Operational Focal Point and national/regional institutes assigned to undertake project monitoring. The GEF Operational Focal Point will strive to ensure consistency in the approach taken to the GEF-specific M&E requirements (notably the GEF Core Indicators) across all GEF-financed projects in the country. This could be achieved for example by using one national institute to complete the GEF Core Indicators for all GEF-financed projects in the country, including projects supported by other GEF Agencies ([https://www.thegef.org/gef/gef\\_agencies](https://www.thegef.org/gef/gef_agencies)).

#### **Possible coordination with other relevant GEF-financed projects and other initiatives:**

The project will ensure coordination with and aim to build on capacity built and knowledge gathered from the projects listed below:

§ GoR/Enviroserve/FONERWA - e-waste recycling facility.

§ City of Kigali / WASAC / Private Investor - Nduba Landfill Management.

§ GEF/World Bank - Child project for Rwanda of the Sustainable Cities Impact Programme. More information will be available during the PPG phase as the child project is being presented for approval at the GEF 57th Council Meeting.

§ Cleaner Production Center / NIRDA – greening of garages, tea plantations/factories, beer companies.

§ GEF/UNIDO (GEF-5 Grant: 180,000 US\$; co-financing: 190,000 US\$) “*Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)*”

§ GEF/UNDP (GEF-4 Grant: 886,700 US\$; co-financing: 1,081,870 US\$) “*Management of PCBs stockpiles and equipment containing PCBs*” including the capacity build of CIMERWA on the disposal of PCB contaminated oils and/or waste oils.

§ GEF/UNEP (GEF-4 Grant: \$5,000,000 US\$; co-financing: 5,590,684 US\$) “*AFLDC Capacity Strengthening and Technical Assistance for the Implementation of Stockholm Convention National Implementation Plans (NIPs) in African Least Developed Countries (LDCs) of the COMESA Subregion*”

§ GEF/UNIDO (GEF-3 Grant: 371,000 US\$) “*Enabling activities to facilitate early action on the implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) in Rwanda*”

§ REMA/UNEP/UNITAR “*Ratification and Early Implementation of MINAMATA Convention on Mercury*” which resulted in the “*National survey of mercury and mercury compounds used in mining with particular attention on artisanal small scale gold mining, and in other sectors of development (health, ICT, Industry, Water, Construction, etc.)*”

§ GEF/UNDP/World Bank/Health Care Without Harm (GEF-5 Grant: 6,453,195 US\$; co-financing: 28,936,164 US\$), “*Reducing UPOPs and Mercury Releases from the Health Sector in Africa*” which has developed and compiled several key knowledge products on improving various steps in the process of health care waste management to minimise UPOPs emissions and Mercury releases in Sub-Saharan African context.

§ FAO work in the region on HHPs

§ Multi-Stakeholder Waste Resource Platform developed by UNDP in Ghana (funded by UNDP’s Country Investment Facility).

## **7. Consistency with National Priorities**

### **Is the Project consistent with the National Strategies and plans or reports and assessments under relevant conventions**

Yes

**If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc**

- National Action Plan for Adaptation (NAPA) under LDCF/UNFCCC
- National Action Program (NAP) under UNCCD
- **ASGM NAP (Artisanal and Small-scale Gold Mining) under Mercury**
- **Minamata Initial Assessment (MIA) under Minamata Convention**
- National Biodiversity Strategies and Action Plan (NBSAP) under UNCBD

- National Communications (NC) under UNFCCC
- Technology Needs Assessment (TNA) under UNFCCC
- National Capacity Self-Assessment (NCSA) under UNCBD, UNFCCC, UNCCD
- **National Implementation Plan (NIP) under POPs**
- Poverty Reduction Strategy Paper (PRSP)
- National Portfolio Formulation Exercise (NPFE) under GEFSEC
- Biennial Update Report (BUR) under UNFCCC
- Others

The project is consistent with the following national plans and assessments under the following conventions:

- National Implementation Plan (NIP) under POPs
- ASGM NAP (Artisanal and Small-scale Gold Mining) under Mercury
- Minamata Initial Assessment (MIA) under Minamata Convention

In 2016, the Government of the Republic of Rwanda and the Rwanda Environment Management Authority (REMA) completed a the updated National Implementation Plan (NIP) of the Stockholm Convention on Persistent Organic Pollutants (POPs), which identified the following action plans and strategies for POPs management:

**"Old" POPs:**

- Conduct yearly national inventory of pesticides used in the agriculture sector, obsolete pesticides included
- Evaluation and Popularization of Alternatives to POPs pesticides adapted to the local context
- Stockpiles of obsolete pesticides assembled and secured; and evacuated for elimination
- Availability of database of identified contaminated sites by Pesticides
- Security of identified contaminated sites by pesticides and sensitization of the surrounding communities
- Rehabilitation of identified contaminated sites containing POPs pesticides and obsolete pesticides
- Institutional arrangements and Inter-Sectoral Collaboration for better monitoring of pesticides management

**"New" POPs:**

- Establishment of a data acquisition system that should avail reliable data timely.
- Lack of understanding and knowledge on "New" POPs
- Management and disposal of POPs-contaminated articles ("New" POPs containing wastes)

- Monitoring and surveillance of health status relevant to potential impacts of “New” POPs.
- Identification of contaminated sites;
- Setup mechanisms to reduce and control the release of UPOPs
- Strengthening of the current regulatory and institutions framework
- Establishment of guidelines for “New” POPs wastes management, including the reuse, recycling
- Publication of research data of “New” POPs to increase the public awareness

The analysis of the above priorities led to the formulation of country actions plans for the updated NIP that were divided into three categories ( common action plans for both old and NEW POPS, action plan specific to old POPs and action plans specific to “New” POPs) as illustrated in the table below.

Categories of Action Plans	Number of action plan	Action Plan
Common action plans for both “New” and “Old” POPs	1.	Institutional and regulatory strengthening measures
	2.	Release from unintentional production of PCDDs/PCDFs/PCBDs, HCB and PCBs (SC Annex C)
	3.	Awareness
	4.	Monitoring and Research Development
	5.	Reporting
Action Plans specific to “Old” POPs	6.	Production, use, stockpile, and waste of POPs pesticides (SC Annex A and B).
	7.	Production, use, stockpile, and waste of DDT (SC B).
Action Plans specific to “New” POPs	8.	Production, use, stockpile, and waste of new Industrial POPs (SC Annex A and Annex B)
	9.	Production, use, stockpile, and waste of new POPs pesticides (SC Annex A and Annex B)
	10.	Release from unintentional production of new POPs (SC Annex C).

The proposed project will directly and indirectly support all the actions plans taken up in the NIP update.

In August 2018, the Government of the Republic of Rwanda and the Rwanda Environment Management Authority completed a national survey of mercury and mercury

compounds used in mining with particular attention on artisanal small scale gold mining, and in other sectors of development (health, ICT, Industry, Water, Construction, etc.). The national action plan mapped out priority activities that will be able to reduce mercury releases in the country and is a first step in meeting future Minamata Convention obligations. The NAP identified the following priorities:

1. To assess national capacity to implement the Minamata Convention through policy analysis, institutional capacity strengthening and to conduct in depth countrywide mercury and mercury compounds inventory. 2. To improve the policy and regulatory framework governing the management of hazardous waste and mercury and mercury compounds specifically. 3. To undertake awareness raising among priority groups and built capacity through training on mercury management. 4. To improve waste management practices for mercury and mercury containing wastes. 5. To phase-down and to phase-out the use of mercury and mercury containing products. 6. To improve monitoring and reporting capacity on mercury concentration in all concerned environmental compartments (soil, water and air) as well as in foods. 7. To control and reduce emissions of mercury and mercury compounds to the atmosphere from waste incineration facilities; smelting and roasting processes used in the recycling of metals and cement production plant.

The proposed project will directly and indirectly support priorities 1 – 5 and 7.

## **8. Knowledge Management**

**Outline the Knowledge management approach for the Project, including, if any, plans for the Project to learn from other relevant Projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.**

The knowledge management approach of the project will consist of the following activities:

- During the project's PPG phase, a Knowledge Management Strategy in support of the implementation of Project Component 4 "Raise awareness to support behavioral change, capture and disseminate experiences, lessons-learned and best practices" will be developed. The Strategy will predominantly focus on how to change behaviours (and operations) of waste generators. The KM strategy will focus on how to learn from relevant projects, initiatives and evaluations, which include the GEF/UNDP project on the "Management of PCBs stockpiles and equipment containing PCBs", the establishment of the GoR/FONERWA/Enviroserve e-waste recycling facility, and Stockholm and Minamata Enabling Activities (NIP, capacity for NIP implementation, NIP update and MIA/NAP development).
- Annually, the project will prepare a report which will summarize the progress of each of the project's activities, achievements, difficulties, lessons learned, risk management and contribution to the SDGs. This will be part of the PIR process.
- As part of the process to conduct the detailed hazardous waste inventory to obtain insights in the types, volumes and locations of hazardous waste generation in Rwanda, the project will also design and implement a web-based hazardous waste monitoring tool for waste generators to enable/ensure waste tracking. This on-line system will allow

companies to monitor and track their waste generation while at the same time it allows REMA to monitor progress and compliance of waste generators. The web-based system will ensure that knowledge and data on hazardous waste generation will remain available and be used long after the project comes to an end.

The project will draft and publish a guidance document that will describe how to identify products and wastes containing Industrial POPs, Hg and other chemicals of concern, feasible alternatives for their substitution and how to dispose/treat wastes containing Industrial POPs/Hg/chemicals of concern within the Rwandan setting and the treatment options available.

•  A specific guidance document (aimed at awareness raising / entry-point training) will be developed for customs officers and other enforcement officers in charge of environment regulations, focusing on POPs and Mercury-containing wastes and products.

Each year the project will organize a seminar to present the results of the project, to which national and international experts will be invited to speak on topics of interest to the project and its stakeholders.

National research centers will participate in the development of some project activities, such as the University of Rwanda and the NIRDA Cleaner Production Center, as well as other Rwandan research institutions. These institutions will disseminate acquired knowledge to the scientific community and other stakeholders.

Electrical power companies, banks, hotels, industry, healthcare facilities, agro-businesses, research institutions and other sectors/industries will be both project beneficiaries as well as project co-financers. They will be the direct recipients of the knowledge generated throughout the project and will support the dissemination of this knowledge throughout their organizations.

At the end of the project, a document capturing all lessons-learned during the project's implementation will be published.

**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 with this template).**

<b>Name</b>	<b>Position</b>	<b>Ministry</b>	<b>Date</b>
Eng. Coletha U. RUHAMYA	Director General	Rwanda Environment Management Authority	9/25/2019

**ANNEX A: Project Map and Geographic Coordinates**

Please provide geo-referenced information and map where the project intervention takes place

