



Develop an environmentally sound and sustainable waste management model by segregating and managing hazardous POPs and mercury-containing fractions
GEF-REQUEST FOR PROJECT ENDORSEMENT/APPROVAL

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

PART I: PROJECT INFORMATION

Project Title: POPs and mercury-free solutions for environmentally sound waste management in Paraguay			
Country(ies):	Republic of Paraguay	GEF Project ID:	10682
GEF Agency(ies):	UNIDO (select) (select)	GEF Agency Project ID:	200228
Project Executing Entity(s):	Ministry of Environment and Sustainable Development	Submission Date:	
GEF Focal Area (s):	Chemicals and Wastes	Expected Implementation Start	2/15/2023
		Expected Completion Date	2/15/2028
Name of Parent Program	[if applicable]	Parent Program ID:	

A. FOCAL/NON-FOCAL AREA ELEMENTS

PROGRAMMING DIRECTIONS	Focal Area Outcomes	Trust Fund	(in \$)	
			GEF Project Financing	Confirmed Co-financing
CW-1-1	Develop an environmentally sound and sustainable waste management model by segregating and managing hazardous POPs and mercury-containing fractions.	GEFTF	4,000,000	70,098,373
Total project costs			4,000,000	70,098,373

B. PROJECT DESCRIPTION SUMMARY

Project Objective: To transform the linear, wasteful solid waste management sector in Paraguay into an environmentally sound and sustainable model by restricting the type of products imported, promoting awareness, segregating and managing hazardous POPs and mercury-containing fractions in an environmentally sound way.

Project Components/ Programs	Component Type	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF Project Financing	Confirmed Co-financing
Component 1: Policy strengthening by integrating industrial waste management principles into the legislative framework targeting municipalities.	TA	Outcome 1.1. Enhanced policy and regulatory framework to include environmentally sound management (ESM) of waste for municipalities.	Output 1.1.1. Policy recommendations on ESM principles for industrial waste management, including import ban on POP-containing and mercury-added products, Extended Producer Responsibility-EPR, alternative product promotion and recyclability of valuable parts drafted. Output 1.1.2. Guidelines for ESM and	GEFTF	198,788	1,221,000

			sustainable waste management targeting policy and decision makers drafted.			
<p>Component 2: National capacity building, knowledge management and awareness-raising on industrial waste solutions aligning urban with peri-urban and rural areas.</p>	TA	<p>Outcome 2.1. Strengthened capacity and awareness to accelerate the adoption of ESM principles, BAT/BEP and financing options resulting in sustainable and POPs and mercury (Hg)-free operations.</p>	<p>Output 2.1.1. Updated inventory of POPs and Mercury materials and waste-streams to identify opportunities for ESM and further Global Environmental Benefits.</p> <p>Output 2.1.2. Technical manuals drafted for the ESM of waste in selected sectors, including EPR and BAT/BEP for sustainable and POPs and Hg-free waste management targeting practitioners and operators.</p> <p>Output 2.1.3. Improved knowledge management on POPs and Hg in waste streams, BAT/BEP and upstream ESM options feeding and strengthening the national System of Environmental Information (SIAM) as a tool for assisting decision-making and knowledge management.</p> <p>Output 2.1.4. Trainings for government officials at national and local levels, as well as private sector (especially waste collectors and recyclers), and media professionals on potential ESM solutions for selected sectors to understand</p>	GEFTF	528,578	3,247,000

			<p>and tackle waste, POPs and Hg issues.</p> <p>Output 2.1.5. Awareness-raising programs and customized events, especially for media, general public and specific target groups (i.e. children and women), on ESM and sustainability approaches for waste management.</p>			
<p>Component 3: Pilot projects, including public-private partnerships, BAT/BEP and final disposal of POPs and Hg-containing materials, for sustainable waste management.</p>	TA	<p>Outcome 3.1. Reduction of POPs and Hg through BAT/BEP and ESM applications, including upgrading and/or upscaling of recycling infrastructures.</p>	<p>Output 3.1.1. Specific ESM plans for the pilot projects on POPs-reduction, recovery of valuable / recyclable materials and final disposal of POPs and Hg-containing materials and wastes.</p> <p>Output 3.1.2. Tools for promotion of business and financing options for ESM activities, including support for the establishment of a business incubator to help relevant startups succeed, and identifying potential Public-Private Partnerships.</p>	GEFTF	172,780	1,061,000
	INV		<p>Output 3.1.3. Pilot projects implemented for ESM of valuable/recyclable fractions (e.g, source separation, collection and transport, pre-processing, recycling or re-use) of selected fractions as well as for the proper disposal of urban and industrial waste, avoiding u-POPs emissions.</p> <p>Output 3.1.4. Final BAT/BEP disposal of POPs and mercury containing fractions.</p>	GEFTF	2,611,689	59,436,511

Component 4: Project Monitoring and Evaluation.	TA	4.1. Monitoring 4.2. Evaluation	4.1.1. Monitoring system set and operational (including monitoring of ESMP, Gender Action Plan and Stakeholder Engagement Plan). 4.2.1. Mid-term review and terminal independent evaluation conducted. 4.2.2. Lessons learned shared with all relevant stakeholders for future application, development and improvement.	GEFTF	300,665	1,847,000
Subtotal				GEFTF	3,812,500	66,812,511
Project Management Cost (PMC)				GEFTF	187,500	3,285,862
Total project costs					4,000,000	70,098,373

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

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

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

Sources of Co-financing	Name of Co-financier	Type of Cofinancing	Investment Mobilized	Amount (\$)
Recipient Country Government	Ministry of Environment and Sustainable Development (MADES)	In-Kind	Recurrent expenditures	727,235
Recipient Country Government	Administración Nacional De Electricidad (ANDE)	Public Investment	Investment mobilized	13,136,400
Private sector	Compañía de Petróleo y Asfalto S.A (COMPASA)	In-Kind	Recurrent expenditures	993,000
		Equity Investment	Investment mobilized	8,772,714
Private sector	CORESA Compañía Recicladora	In-Kind	Recurrent expenditures	2,368,450
		Equity Investment	Investment mobilized	18,332,542
Private sector	BRASSUR	In-Kind	Recurrent expenditures	3,807,750
		Equity Investment	Investment mobilized	21,196,860
Private sector	TAYI Ambiental	In-Kind	Recurrent expenditures	550,000
GEF Agency	UNIDO	Grant	Investment mobilized	82,000
Beneficiary	Municipality of Tebicuary	Public investment	Investment mobilized	131,422

Total Co-financing			70,098,373
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Describe how any “Investment Mobilized” was identified.

Firstly, during the project preparatory phase, all the stakeholders and existing initiatives related to the project were mapped out in order to identify patterns and synergies, and avoid duplication of work.

Afterwards, UNIDO and the Ministry of Environment and Sustainable Development (MADES) held several meetings and exchanges with potential stakeholders to communicate the objectives of the project, to find synergies with their ongoing work and priorities, and ultimately to identify co-financing modalities and areas of collaboration. Such meetings took place with representatives of the Ministry of Environment and Sustainable Development, the Ministry of Public Health and Social Welfare, the National Electricity Administration, various municipalities across Paraguay, private sector related to waste management, and civil society organisations.

Most of these partners confirmed their commitment through co-financing letters. Investment has been mobilized under all the project components - most notably for the pilot projects, under component 3.

The public investment and in-kind contributions to support the project reach approximately 22,000,000 USD materialized through the Ministry of Environment and Sustainable Development, the National Electricity Administration and the private sector. The co-financing/investment mobilized will contribute to support components 1, 2 and 3.

Private sector will be involved in all the project components, especially in component 3 and confirmed an investment mobilized of 48,000,000 USD to support the purpose of the project.

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

GEF Agency	Trust Fund	Country Name/Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee (b)	Total (c)=a+b
UNIDO	GEFTF	Republic of Paraguay	Chemicals and Waste	POPs	3,000,000	285.000	3,285,000
UNIDO	GEFTF	Republic of Paraguay	Chemicals and Waste	Mercury	1.000.000	95.000	1,095,000
Total GEF Resources					4,000,000	380.000	4,380,000

D. DOES THE PROJECT INCLUDE A “NON-GRANT” INSTRUMENT? No

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

E. PROJECT’S TARGET CONTRIBUTIONS TO GEF 7 CORE INDICATORS

Update the relevant sub-indicator values for this project using the methodologies indicated in the Core Indicator Worksheet provided in Annex F and aggregating them in the table below. Progress in programming against these

targets is updated at mid-term evaluation and at terminal evaluation. Achieved targets will be aggregated and reported any time during the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCCF.

Project Core Indicators		Expected at CEO Endorsement
1	Terrestrial protected areas created or under improved management for conservation and sustainable use (Hectares)	
2	Marine protected areas created or under improved management for conservation and sustainable use (Hectares)	
3	Area of land restored (Hectares)	
4	Area of landscapes under improved practices (excluding protected areas)(Hectares)	
5	Area of marine habitat under improved practices (excluding protected areas) (Hectares)	
	Total area under improved management (Hectares)	
6	Greenhouse Gas Emissions Mitigated (metric tons of CO ₂ e)	34,000 ton CO ₂ eq /year (see Note 1)
7	Number of shared water ecosystems (fresh or marine) under new or improved cooperative management	
8	Globally over-exploited marine fisheries moved to more sustainable levels (metric tons)	
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)	9.37 ton of PFOS/year (see Note 2) 2.95 ton Hg/year (see Note 3)
10	Reduction, avoidance of emissions of POPs to air from point and non-point sources (grams of toxic equivalent gTEQ)	10.2 g TEQ (see Note 4)
11	Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment	5,100 people (60% male/40% female) (see Note 5)

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 1: It is estimated that approximately 1,000,000 tons/year of domestic waste are open burned by the generators themselves or in uncontrolled waste dumpsites (year 2017), generating the emission of 135,600 ton CO₂ eq. Assuming a 25 % reduction of the total waste disposed of via uncontrolled burning, this represents a reduction of 34,000 ton CO₂ eq /year.

Note 2: **PFOS**: BAT/BEP applications to at least 745 tons/year from different consumer and industrial items (e.g. textiles and paper), representing 9,340 kg of PFOS/year, as well as to 30 tons/year of aviation hydraulic fluids, which corresponds to 30 kg of PFOS/year. The total expected PFOS reduction through import restriction and proper disposal is 9,370 kg/year.

Note 3: **Mercury:** reduction and elimination of 1.16 tons Hg/year mercury-added products and the management of their waste. Reduction of 1.79 ton Hg/year as a result of 25 % reduction of the total waste disposed of via uncontrolled burning. Total reduction of 2.95 ton Hg/year.

Note 4: According to the NIP update (2018), 40.6 g TEQ are generated as a consequence of open burning of domestic waste. Direct reduction of at least 10.2 g TEQ, assuming a 25 % reduction of the total waste disposed of via uncontrolled burning among other waste ESM.

Note 5: At least 100 people among the relevant stakeholders (60 male and 40 female) trained. At least 5,000 people (60% male/40 % female) reached by awareness-raising activities organized through events/programs on waste and POPs and Hg management.

F. PROJECT TAXONOMY

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

Level 1	Level 2	Level 3	Level 4
Influencing Models	Transform policy and regulatory environments Strengthen institutional capacity and decision-making Convene multi-stakeholder alliances Demonstrate innovative approaches		
Stakeholders	Private Sector	SMEs Individuals/Entrepreneurs	
	Beneficiaries	Local governments; Health sector (uPOPs and Hg); Ministries of Environment and Health; private sector (waste collectors and recyclers); academia	
	Local Communities	Municipalities	
	Civil Society	Community Based Organization Non-Governmental Organization Academia	
	Type of Engagement	Information Dissemination Partnership Consultation Participation	
	Communications	Awareness Raising Education Public Campaigns Behavior Change	
Capacity, Knowledge and Research	Capacity Development		
	Knowledge Generation and Exchange		
	Learning	Theory of Change Adaptive Management	
	Innovation		
	Knowledge and Learning	Knowledge Management Innovation Capacity Development Learning	
	Stakeholder Engagement Plan		
Gender Equality	Gender Mainstreaming	Beneficiaries Women groups Sex-disaggregated indicators Gender-sensitive indicators	
	Gender results areas	Participation and leadership Capacity development Awareness raising	
Focal Area/Theme	Chemicals and Waste	Mercury Persistent Organic Pollutants	

		Unintentional Persistent Organic Pollutants Sound Management of chemicals and Waste Waste Management Emissions Disposal New Persistent Organic Pollutants Open Burning Best Available Technology / Best Environmental Practices	Hazardous Waste Management Industrial Waste
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PART II: PROJECT JUSTIFICATION

1a. *Project Description.* Elaborate on: 1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description); 2) the baseline scenario and any associated baseline projects; 3) the proposed alternative scenario with a brief description of expected outcomes and components of the project; 4) alignment with GEF focal area and/or Impact Program strategies; 5) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing; 6) global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF); and 7) innovativeness, sustainability and potential for scaling up.

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

The information presented in this CEO endorsement document builds on the situation described in the Project Identification Form (PIF).

During the Project Preparation Grant (PPG) phase, the project framework and implementation arrangements have been discussed with the government and relevant stakeholders to be involved in project implementation. The components and outcomes of the PIF have been kept, however, PFOS and Hg inventories were updated, new stakeholders’ agreements were achieved and the scope of the pilot projects were defined. Also, the allocation of funds to each output and to the PMC were revised – this was done based on the confirmed needs of each specific activity, identified upon revision during PPG phase. Similarly, the confirmed co-financing to each component was updated. The activities carried out during the PPG phase were mainly aimed at:

- Updating the baseline used in the PIF document on PFOS and Hg inventories.
- Reviewing the legal and institutional framework on waste, POPs and Hg, including existing strategic plans or those in the process of being prepared.
- Identification of stakeholders involved, roles and co-financing.
- Drafting of pilot projects based on the criteria established by MADES and UNIDO, existing strategic plans, potential stakeholders involved and the possibility of co-financing.
- Identification of potential synergies and lessons learned from other projects with similar characteristics.

In addition, the core indicators were adjusted and supplemented as follow:

Indicator # 6 (GHG emissions mitigated). It is estimated that approximately 1,000,000 tons/year of domestic waste are open burned by the generators themselves or in uncontrolled dumpsites (year 2017), generating the emission of 135.6 kton CO₂ eq. Assuming a 25 % reduction of the total waste disposed of via uncontrolled burning, this represents a reduction of **34 kton CO₂ eq /year**. This indicator was not reported in the PIF stage.

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).

- Based on the partial update of the Minamata Initial Assessment (MIA), it was estimated the reduction and elimination of 1.16 ton Hg/year mercury-added products. Reduction of 1.79 ton Hg/year as a result of 25 % reduction of the total waste disposed of via uncontrolled burning was also estimated. The total reduction is **2.95 ton Hg/year**. During the PIF stage, this reduction has been estimated at 5.6 ton Hg/year.
- During the PPG phase, an update of some PFOS inventories was carried out, including: (i) Firefighting foams, (ii) Aviation hydraulic fluids, (iii) Textiles and paper, and (iv) Leather Industry sector. Regarding firefighting foams, all the existing stocks were used and no use of PFOS was found in the tanning sector. The annual consumption of aviation hydraulic fluids was estimated at 30 tons, which corresponds to 30 kg of PFOS. The annual consumption of textiles and paper treated with PFOS was estimated at 745 tons, which represents 9,340 kg of PFOS. The total expected reduction through import restriction and proper disposal is **9,370 kg PFOS/year**. During the PIF stage, this reduction has been estimated at 1,602 kg PFOS /year.

Indicator # 10 (Reduction, avoidance of emissions of POPs to air from point and non-point source). According to the NIP update (2018), 40.6 g TEQ are generated as a consequence of open burning of domestic waste. Direct reduction of at least **10.2 g TEQ**, assuming a 25 % reduction of the total waste disposed of via uncontrolled burning, among other waste ESM. During the PIF stage, this reduction has been estimated at **34 g TEQ**.

Indicator # 11 (Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment). At least 100 representatives among relevant stakeholders (60 male and 40 female) trained. At least 5,000 people (60% male/40 % female) reached by awareness-raising activities organized through events/programs on waste and POPs and Hg management. The total number of direct beneficiaries is **5,100 (60% male/40 % female)**. During the PIF stage this number had been estimated at 5,000.

Last, regarding **cofinancing**, at PIF stage it was estimated that the cofinancing figure would reach USD 27,832,000. However, during the meetings with stakeholders held at project preparation phase, the cofinancing figure reached USD 70,098,373.

Summary of changes after initial submission

During the GEF Sec review of this project submitted in May 2022, the GEF requested UNIDO to avoid the co-processing of used hydrocarbons containing POPs in cement kilns, which was mentioned in Pilot Project 2. UNIDO then resubmitted a proposal to carry out the conditioning and export of POPs-containing waste for destruction in facilities abroad. Since Paraguay is a land-locked country, the cost of exporting hazardous wastes is higher than in countries with coastline. For this reason, an increase in funds for the project of USD 180,000 was requested (reaching USD 4,180,000 for the entire project). The GEF Sec accepted this export proposal and acknowledged the additional cost associated with the export of the hazardous materials, however, following the 2020 Guidelines on the Project and Program Cycle policy, the Budget cannot be increased, due to the finalization of the GEF-7 cycle. The rest of the comments from the first resubmission, have been already cleared. This second resubmission addresses the project budget that cannot be increased while keeping the export alternative.

- 1) **The global environmental and/or adaptation problems, root causes and barriers that need to be addressed**

Paraguay is a landlocked country with a rural population of around 40% who largely depend on agricultural, livestock and incipient industrial activities. The country also has 256 municipalities mainly located in peri-urban or rural areas, except for six main conglomerates; the capital Asunción and its surrounding Departamento Central, Ciudad del Este, Encarnación, Caaguazú, Coronel Oviedo, and Pedro Juan Caballero.

People living in the surrounding areas require everyday consumer products and services from Asunción, including food, clothing, cars, and medical services, all of which have a limited life span and, in the end, become waste. Unfortunately, waste management practices are poor and the related infrastructure is either very limited or entirely absent in peri-urban areas. Generally, all waste streams are still being openly dumped and burned, and not being transported to more semi-regulated waste management facilities located in Asunción. Thus, the missing urban-rural links between Asunción and the smaller cities creates tremendous environmental challenges and missed economic opportunities, not only for the remote local areas and small municipalities but also for all at the national and even regional scales. Therefore, sectoral and thematic integration to tackle persistent organic pollutants (POPs) and mercury (Hg) issues is distinctly lacking in Paraguay.

In fact, POPs are being used for the production of products such as PFOS for consumer items and industrial applications. Although the use of PFOS has stopped for several items, for which POPs-free alternatives are available, PFOS is still being used for other items related to specific exemptions included in the Stockholm Convention. To tackle the environmentally sound management (ESM) of POPs-containing items and to increase the recyclability of valuable fractions, Paraguay is missing relevant important bans on POPs-added products, promotion of Extended Producer Responsibility (EPR) to avoid waste at end-of-life cycle, and alternative product promotion to avoid the use of PFOS-containing items and industrial applications.

In terms of mercury sources at country level, mercury-added products and waste incineration represent the largest sources of emissions and releases. There is a relatively large consumption of mercury-added products such as thermometers, light sources, and dental amalgams among others, all of which are imported as there is no local manufacturing of such products. As a consequence of the lack of adequate management and treatment, there is widespread incineration of mercury-added product waste in incinerators which do not comply with Stockholm Convention and Minamata Convention guidelines, especially regarding the management of released gases, which are directly emitted to the atmosphere without any treatment. This is particularly problematic given the ability of mercury emissions to travel over long distances.

At the end-of-life cycle these products are not being separated into valuable/recyclable and non-valuable (POPs-containing) fractions to ensure environmentally sound management (ESM) approaches. In reality, POPs and mercury in waste and its unsound management creates vast and complex environmental and public health problems in Paraguay, such as the release of unintentionally-produced POPs (u-POPs) and mercury, the mixture of solid waste with POPs and Hg-containing articles, and the recycling and use of POPs-containing items across the country.

Missing links from urban to peri-urban and rural areas bring additional economic constraints to the national economy in terms of the absence of ESM approaches and solutions to close the loop where a linear model still prevails in the fields of industrial and solid waste management.

This proposed project will reach its objective through tackling POPs and Hg problems associated with unsound waste management and its related global environmental problems through life-cycle approaches, including the recycling of non-hazardous valuable waste and reduction and/or final disposal of POPs or mercury-containing waste.

There are several root causes and barriers towards the fulfilment of ESM for the identified sectors including commitments set by the Stockholm and Minamata Conventions, which have been identified during the PIF preparation stage. The main barriers include the following:

Political:

- Insufficient regulatory framework related to the promotion of ESM, especially related to BAT/BEP;

- No tax incentives for recycled goods and recycling services;
- Lack of incentives to adopt ESM, BAT/BEP and RECP principles.

Financial:

- No funding and investments into sustainable business models and promotion of ESM structures.

Technical:

- Lack of national capacity for implementing, enforcing and monitoring ESM approaches, including lack of human and technical resources;
- Lack of technical knowledge about POPs use, products containing POPs or Hg, and their potential alternatives or BAT/BEP (including segregation at source);
- Lack of awareness and knowledge among relevant stakeholders about ESM.

2) The baseline scenario and any associated baseline projects.

In the absence of the proposed GEF project, POPs and Hg exposure through unsound management and open burning of consumer and industrial items will continue resulting in human and environmental risks. Traditional solid waste will result in valuable/recyclable fractions being mixed with hazardous wastes, which in turn will result in missed economic, environmental and social opportunities that could be obtained through the adoption of ESM principles. The likely scenario is the absence of further incentives to adapt the linear, unsustainable operations into a virtuous, sustainable management framework to encourage BAT/BEP and RECP applications to close the loop in the product life-cycle. Therefore, the existing system will continue to harm the environment and human health as well as causing the loss of valuable resources, which could be re-used or recycled within the production process.

Baseline for policy, legislation and ESM

Specific legislation on comprehensive solid waste management is in force in Paraguay, specifically Law 3,958/09 on Comprehensive Solid Waste Management and its regulatory decree. Precisely this law assigns the Ministry of Environment and Sustainable Development as the national enforcement authority and the governorates and municipalities at the local level. Within this framework, in 2020 MADES elaborated and promulgated the National Plan for Comprehensive Management of Solid Waste. This National Plan constitutes a guideline for the elaboration of the Governmental and Municipal Plans, respectively. In order to contribute to the local authorities, MADES has promulgated resolutions that provide operability to the management of urban solid waste and hazardous solid waste. Likewise, as technical instruments and as a contribution to the Municipalities, it has promulgated the Guide for the Characterization of Solid Waste and the Guide for the Preparation of Municipal Plans for the Comprehensive Management of Urban Solid Waste.

The management of solid urban waste by law is strictly a municipal responsibility and competence, municipalities have a duty and commitment to collect and transport all waste produced by the community, provide proper treatment and the final destination of waste, thus ensuring the welfare of the community population, as well as the protection of the environment. The management of municipal authorities is essential for the comprehensive management of municipal solid waste. They have the responsibility of executing, raising awareness and uniting actions between the different sectors involved: citizens, technicians, private companies, NGOs and the local government.

The Ministry of Public Health and Social Welfare (MSPyBS), is the enforcement authority of Law 3,361/07 on Comprehensive Management of Waste generated in Health and Related Establishments and its regulatory decree. Within the framework, MSPyBS has issued a Manual of Procedures for the Comprehensive Management of Waste generated in Health and Related Establishments which contributes to the application of clean technologies and practices that reduce the amount of waste, as well as pollution associated with waste mishandling.

The following are regulations related to waste, POPs and Mercury management in Paraguay, which are relevant for this project:

- Law 3959/09 on Integral Management of Solid Waste in the Republic of Paraguay.
- Decree 7391/17, to Regulate Law 3956/09, Integral Management of Solid Waste in the Republic of Paraguay.
- Law 3361/07 on Waste Generated in Health Care and Related Establishments.
- Law 294/93 on Environmental Impact Assessment.
- Decree 453/13 which regulates Law 294/93 on Environmental Impact Assessment.
- Law 5211/14 on Air Quality. Art.12 establishes that persistent organic pollutants (POPs) are controlled by this law, although to date MADES has not yet regulated the permissible emission limits for POPs.
- Law 42/90 – “That prohibits the importation and use of hazardous industrial wastes or toxic garbage” in which any natural person or legal entity is prohibited to import products qualified as residue, hazardous industrial waste or toxic garbage, and assist, by any means, in its entrance, reception, storage, use, or distribution anywhere inside the country.
- Law 567/95 "That approves of the Basel Convention on Control of Transboundary Movements of Hazardous Wastes and their Disposal".
- Law 1262/98 "That approves of the amendment to the Basel Convention" to reduce the volume of wastes exchange in order to protect human health and the environment, establishing a control system for the export and import of hazardous wastes and their disposal.
- Law 2333/03 approving the Stockholm Convention on Persistent Organic Pollutants.
- Law 5882/17 on Integral Management of Household Batteries.
- Resolution SEAM 627/16 that prohibits the import of used tyres for direct reuse, without prior remanufacturing, and regulates the comprehensive management of used tyres generated in the country.
- Resolution S.G. 844/14, which provides for the development of a plan to minimize exposure and replacement of Mercury in the health sector and establishes an inter-institutional technical committee responsible for said work (not yet implemented).
- Resolution MADES 355/20 approving the National Hazardous Waste Management Plan.
- Resolution MADES 356/20 approving the National Urban Solid Waste Management Plan.
- Resolution MADES, which regulates the comprehensive management of Waste from Electrical and Electronic Equipment (WEEE) generated in the country (not yet enacted).

In spite of this body of laws, none of the stages of chemical life-cycle management are adequately covered. The industrial chemicals sector has the fewest legal instruments compared to agricultural and public consumption chemicals. However, both the industrial and commercial sectors are the ones that best manage their waste, due to Law 294/93 on Environmental Impact Assessment and its decree, which contemplate a procedure for periodic review and rectification of the environmental management of different projects. Conversely, this does not apply to urban waste, with all types of waste (mixed organic, inorganic and hazardous) tending to end up in landfills, as it is not segregated at source. This represents a significant challenge for the various municipalities.

Currently, city by-laws have to deal with the challenge of dozens of uncontrolled dumpsites. The generation of solid wastes in the country is of 1.120 kg/inhab/day for domestic solid wastes, meanwhile urban solid wastes are of 1.314 kg/inhab/day. Only 53% of urban wastes is collected. Regarding its composition, 61% of this waste is organic and 38.9% is inorganic. In its different phases of management (generation and inadequate storage, inadequate disposal on public roads, collection and transportation, segregation, treatment and final disposal) there are several environmental risks; among the most important ones are air and water contamination, and morbid processes from infectious contagious and parasitical diseases, allergic diseases (respiratory, skin and mucosa), occupational diseases and accidents, intoxications to chronic degenerative diseases. The disposal of industrial solid wastes as part of municipal solid wastes is also very dangerous due to leakages and unsound disposal methods. It is assumed that in particular waste from households, not serviced by waste collection vehicles (around 30–40%), ends up on uncontrolled dumpsites, next to roadsides, in backyards and in local water bodies.

The low coverage of collection services contributes to aggravate runoffs and flooding during intense rains since garbage obstructs the storm drains. This situation is particularly concerning due to the lack of separation of municipal solid wastes from hazardous wastes, including products containing POPs or Hg. In addition, there are municipal dumpsites,

e.g. Cateura landfill, for which open burning of waste has been documented in order to extract valuable metals or to reduce the waste volume.

Baseline projects for capacity-building and ESM management of waste

To date, there have been a few capacity building activities related to chemicals and wastes. For example, MADES has conducted informative workshops on POPs for different stakeholders, such as the Government of the Department of Caaguazú, the Faculty of Sciences and Technologies of the Catholic University of Asunción, the San Carlos University; in addition, conferences aimed at members of the Military Council for the Environment, officials of the Ministry of National Defence and the Armed Forces, among others, have been organised.

To strengthen the environmentally sound management of solid wastes and limit hazardous wastes the “*Manual of Integral Management of Municipal Solid Wastes*” was elaborated as a tool to facilitate the management and sustainability of plans for the community management of solid wastes. This manual provides the municipalities, who are legally responsible for the management of municipal solid wastes, with guidelines to be able to fulfil certain components of integral management and to ensure continuity.

With this manual, it is expected that the municipalities will start to gradually implement the different points of the waste management pyramid (Reduction- Reutilization- Recycling- Final Appropriate Disposal) to reduce open burning activity or reduce the volume of burning in dumpsites. However, only some industries and hospitals have started internal recycling programs for the re-use of materials, or sell industrial wastes for co-processing or incineration (e.g. as fuel), there are no regulated standards for separate environmentally sound waste streams of hazardous materials. Thus, hazardous wastes materials and products containing POPs or Hg will end up in landfills or dumpsites, where they will be burnt resulting in the release of u-POPs and Hg emissions.

Adoption of ESM principles is also very important for Paraguay due to the significant economic growth since 2004. The sectors with the greatest contribution to Gross Domestic Product (GDP) are agriculture, industry and livestock and GDP has been steadily increasing from 2004 to 2014, subsequently remaining at maximum values with certain fluctuations. According to official data, the primary sector (agriculture and livestock) has had an important impact on economic growth in Paraguay since 2004. Between 2004 and 2014 the agricultural sector contributed, on average, 19% to the growth of the economy (industry and construction accounted for 12% and the service sector for 69%). While this figure of 19% overall may not appear significant, it is important to note that in 2007, 2010 and 2013 the contribution of the agriculture sector to GDP exceeded 50%.

The industrial sector is still a developing sector in Paraguay. The sector has been experiencing growth of the order of 5% per year. This result was strongly influenced by the increase in the production of beef, dairy, sugar, beverages and tobacco, textiles and chemical products. However, as mentioned above, with increasing industrial activities there is a need for environmentally sound waste management, including a sustainable approach to recover and reuse recyclable/valuable materials, to reduce the use of hazardous materials and to dispose of hazardous materials in order to avoid environmental pollution.

Baseline for POPs

Based on the NIP update (2018) the lifecycle of PFOS-containing items in Paraguay includes imports, different uses, some recycling (but no separation of hazardous parts) and final disposal in landfills. The NIP update provides detailed information; however, it seems that the given estimates are too high compared to other countries, e.g. China, which still produces PFOS and uses it for items.

During the PPG phase, an update of some PFOS inventories was carried out, including: (i) Firefighting foams, (ii) Aviation hydraulic fluids, (iii) Textiles and paper, and (iv) Leather Industry sector (R. Ramirez, January 2022).

Regarding firefighting foams, it was discovered that during the large fire that occurred in 2021 in the public company Petroleos Paraguayos (4-million-litre alcohol tank), all the existing firefighting foams stocks were used through the inter-institutional cooperation agreements that operate in these cases. Since the use of PFOS for the production of

firefighting foam has ceased worldwide, it is assumed that no new stocks will be generated. Currently, new commercial firefighting foams may contain PFAO as well as PFOS but only as impurities.

The annual consumption of aviation hydraulic fluids was estimated at 30 tons, which corresponds to 30 kg of PFOS. The annual consumption of textiles and paper treated with PFOS was estimated at 745 tons, which represents 9,340 kg of PFOS. Finally, no use of PFOS was found in the tanning sector.

U-POPs (dioxins and furans) emissions in the country are mainly caused by the uncontrolled open burning of wastes. Another less relevant source is the incineration of medical waste in incinerators that do not have appropriate gaseous emission control systems. These sources of high emissions of u-POPs in the environment are a human health concern, especially for residents living close to dumping areas and treatment facilities. According to the NIP update (2018), the total dioxins and furans emissions for the year 2014 was 97.2 gTEQ. 40.6 gTEQ (41.8 %) are generated as a consequence of open burning of domestic waste and 2.4 gTEQ (2.5%) come from precarious medical waste incinerations.

Baseline for greenhouse emissions from open burning of domestic waste

It is estimated that approximately 1,000,000 tons/year of domestic waste are open burned by the generators themselves or in uncontrolled dumpsites.

According to the data published in the report "THIRD BIENNIAL UPDATE REPORT ON CLIMATE CHANGE" corresponding to the year 2017, the incineration and burning of waste is responsible for the emission of 135,600 tons CO₂ eq in the year 2017.

Baseline for Hg

The Minamata Initial Assessment (MIA) carried out in Paraguay in 2017 shows that the two main sources of mercury emissions and releases correspond to open burning of domestic waste and mercury-added products. According to the partial update of the MIA developed during the PPG stage (M. Rodas, December 2021), open burning of domestic waste generates 7.14 ton Hg/year, while thermometers (both medical and industrial) and light sources represent 1.10 and 0.06 ton Hg/year, respectively.

3) The proposed alternative scenario with a brief description of expected outcomes and components of the project

In line with the national development priorities identified in the NIP and MIA documents, this proposed GEF-7 project aims to transform the linear, wasteful solid waste management sector in Paraguay into an environmentally sound and sustainable model by segregating and managing hazardous POPs and mercury-containing fractions in an environmentally sound way. The project will also contribute to safeguarding the global environment by supporting Paraguay in meeting its commitments to the related chemicals and waste multilateral environmental agreements (MEAs). Furthermore, the project will contribute to the GEF 2020 vision of *“greater impact per unit of investment”* through:

- Tackling unsound waste management and its related global environmental problems through ESM and life-cycle approaches, including recycling of non-hazardous waste and final disposal of POPs or mercury-containing wastes;
- Promoting sectoral and thematic integration of POPs and mercury in waste management, including public-private partnerships, to help tackle POPs and mercury issues in a holistic way. It also promotes geographic, economic and social integration among the local, national, and regional dimensions;
- Contributing to an innovative and transformational systems change within the GEF Chemicals and Waste Focal Area through supporting multi-stakeholder alliances such as sustainable city intervention (Green Asunción) and

regional POPs management. As such, this project will provide synergies with the existing Global Platform for Sustainable Cities (GPSC) created under the GEF-6 Impact Program “Asuncion Green City of the Americas – Pathways to Sustainability” (GEF Project 9127) on management of municipal solid waste, and utilization of green space and infrastructure.

The project will also facilitate the creation of enabling environments for the participation of the private sector, NGOs and CSOs and will help strengthen national legislation and regulatory capacity in Paraguay for meeting its obligations regarding POPs, mercury and other chemicals listed in the chemicals and waste conventions. The project will follow the strategy as outlined in the Theory of Change, life-cycle interventions for POPs and Hg-containing products (Figure 1) and a detailed summary of interventions for POPs and Hg-containing products (Tables a and b), which are interlinked for most activities:

Theory of Change

The ultimate impact of this project is to transform the linear, wasteful solid waste management sector in Paraguay into an environmentally sound and sustainable model by implementing life-cycle approaches, promoting sectoral and thematic and POPs integration and contributing to an innovative and transformational system change.

The immediate project impacts (outcomes) are:

- i. Enhanced policy and regulatory framework related to POPs and Hg-containing to include environmentally sound management (ESM) for waste for municipalities.
- ii. Strengthened capacity and awareness to accelerate the adoption of ESM principles, BAT/BEP and financing options resulting in sustainable and POPs and mercury (Hg)-free operations.
- iii. Reduction of POPs and Hg through BAT/BEP and ESM applications, including upgrading and/or upscaling of recycling infrastructures.

The expected intermediate state includes:

1. Life-cycle products approaches are being implemented, including restriction of products imported, segregating, managing and disposal of hazardous POPs and mercury-containing fractions.
2. BAT/BEP and ESM applications for urban and industrial waste management and POPs and Hg-containing materials management are being disseminated throughout the country.
3. A critical mass of knowledge and awareness was developed on urban and industrial waste management and POPs and Hg-containing materials management along their life-cycle.

The following table summarizes the Theory of Change for this project.

Component 1	<p>Output 1.1.1. Policy recommendations drafted on ESM principles for industrial waste management.</p> <p>Output 1.1.2. Guidelines for ESM and sustainable waste management targeting policy and decision makers drafted.</p>	<p>Drivers:</p> <ul style="list-style-type: none"> ● Policy recommendations will consider the current situation and particularities, needs and limitations. ● The draft guidelines will showcase economic, environmental and social benefits. 	<p>Outcome 1.1. Enhanced policy and regulatory framework to include environmentally sound management (ESM) of waste for municipalities.</p>	<p>Drivers:</p> <ul style="list-style-type: none"> ● Interest and willingness of the government to improve current waste management and the environmentally sound and sustainable management of POPs and mercury throughout their life cycle. ● Interest and need of municipalities to reduce the environmental impact derived from waste management and the application of sustainable management approaches. 	<p>Intermediate State:</p> <p>1: Life-cycle products approaches are being implemented, including restriction of products imported, segregating, managing and disposal of hazardous POPs and mercury-containing fractions.</p>	<p>IMPACT: To transform the linear, wasteful solid waste management sector in Paraguay into an environmentally sound and sustainable model.</p>
Component 2	<p>Output 2.1.1. Updated inventory of POPs and Mercury materials and waste-streams to identify opportunities for ESM and further Global Environmental Benefits.</p> <p>Output 2.1.2. Technical manuals drafted for the ESM of waste in selected sectors, including EPR and BAT/BEP for sustainable and POPs and Hg-free waste management targeting practitioners and operators.</p> <p>Output 2.1.3. Improved knowledge management on POPs and Hg in waste streams, BAT/BEP and ESM options feeding and strengthening the national System of Environmental Information.</p> <p>Output 2.1.4. Trainings for government officials at national and local levels, as well as private sector and media professionals on potential sustainable solutions for selected sectors.</p> <p>Output 2.1.5. Awareness-raising programs and customized events, especially for media, general public and specific target groups, on ESM and sustainability approaches for waste management.</p>	<p>Drivers:</p> <ul style="list-style-type: none"> ● The Stockholm and Minamata guidelines are used for inventories preparation. ● The manuals are adjusted to the current situation and take into account the particularities, needs and limitations. ● The Ministry of Environment incorporates POPs and Hg data in waste streams, BAT/BEP and ESM options in the existing national SIAM. ● Training activities on potential sustainable solutions will be organized for the relevant stakeholder groups. ● Communication experts will develop materials aimed at different target groups, paying special attention to gender aspects. ● The project has the necessary mechanisms to introduce changes, adjust activities and outputs if future conditions so require. 	<p>Outcome 2.1. Strengthened capacity and awareness to accelerate the adoption of ESM principles, BAT/BEP and financing options resulting in sustainable and POPs and mercury (Hg)-free operations.</p>	<ul style="list-style-type: none"> ● Interest and need of the government to fulfill the commitments set by the Stockholm and Minamata Conventions. ● The commitment of the National Government and Municipalities impacts positively on the development, operationalization and enforcement of environmentally sound and sustainable waste and chemical management framework. ● Application of built capacity and raised awareness as well as cooperation among stakeholders result in improved environmentally sound and sustainable waste and chemical management. ● The achievement of successful results in the application of BAT/BEP and the development of favorable conditions will motivate scaling and replication in the rest of the country. 	<p>2: BAT/BEP and ESM applications for urban and industrial waste management and POPs and Hg containing materials management are being disseminated throughout the country.</p> <p>3: A critical mass of knowledge and awareness was developed on urban and industrial waste management and POPs and Hg containing materials management along their life-cycle.</p>	
Component 3	<p>Output 3.1.1. Specific ESM plans for the pilot projects on POPs-reduction, recovery of valuable/recyclable materials and final disposal of POPs and Hg-containing materials and wastes.</p> <p>Output 3.1.2. Tools for promotion of business and financing options for ESM</p>	<p>Drivers:</p> <ul style="list-style-type: none"> ● Pilots reflect the needs identified in urban and industrial waste and POPs and Hg containing materials management, as well as the interest of key actors and the national strategic approach. ● Existing initiatives in the country regarding the promotion of small and medium-sized industries and support for new entrepreneurs will be used. ● Priority will be given to the use of previously upgraded existing national facilities. 	<p>Outcome 3.1. Reduction of POPs and Hg through BAT/BEP and ESM applications, including upgrading and/or upscaling of</p>	<p>Assumptions:</p> <ul style="list-style-type: none"> ● There are obligations arising from multilateral environmental agreements. ● There are specific requirements of multilateral 		

<p>activities, including support for the establishment of a business incubator to help relevant startups succeed, and identifying potential Public-Private Partnerships.</p> <p>Output 3.1.3. Pilot projects implemented for ESM of valuable/ recyclable fractions of selected fractions as well as for the proper disposal of urban and industrial waste, avoiding u-POPs emissions.</p> <p>Output 3.1.4. Final BAT/BEP disposal of POPs and mercury containing fractions.</p>	<p>Assumptions:</p> <ul style="list-style-type: none"> • The main stakeholders will maintain their interest in the pilot projects. • Existing initiatives on promotion of small and medium-sized industries and support for new entrepreneurs will contribute. • Key stakeholders will cooperate to be able to achieve the disposal of POPs and Hg-containing fractions. 	<p>recycling infrastructures.</p>	<p>credit organizations.</p> <ul style="list-style-type: none"> • There is awareness of the need to optimize resources. • The commitment and involvement of the key stakeholders persist during and after the project execution. • There are social demands derived from environmental impacts generated by the mismanagement of waste and chemical products. 		
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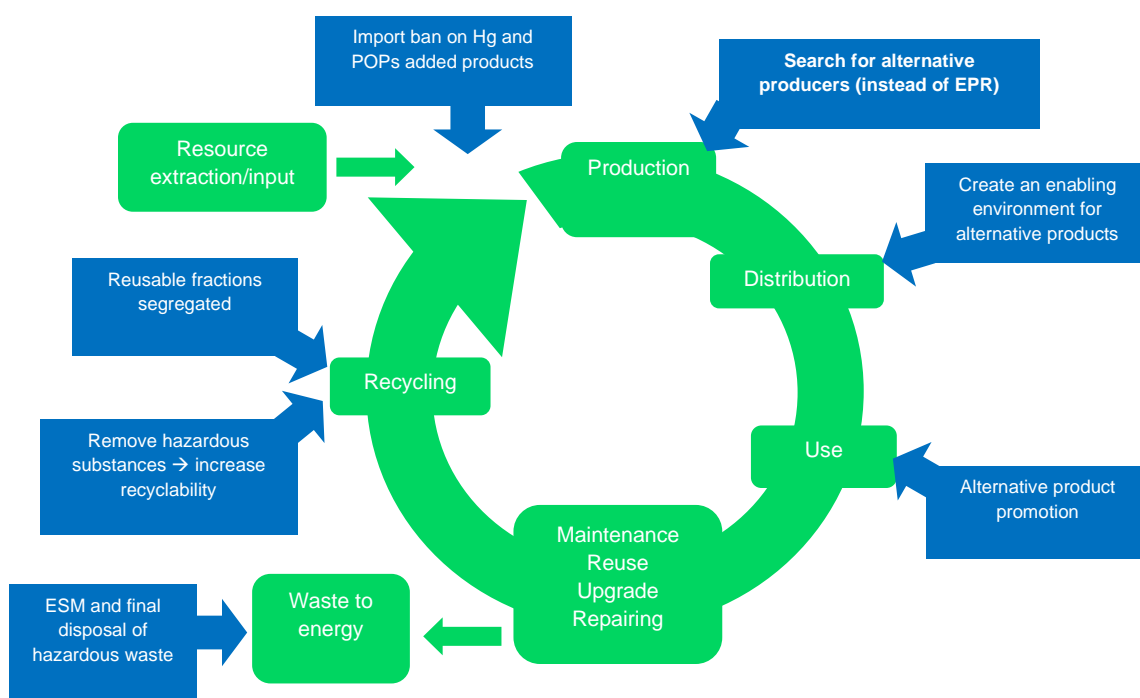


Figure : Life-cycle interventions for POPs and Hg-containing products

Table a). Interventions for POPs-containing products, including upstream. Please note that POPs and Hg work will be complementary for many aspects.

Baseline	Alternative scenario
No PFOS production in Paraguay.	----
No import of pure PFOS into Paraguay.	----

<p>Import of PFOS-containing products.</p>	<p>Component 1</p> <ul style="list-style-type: none"> • Policy gaps towards ESM of POPs-containing products addressed. • Import of PFOS-containing products is banned in compliance with the recommendations of the Stockholm Convention. • Customs procedures and corresponding capacities (HS codes, import screening, analytical capacities, risk evaluation, reporting scheme on potentially POPs-containing substances/products, customs trainings) strengthened. • Incentives for the use of product alternatives in place (e.g. taxes on the use of PFOS-containing products). • ESM guidelines for the management of POPs- and Hg-containing items along the life-cycle for policy and decision makers to showcase economic, environmental and social benefits of proper and sustainable waste management.
<p>PFOS-containing products are being mixed with solid waste stream leading to a huge amount of hazardous wastes generation.</p>	<p>Component 2</p> <ul style="list-style-type: none"> • Industrial incentives for the environmentally sound management of PFOS-containing products and minimization of hazardous waste generation in place and applied (e.g. through Corporate Social Responsibility, promotion of alternative non-POPs and non-Hg-containing products). • Reduce the unsound distribution of POPs-containing products within the waste system (e.g. through screening, separation of valuable against POPs-containing fractions, promotion of recyclability of selected valuable parts or by-products). • Capacity-building activities as outlined in outputs 2.1.1 to 2.1.4.
<p>PFOS-containing products are being disposed of in an environmentally unsound manner.</p>	<p>Component 3</p> <ul style="list-style-type: none"> • Pilot projects, including public-private partnerships, BAT/BEPs and final disposal of POPs-containing parts as well as mercury-added products, for sustainable waste management.

Table b). Interventions for Hg-containing products, including upstream. Please note that POPs and Hg work will be complementary for many aspects.

Baseline	Alternative scenario
<p>No Hg production in Paraguay.</p>	<p>----</p>
<p>No import of pure Hg into Paraguay.</p>	<p>----</p>
<p>Import of Hg-containing products (according to the Minamata Convention mercury-added products should be phased out by 2020, except for some exceptions)</p>	<p>Component 1</p> <ul style="list-style-type: none"> • Import of Hg-containing products is phased out in compliance with the obligations of Annex A of the Minamata Convention (phase out deadline 2020). During the last COP in 2022, more mercury-added products were included in the amendment of Annex A with a phase out date in 2025, which will also be covered by the activities of the project.

	<ul style="list-style-type: none"> • Customs procedures and the corresponding capacities (HS codes, import screening, analytical capacities, risk evaluation, reporting scheme on potentially Hg-containing substances/products, customs trainings) strengthened. • Incentives for the use of product alternatives in place. • ESM guidelines for the management of POPs- and Hg-containing items along the life-cycle for policy and decision makers to showcase economic, environmental and social benefits of proper and sustainable waste management. • To facilitate the phase out of imports of mercury-added products, the guidance document on the use of customs codes under the Minamata Convention will be used as a reference. Paraguay uses the Nomenclatura Común del Mercosur (NCM). <p>Component 2, Output 2.1.1.</p> <ul style="list-style-type: none"> • Assessment of exempted Hg-containing waste streams (special switches, specific instruments for R+D/calibration, vaccines, dental amalgam), which do not have a phase-out date yet to assess the suitability of EPR or other measures to minimize the use of Hg-containing products in Paraguay.
<p>Hg-containing products are being mixed with solid waste stream leading to a huge amount of hazardous waste generation.</p>	<p>Component 2</p> <ul style="list-style-type: none"> • Industrial incentives for the environmentally sound management of Hg-containing products and minimization of hazardous waste generation in place and applied (e.g. through Corporate Social Responsibility, promotion of alternative non-Hg-containing products). • Reduce the unsound distribution of Hg-containing products within the waste system; • Capacity-building activities as outlined in outputs 2.1.1 to 2.1.4.
<p>Hg-containing products are being disposed of in an environmentally unsound manner.</p>	<p>Component 3</p> <ul style="list-style-type: none"> • Pilot projects, including public-private partnerships, BAT/BEPs and final disposal of POPs-containing parts as well as mercury-added products, for sustainable waste management.

Component 1: Policy strengthening by integrating industrial waste management principles into the legislative framework targeting municipalities. The main goal of Component 1 is the creation of the necessary legislative framework targeting municipalities to advance in the ESM agenda by promoting POPs alternatives, BAT/BEP and RECP for separate valuable/recyclable resources and final disposal of non-recyclable POPs and Hg-containing fractions. This component will have the following outcome and outputs:

Outcome 1.1.: Enhanced policy and regulatory framework to include environmentally sound management (ESM) of waste for municipalities.

Output 1.1.1. Policy recommendations drafted on ESM principles for industrial waste management, including import ban of POPs-containing and mercury-added products, Extended Producer Responsibility-EPR, alternative product promotion and recyclability of valuable parts.

Although in Paraguay there are regulations related to waste, POPs and mercury management, aspects related to circular economy, ESM waste principles, extended producer responsibility (EPR) and the regulation of imports of products containing hazardous substances are generally missing.

This output will assess the existing policies and regulations on solid and hazardous waste management and will propose policy recommendations on ESM principles addressing the life-cycle of POPs and Hg-containing items in Paraguay.

A review of the existing tariff codes for mercury-containing products will be carried out to ensure that there is a simple and clear identification of mercury-added products contained in Annex A of the Minamata Convention. Close collaboration with the National Customs Authority and the Ministry of Industry and Commerce among others will be required and the 'Draft guidance document on the use of customs codes under the Minamata Convention' will be used as a guidance.

The analysis and policy recommendations focusing on ESM of potentially POPs or Hg-containing items are needed (i) to minimize the upstream generation of hazardous waste, (ii) to increase the availability of alternative products and the recyclability of the valuable fractions and (iii) to reduce the environmentally unsound disposal of the hazardous fractions .

In addition, the establishment of incentives for the ESM of hazardous waste fractions containing POPs or mercury will be evaluated. Such incentives could be, for example, specific taxation and/or subsidies for recovering the hazardous chemicals or trade promotion for secondary raw materials. This will directly increase the profitability of entities working on the non-hazardous waste fraction which is aimed at strengthening and developing the sector in Paraguay.

The following **incremental activities** will be carried out to achieve Output 1.1.1:

- i. Develop an analysis of the legal and institutional framework on waste, POPs and mercury management, covering all aspects of its life cycle, including at the national and municipal level.
- ii. Carry out a comprehensive comparative study of regulatory frameworks at the regional and international levels, covering the obligations arising from multilateral environmental agreements (in particular the Minamata Convention on Mercury and the Stockholm Convention on Persistent Organic Pollutants), and identifying gaps and making recommendations to align the current legal and institutional framework. Special emphasis will be placed on aspects related to circular economy, ESM principles, waste management principles, extended producer responsibility and the phase out of products containing hazardous chemicals when applicable. Recommendations will include national requirements and standards for the environmentally sound management of waste, POPs and mercury, covering all aspects of its life cycle, including the national and municipal levels. For the preparation of the recommendations on the principles of environmentally sound management, the amendments and guidelines emanating from the latest COPs of the Stockholm, Basel and Minamata Conventions will be taken into account.
- iii. Hold a socialization and validation workshop and bilateral meetings with relevant stakeholders.
- iv. Draft and/or update legal instruments for the sound management of waste, POPs and mercury through their life cycle and elaborate a tentative road map and approach defining clear roles and responsibilities for each institution to ensure sound enforcement of the obligations and the deadlines.
- v. Hold a socialization and validation workshop with relevant stakeholders.

Output 1.1.2. Guidelines for ESM and sustainable waste management targeting policy and decision makers drafted.

This output aims to draft ESM guidelines for the management of waste and POPs- and Hg-containing items along the life-cycle for policy and decision makers to showcase economic, environmental and social benefits of proper and sustainable waste management.

The following incremental activities will be carried out to achieve Output 1.1.2:

- i. Preparation of guidelines on ESM and sustainable waste management and circular economy aimed at policy and decision makers. Among others, the guide will include the following chapters: 1) Separation of recyclable materials and special waste from household waste; 2) ESM of articles containing Mercury; 3) ESM of articles containing POPs; 4) ESM of landfills; and 5) Uncontrolled burning of waste. The contents of the guidelines will be based on the BAT/BEP and will take into account the specific context and limitations existing in Paraguay. Special emphasis will be placed on the economic, environmental and social benefits.
- ii. Hold a guidelines launch event for relevant policy and decision makers.
- iii. Development of an electronic version of the guidelines, editing and printing of 100 physical copies, distribution.

Component 2: National capacity building, knowledge management and awareness-raising on industrial waste solutions aligning urban with peri-urban and rural cities. Component 2 aims to enhance national capacity related to ESM to better understand, encourage, promote and implement sustainable approaches with a focus on aligning urban with peri-urban and rural locations. This component will have the following outcome and outputs:

Outcome 2.1. Strengthened capacity and awareness to accelerate the adoption of ESM principles, BAT/BEP and financing options resulting in sustainable and POPs and mercury (Hg)-free operations.

Output 2.1.1. Updated inventory of POPs and Mercury materials and waste-streams to identify opportunities for ESM and further Global Environmental Benefits.

During the project preparatory phase, an update of some PFOS inventories was carried out, including: (i) Firefighting foams, (ii) Aviation hydraulic fluids, (iii) Textiles and paper, and (iv) Leather Industry sector (R. Ramirez, January 2022). In the case of firefighting foams and aviation hydraulic fluids several meetings with relevant stakeholders were held in order to obtain information on import quantities, uses, stocks, management practices and related waste final disposal. As for textiles and paper treated with PFOS, estimations were limited to importation data with a certain level of uncertainty due to the limited breakdown of tariff codes. Other PFOS were not evaluated.

Regarding U-POPs emissions, information was taken from the NIP update (2018), which uses the total dioxins and furans emissions for the year 2014.

For the mercury inventory, a partial update of the MIA was developed during the project preparatory phase (M. Rodas, December 2021), however, neither the existence of stockpiles nor the consumption habits of lighting fixtures and items for medical use were surveyed.

The following incremental activities will be carried out to achieve Output 2.1.1:

- i. Update the national PFOs inventory following the Stockholm Convention Guidance. Determine the potential presence of PFOS based on the brands, origins and the information provided by the supplier of the articles and products. Include quantities, uses, stakeholders involved, stocks, consumption habits, management practices and related waste final disposal in the relevant sectors.

- ii. Update the national mercury inventory based on the UN Environment's Toolkit for identification and quantification of mercury releases including: incineration of municipal waste, light sources with mercury, thermometers, medical blood pressure gauges and dental mercury-amalgam fillings as well as the additional mercury-added products included in Annex A in COP4 (phase out date 2025)¹. In addition, include information on uses, stakeholders involved, stockpiles, consumption habits, management practices and related waste final disposal.
- iii. Update U-POPs emissions from waste disposal practices based on the UNEP Toolkit for Identification and Quantification of Releases of Dioxins, Furans and Other Unintentional POPs.
- iv. Hold a socialization and validation workshop with relevant stakeholders.

Output 2.1.2. Technical manuals drafted for the ESM of waste in selected sectors, including EPR and BAT/BEP for sustainable and POPs and Hg-free waste management targeting practitioners and operators.

According to MADES and as expressed by various stakeholders, it is necessary to strengthen technical capacities in order to be able to introduce and consolidate changes in waste management and in the environmentally sound and sustainable management of hazardous materials throughout their life-cycle.

Technical manuals will be drafted to support practitioners and operators dealing with POPs and Hg-containing items or industrial application along the life-cycle to understand and then strengthen their capacity to provide environmentally sound management of both the hazardous and valuable waste fractions.

The following incremental activities will be carried out to achieve Output 2.1.2:

- i. Preparation of two technical manuals targeting practitioners and operators:
 - a. Comprehensive management of solid and hazardous waste, with emphasis on the different stages of management and technologies associated with the recovery of valuable materials and conditioning, treatment and disposal of hazardous waste. Concepts of ESM and sustainable waste management, circular economy and BAT/BEP adapted to the specific context and limitations existing in Paraguay will be considered.
 - b. Environmentally sound management of articles containing POPs and Mercury throughout their entire life cycle, contemplating BAT/BEP and including the evaluation of substitution alternatives for POPs and Mercury-free articles. The amendments and guidelines emanating from the latest COPs of the Stockholm, Basel and Minamata Conventions will be taken into account². For mercury, at least light sources,

¹ Compact fluorescent lamps with an integrated ballast (CFL.i) for general lighting purposes that are ≤ 30 watts with a mercury content not exceeding 5 mg per lamp burner; Cold cathode fluorescent lamps (CCFL) and external electrode fluorescent lamps (EEFL) of all lengths for electronic displays, not included in the current listing; Strain gauges to be used in plethysmographs; Melt pressure transducers, melt pressure transmitters and melt pressure sensors except those installed in large-scale equipment or those used for high precision measurement, where no suitable mercury-free alternative is available; Mercury vacuum pumps; Tire balancers and wheel weights; Photographic film and paper; and Propellant for satellites and spacecraft.

² This includes, among others:

- Guidelines on best available techniques and guidance on best environmental practices (POPs) (<http://www.pops.int/Implementation/BATBEP/BATBEPGuidelinesArticle5/tabid/187/Default.aspx>).
- Guidance on best available techniques and best environmental practices for the use of perfluorooctane sulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and their related compounds listed under the Stockholm Convention (<http://chm.pops.int/Implementation/NIPs/Guidance/GuidanceonBATBEPfortheuseofPFOS/tabid/3170/Default.aspx>).
- Guidance on best available techniques and best environmental practices (Mercury) (https://www.mercuryconvention.org/sites/default/files/2021-06/BAT_BEP_E_interractif.pdf).

thermometers, medical blood pressure gauges and dental mercury-amalgam fillings will be included. In the case of POPs, only those relevant for Paraguay will be included.

- ii. Hold a technical manuals workshop for practitioners and operators.
- iii. Development of an electronic version of the guidelines, editing and printing of 200 physical copies, distribution.

Output 2.1.3. Improved knowledge management on POPs and Hg in waste streams, BAT/BEP and ESM options, feeding and strengthening the national System of Environmental Information (SIAM) as a tool for assisting decision-making and knowledge management.

The existing national System of Environmental Information (SIAM) tool (<https://apps.mades.gov.py/siam/portal>), managed by MADES and included on its website, will be strengthened with POPs and Hg data in waste streams, BAT/BEP and ESM options to ensure that data are shared among all relevant stakeholders.

The following incremental activities will be carried out to achieve Output 2.1.3:

- i. Develop a separate platform within the SIAM website including all relevant aspects related to POPs and Hg.
- ii. Train MADES personnel on the maintenance and updating of the platform.

Output 2.1.4. Training for government officials at national and local levels, as well as private sector (especially waste collectors and recyclers), and media professionals on potential sustainable solutions for selected sectors to understand and tackle waste, POPs and Hg issues.

Training for relevant stakeholder groups will be organized to share information on ESM of POPs and Hg-containing items along with aspects of the legal framework and practical and sustainable solutions for dealing with hazardous and valuable waste fractions. Trainings will also focus on upstream activities to ensure that items will not enter the country, to promote product alternatives and EPR.

The following incremental activities will be carried out to achieve Output 2.1.4:

- i. Preparation of a training plan establishing the different target groups (government officials at national and local levels, private sector related to waste management and recycling, practitioners and media professionals), the scope, format and methodology depending on the target groups and the execution schedule. The geographical distribution, gender aspects and cultural diversity of the different target groups will be taken into account. The plan will include at least 25 training events.
- ii. Execution of the training plan.
- iii. Report of lessons learned and recommendations.

Output 2.1.5. Awareness-raising programs and customized events, especially for media, general public and specific target groups (i.e. children and women), on ESM and sustainability approaches for waste management.

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- Technical guidelines for the environmentally sound management of wastes consisting of elemental mercury and wastes containing or contaminated with mercury (<http://www.basel.int/Implementation/MercuryWastes/TechnicalGuidelines/tabid/5159/Default.aspx>).
 - General technical guidelines on the environmentally sound management of wastes consisting of, containing or contaminated with persistent organic pollutants (file:///C:/Users/Usuario/Downloads/UNEP-CHW.14-7-Add.1-Rev.1.English.pdf).

In order to share relevant data among a wide range of stakeholders, information and communication technologies will be used to facilitate and expand ways of reaching and informing larger numbers of people in society. This should be considered when designing the awareness raising campaign, information strategy and outreach materials, including online courses and e-learning tools supported by chats, online activities, videoconferences, webinars, a digital portfolio, and more.

Special attention will be given to disseminating sex-disaggregated data and qualitative information on women and children dealing with POPs-and Hg- containing products, especially during the end of the life-cycle. Disseminating these materials will require gender-specific publications or gender-specific trainings.

The following incremental activities will be carried out to achieve Output 2.1.5:

- i. Develop a comprehensive communication strategy and design the awareness-raising campaign plan for all project stages (initial, intermediate and closing stage of the project) in order to raise awareness among different groups of stakeholders, project beneficiaries and the general public of project activities and expected outcomes.
- ii. Design of the materials required for the different awareness-raising campaigns. This will include the definition of content, graphic designs and means of dissemination for the different stakeholder groups for all project stages.
- iii. Design of tailored events for specific target groups including format and contents.
- iv. Execution of the awareness-raising campaign plan.
- v. Report of lessons learned and recommendations.

Component 3: Pilot projects, including public-private partnerships, BAT/BEPs and final disposal of POPs-containing parts as well as mercury-added products, for sustainable waste management; Component 3 will pilot BAT/BEP for the environmentally sound management of PFOS and Hg-containing items, including separation of valuable/recyclable fractions and introduction of ESM principles to show re-use and recyclability. This component also includes the final disposal of POPs and Hg-containing items, as well as the proper disposal of urban and industrial waste, avoiding u-POPs emissions. Special consideration should be given to the involved business models, financing options, and private sector engagements, addressing aspects related to how to support alternatives to POPs and mercury products and promote their adoption by consumers, as well as solutions for sound management of existing waste. This component will have the following outcome and outputs:

Outcome 3.1. Reduction of POPs and Hg through BAT/BEP and ESM applications, including upgrading and/or upscaling of recycling infrastructures;

Output 3.1.1. Specific ESM plans for the pilot projects on POPs-reduction, recovery of valuable/recyclable materials and final disposal of POPs and Hg-containing materials and wastes.

During the project preparatory phase, the following pilot projects on POPs and Hg reduction, recovery of valuable/ recyclable materials and final disposal of POPs and Hg-containing materials and wastes, as well as the on proper disposal of urban and industrial waste, avoiding u-POPs emissions, were drafted:

P1. Environmentally sound and sustainable management of lights and medical devices that contain mercury and its wastes.	
General objective	Prepare and implement an environmentally sound and sustainable management plan for mercury-containing lights at the municipal, commercial, industrial and public lighting levels, as well as mercury-containing medical devices in the health sector.

Specific objectives	<ul style="list-style-type: none"> • Implement a selective collection system and the environmentally sound treatment and final disposal of lighting fixtures by the different sectors. • Promote the replacement of mercury-containing medical devices and their environmentally sound management throughout their life cycle in health care centres. • Develop capacity at the national level for the environmentally sound and sustainable treatment and final disposal of mercury-containing lights and medical devices.
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P2. Environmentally sound management of used hydraulic fluids containing PFOS.	
General objective	Environmentally sound management of used hydraulic fluids containing PFOS in Paraguay.
Specific objectives	<ul style="list-style-type: none"> • Assess the current situation of the used hydraulic fluids containing PFOS in Paraguay. • Develop guidelines for the environmentally sound management of aviation hydraulic fluids. • Contribute to the development of local capacities for the transportation of this waste stream, the eventual pre-treatment and conditioning for subsequent export

P3. Adaptation and operation of uncontrolled dumpsites in small and medium-sized municipalities.	
General objective	Promote the environmentally sound and sustainable management of waste in a range of small and medium-sized localities.
Specific objectives	<ul style="list-style-type: none"> • Promote practices for separating valuable materials and special waste streams, developing collection logistics, storage and conditioning infrastructure, enabling their integration into the national waste management system, in accordance with the guidelines established in the National Plan for Integral Management of Urban Solid Waste. • Adapt and operate a network of uncontrolled dumpsites with sanitary landfill criteria, significantly reducing environmental impacts and, in particular, the eradication of waste burning and the associated emissions of dioxins and furans and greenhouse gases. • Strengthen general waste management in small and medium-sized localities, including administrative aspects. • Develop a dissemination program to encourage replication in other locations. • Contribute to generating environmental awareness regarding the environmentally sound and sustainable management of waste, including final disposal.

P4. Household separation, collection and recovery of recyclable materials and special wastes.	
General objective	Promote the separation of recyclable materials present in household solid waste, their collection at source and subsequent recovery, minimizing their final disposal. In a complementary manner, the project seeks to promote the segregation of special waste, including waste that may contain POPs and mercury, from the rest of household waste, for subsequent environmentally sound and sustainable management.
Specific objectives	<ul style="list-style-type: none"> • Implement a solid waste classification system at the household level, the selective collection of recyclable materials, the independent management of special waste, and the promotion of composting of the organic fraction at the household level for use in gardening. • Implement the separation, classification, conditioning and recovery of recyclable materials, expanding and/or adapting the existing infrastructure and equipment. • Create the necessary infrastructure for the conditioning and transitory storage of special waste. • Make the population aware of the environmentally sound and sustainable management of household solid waste. • Minimize the inadequate final disposal and management of household solid waste. • Advance the development of the Program for "Prevention, Use and Treatment of Solid

The detailed description of the selected projects is presented in Annex M. These pilot projects reflect the identified needs in terms of urban and industrial waste management and POPs and Hg-containing materials management along their life-cycle in Paraguay, as well as the interest of key public and private stakeholders in participating and co-financing.

During project implementation, detailed ESM plans and disposal strategies for each pilot project will be finalized to plan. This includes the definition of PPE for each specific task, as well as the elaboration of occupational risk management protocols, definition of storage requirements and preparation of emergency and first aid plans. This also includes the identification of technically and economically feasible disposal alternatives. Once the BAT/BEP technologies are defined, a national elimination plan for each pilot will be developed to align potential synergies and ensure cost-effectiveness in line with Paraguay’s commitment to fulfil the Stockholm Convention and Minamata Convention.

The following incremental activities will be carried out to achieve Output 3.1.1:

- i. Review and adjustment of pilot projects including the design of detailed ESM plans and POPs and Hg-containing items disposal strategies, using synergies and ensuring cost-effectiveness. This activity includes consultation with relevant stakeholders.

Output 3.1.2. Tools for promotion of business and financing options for ESM activities, including support for the establishment of a business incubator to help relevant startups succeed, and identifying potential Public-Private Partnerships.

The project will establish a multidisciplinary, self-sustainable business incubator within the PEE institution. The purpose of this incubator is three-fold. (1) It will teach entrepreneurship and soft skills to potential entrepreneurs, using UNIDO’s entrepreneurship development tools. Entrepreneurs will need this knowledge to establish a start-up that tackles an issue in the waste management sector. (2) The incubator will connect entrepreneurs with investors, private, public and academic actors. The hub will be a space to network, exchange ideas, identify challenges and solutions, and, ultimately, find partners and investors. Private sector actors might include existing businesses in the industrial waste management sector, research institutions, business accelerators, funds or investors. The academic sector could include research teams, professors and students from various disciplines. Public sector actors can include Municipalities, MADES, Ministry of Industry and Commerce (MIC). (3) The hub will accompany start-ups during their first year of life.

The following incremental activities will be carried out to achieve Output 3.1.2:

- i. Identify public, private and academic actors to collaborate with the hub, including the PEE which will host it.
- ii. Build capacity of the institution that will deliver the trainings (Training the Trainer). Trainers will learn how to use UNIDO’s entrepreneurship development tools, and how to use the tools to teach potential entrepreneurs.
- iii. Deliver training on soft skills and entrepreneurship skills: (a) Soft skills include public speaking, leadership, negotiation, gender awareness, etc. (b) Entrepreneurship skills include market analysis, developing a business plan, financial skills, legal knowledge, business management, etc.
- iv. Connect entrepreneurs with potential partners and national/international investors. Throughout the project, hold regular events, such as seminars, networking events, field visits, mentorship program, etc., to bring stakeholders together and find synergies, partners and investors.
- v. Support the new businesses in their first year of life.

Output 3.1.3. Pilot projects implemented for ESM of valuable/recyclable fractions (e.g. source separation, collection and transport, pre-processing, recycling or re-use) of selected fractions, as well as for the proper disposal of urban and industrial waste, avoiding u-POPs emissions.

The drafted pilot projects will be implemented including the following activities:

P1. Environmentally sound and sustainable management of lights and medical devices that contain mercury and its wastes.

A.1. Prepare an assessment of the management of mercury-containing lights, including the volume of the flow of devices and associated waste, their geographical distribution, waste management practices, the handling, storage and treatment capacity and final disposal of this type of waste at the national level.

A.2. Prepare an assessment on the management of medical devices and mercury amalgams, which includes the volume of the flow of devices and associated waste, their geographical distribution, waste management practices, handling, storage and treatment capacity and final disposal of this type of waste at the national level.

A.3. Design of a system for selective collection, treatment and adequate final disposal of mercury-containing lights at the municipal, commercial, industrial and public lighting levels, including different subsystems and collection modalities and centralized treatment in a single plant. This system must contemplate the gradual incorporation over time of the different types of generators identified, taking into account regulatory and economic factors, in addition to the level of adherence of the population.

A.4. Preparation and implementation, in at least 5 public hospitals distributed throughout the country, of a management protocol for mercury-containing medical devices, including all stages of the product life cycle (purchase, storage, use, separation, safe storage of discarded products, containment of mercury residues and delivery to authorized managers for their treatment and final disposal).

A.5. Identification and sizing of the appropriate technology for the treatment of mercury-containing lights and medical devices, based on the BAT compatible with the existing conditions and limitations in Paraguay. Identification of potential suppliers and drafting of the terms of reference for the purchase of equipment. Conceptual design of the treatment plant.

A.6. Preparation of a business plan for a treatment plant for mercury-containing lighting and medical devices, including the national collection system. Estimation of operating costs and possible fees.

A.7. Evaluation of alternatives for the granting of the operation of the treatment equipment to a private operator through a public bidding process. Preparation of the corresponding documents, launch of the public tender, selection process and signing of the contract.

A.8. Construction/adaptation of the treatment plant infrastructure, obtaining the necessary permits and commissioning of the plant by the private operator.

A.9. Design and implementation of awareness-raising campaigns aimed at different actors.

P2. Environmentally sound management of used hydraulic fluids containing PFOS.

A1: Assessment of the current situation of the used hydraulic fluids containing PFOS in Paraguay, including identification of generators, their geographical distribution, the quantities generated, the management practices used and the regulatory framework.

A2: Carry out a representative sampling and analytical determination to determine the levels of PFOS in used aviation hydraulic fluids (around six representative samples).

A3: Develop guidelines for the environmentally sound management of used aviation hydraulic fluids, including temporary storage, transportation and eventual pre-treatment and conditioning at the national level for subsequent export, based on BAT and BEP adapted to the national context.

A4: Adapt one existing facility to environmentally sound management guidelines for pre-treatment and conditioning through co-financing from the private sector.

A5: Export a pre-treatment/conditioned used aviation hydraulic fluids load (around one year's generation, to be adjusted to the available budget) for their final disposal abroad, through an open bidding process.

P3. Adaptation and operation of uncontrolled dumpsites in small and medium-sized municipalities.

- A.1. Preparation of an assessment of the municipal management of urban solid waste in the selected localities (10 to 20 localities) and identification of improvement opportunities according to the criteria established in the National Plan for the Integral Management of Urban Solid Waste, with emphasis on the potential separation of valuable materials and special waste streams.
- A.2. Preparation of plans to promote practices for the separation of valuable materials and special waste streams, developing collection logistics, designing storage and conditioning infrastructure, contemplating its integration into the national waste management system.
- A.3. Construction of infrastructure for storage and conditioning of valuable materials and special waste streams (roofed cubicles, deposit for used oils, press, etc.).
- A.4. Design and implementation of awareness-raising campaigns on environmentally sound and sustainable waste management.
- A.5. Evaluation of the current situation of dumpsites from an operational perspective and with a consideration of related environmental impacts, as well as an evaluation of the collection system and the habitual waste disposal practices of inhabitants in the selected municipalities.
- A.6. Design and implementation of plans for adaptation and operation of uncontrolled dumpsites. This includes the preparation of a guide with general guidelines for the operation of dumpsites using sanitary landfill criteria (design of the discharge front, compaction, periodic coverage, gas drainage, channeling of leachate and runoff), as well as an adaptation project for each of the municipalities and technical assistance with their implementation.
- A.7. Design and implementation of a centralized monitoring and evaluation plan for each of the municipalities and application of corrective measures or improvements as appropriate, under the responsibility of a consulting team, throughout the project execution process.
- A.8. Technical assistance in the preparation of the Municipal Urban Solid Waste Management Plan that includes the segregation system, temporary storage of recoverable waste, as well as the operational guidelines for the dumpsites (with Sanitary Landfill criteria) to be presented to MADES for approval.
- A.9. Technical assistance with the preparation of the municipal ordinance associated with the Municipal Plan for Integral Urban Solid Waste Management.
- A.10. Technical assistance to strengthen the administrative management associated with waste management, including training on the management of economic resources from available sources and execution of funds.
- A.11. Design and implementation of a plan for guided tours aimed at other municipalities with the aim of sharing experiences.
- A.12. Evaluation of the results obtained, documentation of the lessons learned and preparation of a guide aimed at facilitating the replication of the pilot projects in other municipalities.

P4. Household separation, collection and recovery of recyclable materials and special wastes.

- A.1. Selection of the neighbourhoods where the project will be carried out (those with the highest level of per capita income will be prioritized, since they are the ones that generate the greatest amount of recyclable materials).
- A.2. Preparation of a baseline regarding waste management in the selected area, including estimation of the number of households and inhabitants, survey of the current waste collection system, estimation of waste generation per capita and characterization of the composition of the waste by random sampling.
- A.3. Design of the integral management system for recoverable waste and special waste, including separation at source, selective collection, classification, conditioning and temporary storage, including associated costs.
- A.4. Design and implementation of a dissemination and awareness campaign, including a quick guide on segregation and composting at the household level, home visits, the use of mass media and social networks.
- A.5. Realization of a mapping of local collectors and recyclers to receive training and formalization and municipal registration of service providers for the collection of valuable materials
- A.6. Study and evaluation of the existing infrastructure and equipment for the separation, classification and conditioning of recyclable materials.
- A.7. Design of the expansion and/or adaptation of the infrastructure and equipment necessary for the separation, classification and conditioning of recyclable materials, as well as the infrastructure necessary for the conditioning and temporary storage of special waste. This includes the design of the operation and the establishment of personnel selection criteria (with social inclusion and gender perspectives) and training plans. Articulation throughout the chain of compilation, collection and marketing of marketable material under the formal regime (Collector - Recycler - Buyer

recycling company). Design of the business plan.

A.8. Expansion and/or adaptation of the infrastructure and purchase of the complementary equipment necessary for the separation, classification and conditioning of recyclable materials, as well as the construction of the necessary infrastructure for the conditioning and temporary storage of special waste.

A.9. Preparation and implementation of a training and development plan for neighbourhood committees and other actors, including private initiatives that will participate in the execution of the project:

- Entrepreneurship and Business Plan.
- Formalization of companies.
- Technical aspects – environmental and gender-related that make the development of the project productive.
- Competitiveness and Productivity.

A.10. Signing of the necessary agreements and commissioning of the system by the municipality and private actors.

A.11. Design and implementation of a monitoring and evaluation plan for the system and application of corrective measures or improvements when appropriate by a consultant, throughout the project execution process.

A.12. Design and implementation of a plan for guided tours aimed at other municipalities, with the aim of sharing the experience.

A.13. Evaluation of the results obtained, documentation of the lessons learned and preparation of a guide aimed at facilitating the replication of the experience in other municipalities.

Output 3.1.4. Final BAT/BEP disposal of POPs and mercury-containing fractions.

The project will ensure the environmentally sound disposal of a minimum of POPs and Hg-containing fractions, especially stockpiles, identified during the inventories update (Output 2.1.1) or by different means during the execution of the project. The project will also ensure that a maximum of indirect GEBs will be achieved simultaneously.

A list of identified POPs and Hg-containing fractions will be drawn up and a risk assessment will be carried out in order to prioritize them. The amounts disposed will depend on the disposal costs and the prioritization carried out will be used. Agreements will be sought with the private sector to carry out the final disposal. Existing, adapted or upgraded national facilities that meet BAT/BEP will be preferred for the final disposal.

The following incremental activities will be carried out to achieve Output 3.1.4:

- i. Listing and prioritization of identified POPs and Hg-containing fractions. Prioritization criteria based on environmental risk will be developed.
- ii. Search for alternatives for final disposal and cost analysis.
- iii. Bidding process and contracting of companies.

Component 4: Project Monitoring and Evaluation. Component 4 is the monitoring and evaluation component of the project to ensure progress monitoring and results-based management of all outputs, and to carry out the Mid-term review and Terminal Evaluation of the project.

The monitoring and evaluation component has the following outputs:

4.1.1. Monitoring system set and operational (including monitoring of ESMP, Gender Action Plan and Stakeholder Engagement Plan)

Monitoring system includes the following activities:

- i. Measurement of GEF core indicators
- ii. Monitoring of project impact indicators (as per Log Frame)
- iii. Monitoring of ESMP
- iv. Monitoring of Gender Action Plan
- v. Monitoring of Stakeholder Engagement Plan
- vi. Periodic Progress Reports

4.2.1. Mid-term review and terminal independent evaluation conducted.

Relevant activities include the Mid-term review and terminal independent evaluation, according to the guidelines established by UNIDO and the GEF.

4.2.2. Lessons learned shared with all relevant stakeholders for future application, development and improvement.

As part of the project closure activities, at least three lessons learned workshops will be held for different stakeholder groups. In addition, a **terminal project workshop** will be conducted in the last month of project.

A **final report** will be prepared, including project achievements, further actions needed if applicable, project sustainability, replicability and up-scaling options.

4) Alignment with GEF focal area and/or Impact Program strategies

This project is aligned with the GEF-7 Chemicals and Waste Focal area, Programmes 1-1 on Industrial Chemicals. In particular, it promotes the elimination, restriction and control of POPs chemicals listed in Annexes B (PFOS) and C (u-POPs) of the Stockholm Convention and emissions and releases of mercury in the products listed in Annex A of the Minamata Convention on mercury. The project promotes a sectoral approach covering the sound management of solid, POPs and Hg-containing articles in urban, peri-urban and rural areas.

It is also aligned with the CW 1-1 objective to strengthen the sound management of industrial chemicals and their wastes through environmentally sound management approaches. The project also intends to strengthen the national legislation related to the environmentally sound management of POPs and Hg-containing items, aiming at generating more options for the recycling of valuable fractions or disposal of hazardous fractions, while reducing the release of emissions.

The project follows GEF-7 guidance on adopting a country-driven approach through catalysing innovative solutions based on local knowledge and locally developed technologies and practices. In particular, the project will achieve financial sustainability through providing support to set up a business incubator, as well as integrating the private sector and other non-governmental stakeholders into the project's planned transformational changes, while simultaneously enhancing synergies and integration with other GEF-supported interventions.

During the PPG phase, an assessment of selected sectors related to POPs and mercury products was carried out to validate the targeted sectors and optimize GEF funding in terms of environmental benefits, while achieving economic and social benefits through the integration of circular solutions into industrial activities. This validation assessment was also used to refine the main Global Environmental Benefits (GEBs) of this project, which will be measurable environmental reductions of POPs and mercury through the environmentally sound and integrated management and disposal of selected waste streams.

5) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing

Current consumption and waste management practices in Paraguay are based on a linear model resulting in landfilling, open burning or incineration of all types of wastes, leading to the unsustainable use of valuable resources. Environmental degradation and human health exposure to emissions and releases of u-POPs and Hg have a serious negative impact on the country.

The proposed project will be integrated across sectors to help pursue holistic approaches and achieve transformational change in the realm of waste management in Paraguay. Furthermore, the project will contribute to achieving GEF core indicators 6, 9, 10 and 11, and also SDGs 3, 5, 8, 9, 10, 11, 12, 16 and 17.

In particular, regarding SDG 12, the project will help promote the adoption of improved consumption and environmentally sound disposal patterns of products that potentially contain POPs or mercury. The project will promote sustainable material management initiatives, some related to the circular economy approach promoted by the national government, and it will help with dealing adequately with products and wastes that contain POPs and mercury. The implementation of such an approach will require the wide participation of key stakeholders and the development of private-public partnerships. This will be facilitated by strengthened policies and regulations, technical assistance and capacity building, knowledge management, awareness-raising, introduction of best available technologies (BAT) and best environmental practices (BEP) and the promotion of management tools to support private sector entities active in waste management.

Regarding Component 1, the project will strengthen the baseline activities and efforts related to the environmentally sound management of hazardous fractions and the recycling of valuable fractions through policy recommendations specifically targeting POPs and Hg-containing products along their life-cycle. The project will have a holistic approach aiming at the introduction of a ban on importing POPs-containing and Hg-containing products, strengthening the EPR system and promoting alternative products and the recyclability of valuable fractions. Through these activities the project will help to establish a path towards the final disposal of POPs and Hg-containing fractions, which should be seen as a solution for existing products in Paraguay, rather than a long-term solution.

The project will also support the establishment of incentives for ESM of hazardous waste fractions containing POPs or mercury. Such incentives could be, for example, specific taxation and/or subsidies for recovering hazardous chemicals or trade promotion for secondary raw materials. This will directly increase the profitability of entities working on the management of non-hazardous waste fractions and is aimed at strengthening and developing the sector in Paraguay.

Regarding Component 2, the project will strengthen national capacity, including technical guidelines, training and awareness-raising activities, all of which are necessary to inform relevant stakeholders about ESM opportunities along the product's life-cycle, as well as the environmental and human risks associated with environmentally unsound management.

Component 3 of this project focuses on the BAT/BEP demonstration for the environmentally sound treatment and disposal of POPs and Hg-containing fractions. It also aims to improve the recyclability of valuable fractions. This component not only aims to achieve GEBs but also to help pave the way towards sustainable ESM of valuable fractions of related items through up-scaling activities.

This project is cost-effective because it achieves GEBs through the simultaneous reduction of PFOS or Hg-containing items and reduction of u-POPs and Hg emissions.

The approach proposed for this GEF-7 project would increase the sustainability of the GEF investments and related co-financing for project support (e.g. office space, meeting coordination and participation, non-incremental support for the pilots). In addition, to achieve the objectives of the SC, BC, Minamata and other multilateral environmental agreements on C&W, the GEF grant will support country priorities as stated by the Government of Paraguay through its Ministry of Environment and Sustainable Development.

Baseline	Incremental Reasoning
Component 1: Policy strengthening by integrating industrial waste management principles into the legislative framework targeting municipalities.	
Although there is a set of regulations related to waste, POPs and Mercury management in Paraguay, none of the stages of chemical	The project will strengthen the baseline activities and efforts related to environmentally

<p>life-cycle management are adequately covered.</p> <p>The industrial chemicals sector has the fewest legal instruments compared to agricultural and public consumption chemicals. However, both the industrial and commercial sectors are the ones that best manage their waste.</p> <p>As urban waste is not generally segregated at source, all types of waste end up in landfills (mixed organic, inorganic and hazardous). This represents a significant challenge for the various municipalities. In addition, the country has 254 municipalities, but only 65 municipalities of them (25%), have access to facilities for the treatment and final disposal of urban waste authorized by the Ministry of Environment and Sustainable Development (MADES). Open burning is a widely used practice in municipal dumpsites, e.g. Cateura landfill, for which open burning of waste has been documented in order to extract valuable metals or to reduce the waste volume. The low coverage of collection services contributes to aggravate runoffs and flooding during intense rains since waste obstructs the storm drains.</p> <p>The Ministry of Public Health and Social Welfare (MSPyBS), is the enforcement authority of the law that regulates the management of waste generated in health care institutions. Within this framework, the MSPyBS has issued a Manual of Procedures for the Comprehensive Management of Waste generated in Health and Related Establishments which contributes to the application of clean technologies and practices that reduce the amount of waste, as well as pollution associated with waste mishandling.</p> <p>Co-financing: USD 1,221,000</p>	<p>sound management of hazardous fractions and recycling of valuable fractions through policy recommendations specifically targeting POPs and Hg-containing products along their life cycle. The project will have a holistic approach, aiming at the phase out of importing POPs and Hg-containing products, developing policy tools for upstream minimization of hazardous waste generation and promoting alternative products and the recyclability of valuable fractions of the products already in circulation. Through these activities the project will help to establish a path towards the final disposal of POPs and Hg-containing fractions, which should be seen as a solution for existing items in Paraguay, rather than a long-term solution..</p> <p>The project will also support the establishment of incentives for the ESM of hazardous waste fractions containing POPs or mercury. Such incentives could include, for example, specific taxation and/or subsidies for recovering the hazardous chemicals or trade promotion for secondary raw materials. This will directly increase the profitability of entities working on the non-hazardous waste fraction, and is aimed at strengthening and developing the sector in Paraguay.</p> <p>GEF budget allocation will be managed to enhance the existing policy and regulatory framework to include ESM for waste for municipalities, which is a pre-requisite for practical pilot interventions.</p> <p>GEF Grant sought: USD 198,788</p>
<p>Component 2: National capacity building, knowledge management and awareness-raising on industrial waste solutions aligning urban with peri-urban and rural areas</p>	
<p>Despite the environmental and human health risks associated with unsound management of POPs and Hg-containing wastes, few capacity-building activities related to chemicals and waste have been carried out in Paraguay. For example, MADES has conducted informative workshops on POPs for various stakeholders, such as the Government of the Department of Caaguazú, the Faculty of Sciences and Technologies of the Catholic University of Asunción, and the San Carlos University. In addition, conferences aimed at</p>	<p>The project will strengthen national capacity, including through the development of technical guidelines, and training and awareness-raising activities, which are necessary in order to inform all relevant stakeholders of ESM opportunities along the product's life-cycle of ESM, as well as the environmental and human risks associated</p>

<p>members of the Military Council for the Environment, officials of the Ministry of National Defence and the Armed Forces, among others have been held.</p> <p>The “<i>Manual of Integral Management of Municipal Solid Wastes</i>” was elaborated as a tool to facilitate the management and sustainability of plans on the management of community solid wastes. This manual provides the municipalities, who are legally responsible for the management of municipal solid wastes, with guidelines to be able to fulfil certain components of integral management and to ensure continuity.</p> <p>With this manual, it is expected that the municipalities will start to gradually implement the different points of the waste management pyramid (Reduction- Reutilization- Recycling- Final Appropriate Disposal) to reduce open burning activities or reduce the volume of burning in dumpsites. However, only some industries and hospitals have started internal recycling programs for the re-use of materials, or sell industrial wastes for co-processing or incineration (e.g. as fuel), there are no regulated standards for separate environmentally sound waste streams of hazardous materials.</p> <p>Thus, capacity-building is needed to enhance the sustainability of ESM of waste.</p> <p>There have been no awareness-raising programs on POPs or HG-containing products targeting relevant stakeholders nor the general public.</p> <p>Co-financing: USD 3,247,000</p>	<p>with unsound environmental management.</p> <p>As indicated in 2.1.3, knowledge management on POPs and Hg in waste streams, BAT/BEP and upstream ESM options will be improved, feeding and strengthening the national System of Environmental Information (SIAM).</p> <p>GEF Grant sought: 528,578</p>
<p>Component 3: Pilot projects, including public-private partnerships, BAT/BEP, and final disposal of POPs and Hg-containing materials, for sustainable waste management</p>	
<p>Based on the NIP update (2018) the lifecycle of PFOS-containing items in Paraguay includes imports, different uses, some recycling (but no separation of hazardous parts) and final disposal in landfills. According to the PFOS inventory partially updated during the PPG phase, all the existing PFOS-based firefighting foams stocks were used, the annual consumption of aviation hydraulic fluids was estimated at 30 tons, the annual consumption of textiles and paper treated with PFOS was estimated at 745 tons and no use of PFOS was found in the tanning sector.</p> <p>U-POPs (dioxins and furans) emissions in the country are mainly caused by the uncontrolled open burning of wastes. Another less relevant source is the incineration of medical waste in incinerators that do not have appropriate gaseous emission control systems. These sources of high emissions of u-POPs in the environment are a human health concern, especially for residents living close to dumpsites and treatment facilities. According to the NIP update (2018), the total dioxins and furans emissions for the year 2014 was</p>	<p>Component 3 of this project aims at the BAT/BEP demonstration for the environmentally sound treatment and disposal of POPs and Hg-containing fractions, as well as improving the recyclability of valuable fractions. This project not only aims to achieve GEBs but also to pave the way towards sustainable ESM of valuable fractions of related items through up-scaling activities.</p> <p>GEF grant sought:</p> <p>TA: USD 172,780</p> <p>INV: USD 2,611,689</p>

97.2 gTEQ. 40.6 gTEQ (41.8 %) are generated as a consequence of open burning of domestic waste and 2.4 gTEQ (2.5 %) come from precarious medical waste incinerations.

The Minamata Initial Assessment (MIA) carried out in Paraguay in 2017 shows that the two main sources of mercury emissions and releases correspond to open burning of domestic waste and mercury-added products. According to the partial update of the MIA developed during the PPG stage, open burning of domestic waste generates 7.14 ton Hg/year, while thermometers (both medical and industrial) and light sources represent 1.10 and 0.06 ton Hg/year, respectively.

There have been no activities to either reduce POPs or Hg from relevant products nor to promote the recovery and recyclability of valuable fractions.

Co-financing: USD 62,499,516

TA: 1,061,000

INV: 61,438,516

6) Global environmental benefits (GEFTF) and/or adaptation benefits (LDCE/SCCF)

The project will tackle multiple GEF core indicators, as outlined below:

Indicator 6: Greenhouse Gas Emissions Mitigated. It is estimated that approximately 1,000,000 tons/year of domestic waste are open burned by the generators themselves or in uncontrolled dumpsites (2017), generating the emission of 135,600 tons CO₂ eq. Assuming a 25 % reduction of the total waste disposed of via uncontrolled burning, this represents a reduction of 34,000 tons CO₂ eq /year.

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).

PFOS³: BAT/BEP applications to at least 745 tons/year from different consumer and industrial items (e.g. textiles and paper), representing 9,340 kg of PFOS/year, as well as to 30 tons/year of aviation hydraulic fluids, which corresponds to 30 kg of PFOS/year. The total expected PFOS reduction through import restriction and proper disposal is 9,370 kg/year.

Mercury⁴: reduction and elimination of 1.16 tons Hg/year mercury-added products and the management of their waste. Reduction of 1.79 tons Hg/year as a result of a 25 % reduction of the total waste disposed of via uncontrolled burning. Total reduction of 2.95 ton Hg/year.

³ During the PPG phase, an update of some PFOS inventories was carried out, including: (i) Firefighting foams, (ii) Aviation hydraulic fluids, (iii) Textiles and paper, and (iv) Leather Industry sector. Regarding firefighting foams, all the existing stocks were used and no use of PFOS was found in the tanning sector. The annual consumption of aviation hydraulic fluids was estimated at 30 tons, which corresponds to 30 kg of PFOS. The annual consumption of textiles and paper treated with PFOS was estimated at 745 tons, which represents 9,340 kg of PFOS. The total expected reduction through import restriction and proper disposal is **9,370 kg PFOS/year**. During the PIF stage, this reduction has been estimated at 1,602 kg PFOS /year.

⁴ Based on the partial update of the Minamata Initial Assessment (MIA), it was estimated the reduction and elimination of 1.16 ton Hg/year mercury-added products. Reduction of 1.79 ton Hg/year as a result of 25 % reduction of the total waste disposed of via

Indicator 10⁵: Reduction, avoidance of emissions of POPs to air from point and non-point sources (grams of toxic equivalent gTEQ). Direct reduction of at least 10.2 g TEQ, assuming a 25 % reduction of the total waste disposed of via uncontrolled burning, among other waste ESM.

Indicator 11: Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment. At least 100 people among relevant stakeholders (60 male and 40 female) trained. At least 5,000 people (60% male/40 % female) reached by awareness-raising activities organized through events/programs on waste and POPs and Hg management.

7) Innovativeness, sustainability and potential for scaling up

Innovation

The 254 municipalities of Paraguay should have sanitary landfills or similar facilities, but only 65 municipalities have access to facilities approved by the Ministry of Environment and Sustainable Development (MADES). There is no segregation to reuse and recycle waste to promote efficiency in the use of resources and support a circular economy. In this way, inadequate waste management increases economic inefficiencies as well as the risk of contamination since common waste is mixed with hazardous waste and organic waste is mixed with inorganic waste. Activities such as recycling and composting are absent. In addition, discarded consumer products, which could contain PFOS, such as remains of carpets, textiles, paperboard or hiking shoes, among others can also be found in waste dumps. Fires are frequent in uncontrolled landfills and dumpsites, exacerbating the production of dioxins and furans. Combustion processes also release mercury emissions to the environment (air, soil and water).

This project will be the first project in Paraguay to look at transforming the waste sector from a linear to a sustainable model. Reusable fractions from waste will be segregated and problematic POPs and mercury fractions will be handled properly, while valuable fractions will be recycled. Such practices are yet to be introduced in Paraguay but are of utmost importance for economy, human health and environmental protection.

While this project focuses on practical interventions for tangible results, including POPs and Hg reductions, among others, innovation remains an important element of its execution. Implementing new technologies at existing facilities to meet the specified BAT/BEP will require the design of tailored and innovative approaches.

Sustainability

To ensure sustainability, the project will follow good governance principles (participation, consensus, accountability, transparency, responsiveness, effectiveness, efficiency, equitability, inclusiveness, and strict legality) and the GEF-7 Programming Directions for strengthening private-public partnerships. In addition, the project will contribute to the ESM and sustainable life-cycle management of POPs chemicals and products potentially containing POPs chemicals and mercury and their wastes through sustainable solutions and business models, involving the private sector and other non-governmental organizations.

The strong commitment and ownership demonstrated by the Government during early discussions on this proposed project will further contribute to an impactful and sustainable project. At the policy level, legislation will be strengthened to prevent the import of mercury-containing products in line with the phase-out dates of the Minamata Convention Annex A. This will further contribute to the sustainability of the project impact as incoming mercury sources will be eliminated in Paraguay.

uncontrolled burning was also estimated. The total reduction is **2.95 ton Hg/year**. During the PIF stage, this reduction has been estimated at 5.6 ton Hg/year.

⁵ According to the NIP update (2018), 40.6 g TEQ are generated as a consequence of open burning of domestic waste. Direct reduction of at least **10.2 g TEQ**, assuming a 25 % reduction of the total waste disposed of via uncontrolled burning, among other waste ESM. During the PIF stage, this reduction has been estimated at **34 g TEQ**.

When deploying best available techniques (BAT) and best environmental practices (BEP), optimal and local appropriate technologies will be considered and imported technologies will be adapted to local conditions to ensure proper operation and maintenance. In parallel, adequate and fair financing options will be explored. Developing sustainable and financially sound entities managing waste in Paraguay is imperative for this project in order to help develop a national and local system. To ensure sustainability beyond project completion, the capacity of these entities' accounting and financial services will be strengthened to facilitate access to financing. An active waste management system is essential and will have national and regional links to sustainably meet Paraguayan commitments to the Stockholm, Minamata and Basel Conventions, while facilitating the environmentally sound management of hazardous chemicals, mercury and POPs contained in wastes.

Up-Scalability

The missing urban-rural links between big cities and surrounding smaller cities is not only common in the whole territory of Paraguay but also throughout the Latin American and the Caribbean region. This has enormous repercussions as environmental challenges and missed economic opportunities are also widespread across the continent due to these inefficiencies. The intervention, particularly the environmentally sound management model involving the private sector, has potential for replicability at the national scale and at the regional scale.

Under Component 2, capacity building and awareness-raising focused on accelerating the adoption of ESM principles, BAT/BEP and financial options for POPs and mercury (Hg)-free operations will facilitate scaling-up or replicability to new POPs, other waste and chemical substances of concern involving different sectors.

Additional scale-up opportunities will arise from the pilot projects (Component 3). Each of these pilot projects will implement interventions to demonstrate ESM, BAT and BEP concepts. Experiences from these pilots are expected to be scaled-up or replicated in other regions of the country, other countries, other types of chemicals and waste, larger facilities and greater geographical coverage, among other possibilities.

The pilot projects will result in detailed insights into various feasible technical solutions and the financial feasibility of applied approaches, while building hands-on experience of involved stakeholders. After the successful implementation of these pilot projects, systems and expertise will be in place to scale-up and replicate efforts.

Output 3.1.2. in particular, will look at the up-scaling aspect of the project through the promotion of business and financing options for ESM activities to ensure that successful project activities are replicated and scaled-up at the national level.

The pilot project “Environmentally sound and sustainable management of lights and medical devices that contain mercury and its wastes” could be scaled-up or replicated in other countries. At the local level, other less relevant Mercury-containing devices and waste could be incorporated.

It is expected that the methodology developed in pilot project 2, “Environmentally sound management of used hydraulic fluids containing PFOS” can be adjusted for use with other hazardous waste streams.

The pilot projects “Adaptation and operation of uncontrolled dumpsites in small and medium-sized municipalities” and “Household separation, collection and recovery of recyclable materials and special wastes” are expected to be replicated across the country and could be used as a reference for implementation in other countries.

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

The Republic of Paraguay is a landlocked country with an area of 406,752 km² and is located in the southern hemisphere of the American continent, between parallels 19°18' and 27°03' South latitude, and meridians 54°15' and 62°38' West longitude. It borders Bolivia and Brazil to the north, Brazil to the east, and Argentina to the south and the west. The borders with Argentina are the Pilcomayo River, the Paraguay River and the Paraná River. The border with Brazil is also marked by the Paraná River from Ciudad del Este at the confluence with the Iguazú River to Saltos de Guairá further north. The coordinates for the capital Asuncion are: 25°16'S, 57°40'W.

The Paraguayan territory is divided by the Paraguay River that crosses it from North to South, into two very different regions, the Western region, also known as the Paraguayan Chaco, and the Eastern region (Region Oriental). There are fundamental differences between both regions, in terms of biophysical characteristics, topography, climate, access to water resources, and the distribution of the population.

The Eastern region in the south of the country represents 39% of the territory and contains just over 97% of the population, with a density of 31.5 inhabitants/km². On the other hand, the Western region, in the north of the country, occupies 61% of the territory and just over 2% of the population resides there, with a density of 0.5 inhabitants/km². The population density at the country level is 12.7 inhabitants/km². Asunción and the Central department have the highest population densities, 552.9 inhabitants/km², respectively.

Paraguay consists of seventeen departments and one Capital District (Distrito Capital). These are: Alto Paraguay, Boquerón, Presidente Hayes, Concepción, Amambay, San Pedro, Canindeyú, Caaguazú, Cordillera, Central, Paraguari, Guairá, Alto Paraná, Caazapá, Misiones, Ñeembucú and Itapúa, in addition to the district of the capital, Asunción. To determine the number of districts, several sources have been consulted.

The country also has 256 municipalities mainly located in peri-urban or rural areas, except for six main conglomerates: the capital Asunción and its surrounding Departamento Central, Ciudad del Este, Encarnación, Caaguazú, Coronel Oviedo, and Pedro Juan Caballero.

Paraguay is a landlocked country with a rural population of about 40% who largely depend on agricultural, livestock and incipient industrial activities.

It is also divided into two regions: The "Occidental Region" or Chaco (Boquerón, Alto Paraguay and Presidente Hayes), and the "Oriental Region" (the other departments and the capital district).

All the activities foreseen in this project are concentrated in the Eastern region of the country.

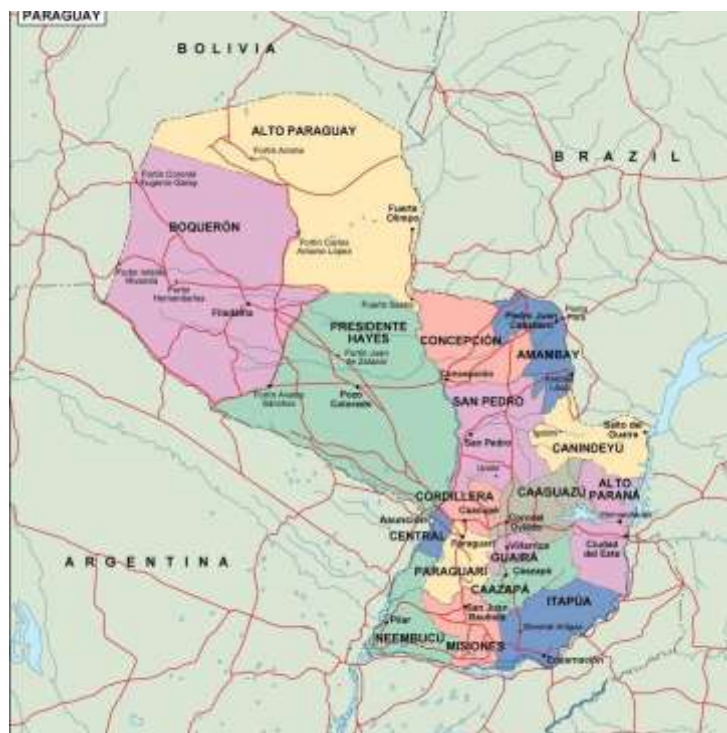


Table. Administrative division.

Department	Capital	Population (2021)	Area (km2)
Distrito Capital	Asunción	524,559	117
Concepción	Concepción	261,976	18,057
San Pedro	San Pedro	463,126	20,007
Cordillera	Caacupé	323,273	4,953
Guairá	Villarrica	247,747	3,991
Caaguazú	Coronel Oviedo	609,803	11,479
Caazapá	Caazapá	205,031	9,503
Itapúa	Encarnación	622,565	16,536
Misiones	San Juan Bautista	168,130	9,568
Paraguari	Paraguari	278,957	8,710
Alto Paraná	Ciudad del Este	854,943	14,898
Central	Areguá	2,210,109	2,665
Ñeembucú	Pilar	93,287	12,155
Amambay	Pedro Juan Caballero	204,169	12,935
Canindeyú	Salto del Guairá	254,978	14,677
Presidente Hayes	Villa Hayes	129,951	72,917
Alto Paraguay	Fuerte Olimpo	18,330	82,394
Boquerón	Filadelfia	71,836	91,676
Paraguay	Asunción	7,359,000	406,796

2. *Stakeholders*. Please provide the Stakeholder Engagement Plan or equivalent assessment. (Type response here; if available, upload document or provide link) In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement.

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

- Civil Society Organizations
Indigenous Peoples and Local Communities

- Private Sector Entities
If none of above, please explain why?

- During the project preparatory phase, the Ministry of Environment and Sustainable Development (MADES) and UNIDO consulted a wide range of stakeholder groups to ensure collaboration, strategy and partnerships in order to verify baseline information, to gather additional data and to consult on project execution arrangements, including potential roles and responsibilities during project implementation as well as co-financing contributions.
- In addition to the identification of key stakeholders and the contacts made during the concept development, the following methodology was followed in the project preparation phase, to ensure a proper definition of technical aspects, socialization of information as well as a wide stakeholders' participation and involvement. All the steps were discussed, agreed and executed working jointly with MADES.

Step	Description
1	Review and update the list of stakeholders identified at the concept stage.
2	Conduct preliminary meetings with stakeholders from the public sector and private waste management companies.
3	Draft preliminary profiles of the pilot projects and identify and prioritize potential stakeholders, including the development of a prioritization criterion for the selection of municipalities.
4	Elaborate basic project information to share with each of the different stakeholder groups as well as the strategy to motivate their participation in the project (see Annex 1).
5	Second round of bilateral stakeholders' meetings with the participation of MADES officials.
6	Conduct inception and validation public workshops virtually.
7	Adjust pilot proposals based on feedback and comments received.
8	Develop and implement a strategy plan for co-financing agreements.
9	Finalize the stakeholder engagement plan.

Please provide the Stakeholder Engagement Plan or equivalent assessment.

The Stakeholder Engagement Plan (SEP) has been prepared to ensure effective stakeholder consultation and participation. It seeks to secure stakeholder participation to improve the transparency, accountability, integrity, effectiveness and sustainability of the project governance and operations, including strengthening the design and implementation of GEF-financed activities, reducing risks and addressing the environmental, social and economic needs of involved parties.

In addition, effective stakeholder engagement promotes country ownership by forging stronger partnerships, particularly with communities and the private sector, and taking advantage of the knowledge, experience, skills and ongoing and the near future plans of the different groups of stakeholders.

The first concept of this project was drafted in October 2019, and then shared with the GEF Operational Focal Point of Paraguay for consideration and feedback. During a field mission in November 2019, the project concept was discussed and agreed upon with the Director of Strategic Planning and GEF-OFP, the Director-General of Environmental Management, the Director of Chemicals and Wastes, the Chief of the POPs management unit, and two GEF project coordinators (PCBs and Mercury) of the Ministry of Environment and Sustainable Development (MADES). The meeting resulted in a follow-up meeting with the former Minamata Focal Point and current Director of Climate Change at MADES and two climate change experts to elaborate on potential CO data related to unsound waste management. Technical aspects of the project were discussed with the POPs focal point, the national coordinator of the GEF-PCB project and the national coordinator for the Mercury MIA assessment, especially on baseline data, inventory data, gaps, and private sector involvement. Additionally, the technical expert team of the on-going UNDP-GEF Project “Cities-IAP: Asuncion Green City of the Americas – Pathways to Sustainability” (GEF ID 9127) provided an update on their project and potential synergies.

The project concept was also presented as part of the Project Steering Committee Meeting of the on-going GEF-UNIDO PCB project, which was attended by selected private sector representatives (e.g. ANDE, laboratories). It was agreed to arrange an additional national stakeholder workshop with the private sector and civil society organizations during June or July 2020, however, this did not happen due to COVID-19. Specifically related to mercury, consultations with the Paraguayan counterparts happened during the Minamata COP3 in November 2019 with the former Minamata Focal Point. Based on this discussion, it was agreed to involve the Ministry of Health (MoH) on the healthcare side. The above-mentioned consultations resulted in a wide range of stakeholders being listed. This list was further adjusted and bilateral meetings and interviews were carried out during the project preparatory phase.

To achieve the planned outcomes, the project should involve a wide range of stakeholders: national policy makers (mainly MADES and Ministry of Public Health and Social Welfare), other national relevant governmental entities, municipalities and local governments, private sector, corporations, academic and technical education stakeholders and civil society organizations.

Consistent with the [GEF Policy on Stakeholder Engagement](#), the [GEF Guidelines on the Implementation of the Policy on Stakeholder Engagement](#), and the [STAP Multi-Stakeholder Dialogue for Transformational Change](#), the Stakeholder Engagement Plan aims to ensure that the project:

1. Ensures the involvement and commitment of the population in the adoption of sustainable practices of consumption habits and waste management.

2. Ensures the leadership of the municipalities involved as well as the active participation of the neighborhood commissions⁶.
3. Promotes the active participation of the private sector linked to waste management, in the development of the activities included in the three components of the project.
4. Ensures the involvement, commitment, support and active participation of the public sector in the development of the activities included in the three components of the project.
5. Guarantees the active participation of key stakeholders in the Project Steering Committee and Technical Advisory Committee.
6. Includes adequate allocation of resources to ensure the participation of the different groups of stakeholders and adequate outreach to potential beneficiaries.
7. Conducts public participation activities in a transparent and open manner.
8. Fully tracks and documents public participation.
9. The main stakeholders have been identified, involved and consulted during the preparation preparatory phase. The following table provides the list of stakeholders, including their corresponding mandate and their roles in the project.

Name	Type	Specialization	Role in the project
UNIDO	International organization	Inclusive and sustainable industrial development.	<ul style="list-style-type: none"> • GEF Implementing Agency
Executing Partner			
Ministry of Environment and Sustainable Development (MADES)	Government	Responsible for policy formulation and economic, scientific and technological interventions; setting standards and regulations; coordinates all matters related to environmental management.	<ul style="list-style-type: none"> • Responsible for leading the project. • Chairs the PSC. • Supports national training and capacity building conducted under the project. • Facilitates the identification and implementation of appropriate incentives for improved solid waste management. • Supports and establishes a framework for BAT/BEP transfer. • Promotes dialogue and addressing all parties' needs.
PEEs			

⁶ Organized groups of people residing in a given territory, non-profit, characterized by their own concerns and needs, with the aim of improving the quality of life in different ways and strengthening citizen participation.

Name	Type	Specialization	Role in the project
Basel Convention Coordinating Centre, Stockholm Convention Regional Centre, Uruguay (BCCC-SCRC Uruguay) - Technological Laboratory of Uruguay (LATU).	International not-for-profit organization	Basel and Stockholm Conventions. Capacity Building and Technology Transfer	<ul style="list-style-type: none"> • Project Execution Entity PEE • Responsible for the overall management of the financial and human resources directly related to international consultants and international biddings. • Overall responsibility for the technical quality control of all project products.
Centre for Environmental and Social Studies (CEAMSO)	Non Governmental Organization	Experience in governance and institutional strengthening, social inclusion and gender, environment, innovation and social development.	<ul style="list-style-type: none"> • Project Execution Entity PEE at national level for specifics activities. • Participate in capacity building, training and awareness raising activities. • Responsible for national procurement process. • Responsible for execution and monitoring specific project activities.
Research for Development (ID)	Non Governmental Organization Research Center	Experience in generating and socializing knowledge concerning development and contributing to the design and evaluation of public policies in order to improve the living conditions of the population.	<ul style="list-style-type: none"> • Project Execution Entity PEE at national level for specifics activities. • Participate in capacity building, training and awareness raising activities. • Responsible for national procurement process. • Responsible for execution and monitoring specific project activities.
Government Stakeholders			

Name	Type	Specialization	Role in the project
Ministry of Industry and Commerce (MIC)	Government	The MIC has the objective of promoting industrial production by installing new establishments and improving existing ones; regulating, facilitating and promoting the distribution, circulation and consumption of goods and services of national and foreign origin that are not regulated by special laws and promoting the increase of internal and international trade. Its efforts are divided into Industry, Commerce and Micro, Small and Medium Enterprises (MIPYMES). Among the objectives of MIPYMES is the promotion of the development, formalization and strengthening of the sector, turning them into competitive production units.	<ul style="list-style-type: none"> • Participate in the PSC and Project Technical Committee. • Participate in the preparation of recommendations on the regulatory framework. • Participate in business incubator activities. • Participate in capacity-building, training, awareness-raising activities and pilot projects.
Ministry of Public Health and Social Welfare (MSPyBS) – General Directorate of Environmental Health (DIGESA)	Government	The MSPyBS 's main function is to define and direct the health policy of the central government, through the development of health programs, as well as public services, environmental sanitation, disease eradication, science and technology. It is the enforcement authority of Law 3,361/07 on Comprehensive Management of Waste generated in Health and Related Establishments. Also, as a result of the operation of its health care units, it is a generator of hospital and related waste.	<ul style="list-style-type: none"> • Participate in the PSC and the Project Technical Committee. • Participate in the preparation of recommendations on the regulatory framework. • Participate in capacity-building, training, awareness-raising activities and pilot projects.
Ministry of the Interior (MI) General Directorate of Municipalities (DGM).	Government	Coordinate the actions of the municipalities with those of the National Government. Provide technical assistance to municipalities on local administrative systems and strengthening management capacity.	<ul style="list-style-type: none"> • Participate in the PSC Committee on behalf of the municipalities. • Coordinate actions.

Name	Type	Specialization	Role in the project
National Customs Directorate (NCD)	Government	The NCD is the Institution in charge of applying customs legislation, collecting import and export taxes, supervising the traffic of merchandise through the country's borders and airports, exercising its powers in the primary zone and carrying out the tasks of repression of smuggling in secondary area.	<ul style="list-style-type: none"> • Participate in the preparation of recommendations on the regulatory framework. • Participate in capacity-building, training and awareness-raising activities and in the Project Technical Committee.
National Directorate of Civil Aeronautics (DINAC)	Government	The function of DINAC is to transport air cargo, which may include dangerous goods, therefore, it requires the application of special protocols that guarantee correct operation and handling, according to their nature, among those that can be found in substances or products that contain POPs. On this point, the DINAC has an Operations Regulation R 175 Transport without risk of dangerous goods by air. Also, this state entity enables the operation of air navigation and related services companies.	<ul style="list-style-type: none"> • Participate in capacity-building, training and awareness-raising activities.
National Directorate of Transportation (DINATRAM)	Government	DINATRAM has participation in the regulation and control of the transport of cargo by roads (solid and liquid), including dangerous/hazardous goods.	<ul style="list-style-type: none"> • Participate in capacity-building, training and awareness-raising activities.
National Electricity Administration (ANDE)	Public company	Operates electrical supply systems, supplies energy to consumers and provides public lighting service.	<ul style="list-style-type: none"> • Participate in capacity-building, training and awareness-raising activities and pilot projects.
Municipalities			

Name	Type	Specialization	Role in the project
Selected municipalities: Mbocayaty, Iturbe, Yataity, Villa Florida, Caazapá, Villarrica, Asunción, Guarambaré, Tobicuary, Gral. Morínigo, Ñemby, Luque, Villa Elisa, Itaugua, Paraguairí, Coronel Oviedo, Minga Guazú and Saltos del Guairá.	Local Government	In accordance with the Municipal Organic Law No. 1294/87, the country's Municipalities have powers to regulate, apply and control compliance with ordinances related to the management of waste, atmospheric emissions and liquid effluents.	<ul style="list-style-type: none"> • Participate in the preparation of recommendations on the regulatory framework. • Participate in capacity-building, training, awareness-raising activities and pilot projects.
Private sector			
Tayi Ambiental S.A.	Private sector	Solid waste and hazardous waste management company (including medical waste).	<ul style="list-style-type: none"> • Implement BAT/BEP pilots. • Introduction of ESM, BAT and BEP concepts in existing installations. • Invest (in-kind or cash) in improving their processes.
El Farol / Ingeniería Ambiental S.A.	Private sector	Collection, transportation and final disposal of urban solid waste.	<ul style="list-style-type: none"> • Implement BAT/BEP pilots. • Introduction of ESM, BAT and BEP concepts in existing installations. • Invest (in-kind or cash) in improving their processes.
DISAL S.A.	Private sector	Management of fluorescent tubes.	<ul style="list-style-type: none"> • Implement BAT/BEP pilots. • Introduction of ESM, BAT and BEP concepts in existing installations. • Invest (in-kind or cash) in improving their processes.
Wels S.A.	Private sector	Collection, transportation and final disposal of medical waste.	<ul style="list-style-type: none"> • Implement BAT/BEP pilots. • Introduction of ESM, BAT and BEP concepts in existing installations. • Invest (in-kind or cash) in improving their processes.
COMPASA	Private sector	Collection, transportation and final disposal of used hydrocarbons and fluorescent tubes.	<ul style="list-style-type: none"> • Implement BAT/BEP pilots. • Introduction of ESM, BAT and BEP concepts in existing installations. • Invest (in-kind or cash) in improving their processes.

Name	Type	Specialization	Role in the project
Industrial Union of Paraguay (UIP)	Private sector	Directly or indirectly involved with POPs or products containing Hg.	<ul style="list-style-type: none"> • Introduction of ESM, BAT and BEP concepts in existing installations.
Center of Importers of Paraguay (CIP)	Private sector	Directly or indirectly involved with POPs or products containing Hg.	<ul style="list-style-type: none"> • Introduction of ESM, BAT and BEP concepts in in importing products.
Fire fighters	Private sector	In principle, firefighters provide support to people who are affected by fires, but over time, they have found the need to assist in other types of incidents, whether in vehicle accidents or rescues, forest fires, etc.	<ul style="list-style-type: none"> • Participate in capacity-building, training and awareness-raising activities, and pilot projects.
Civil Society			
Unions	Non Governmental Organization	In general, unions have the mission of improving the living and working conditions of workers and the construction of their organized power. There are several organizations active in this sphere, including: CPT, CNT, CUT, CGT, CCT y CONAT.	<ul style="list-style-type: none"> • Participate in capacity building, training and awareness raising activities.
Neighborhood commissions	Non Governmental Organization	Organized groups of people residing in a given territory, non-profit, characterized by their own concerns and needs, with the aim of improving the quality of life of residents in different ways and strengthening citizen participation.	<ul style="list-style-type: none"> • Participate in capacity building, training and awareness raising activities. • Participate in waste ESM projects.
Altervida	Non Governmental Organization	NGO with experience in chemical substances and waste management.	<ul style="list-style-type: none"> • Participate in capacity building, training and awareness raising activities.
Inter-American Association of Sanitary Engineering of Paraguay (AIDIS-PAR)	Professional association	Professionals from drinking water supply, wastewater treatment and disposal, solid waste management and environmental protection sectors. Its mission is to promote the protection and preservation of the environment through the search for comprehensive solutions to the human health and environmental challenges of the country, through analysis, the exchange of experience and the dissemination of technical and scientific information.	<ul style="list-style-type: none"> • Participate in capacity building, training and awareness raising activities.
Academic			

Name	Type	Specialization	Role in the project
Multidisciplinary Center for Technological Research (CEMIT)	Academy	The Multidisciplinary Center for Technological Research (CEMIT) is dependent on the General Directorate for Scientific and Technological Research (DGICT) of the National University of Asunción (UNA). Its activities are based on laboratory services and consultancies to public and private entities related to the areas: Pharmacy, Chemistry, Veterinary Medicine, Biotechnology, Agro-livestock, Food, Water, Hydrobiology, Environmental Sciences, among others.	<ul style="list-style-type: none"> • Participate in capacity-building, training and awareness-raising activities. • Develop analytical capacity for POPs analysis.

During the implementation of the project, special attention will be paid to ensuring the participation of all the actors involved, including those that have already been identified, as well as others to be identified through the project lifecycle.

The main goal of Component 1 is the creation of the necessary legislative framework targeting municipalities to advance the ESM agenda by promoting POPs alternatives, BAT/BEP and RECP for separate valuable/recyclable resources and final disposal of non-recyclable POPs and Hg-containing fractions. The inputs of all the identified public and private stakeholders, as well as their participation in the discussion sections and final validation will be essential.

Component 2 aims to enhance national capacity related to ESM to better understand, encourage, promote and implement sustainable approaches with a focus on aligning urban with peri-urban and rural cities. The inputs of all the identified public and private stakeholders will be necessary for developing guidelines and training and awareness materials. In addition, their participation in training sections and supporting awareness-raising campaigns will be essential for project sustainability.

Component 3 will pilot BAT/BEP for the environmentally sound management of PFOS and Hg-containing items, including separation of valuable/recyclable fractions and introduction of ESM principles to demonstrate re-use and recyclability. This component also includes the final disposal of POPs and Hg-containing items, as well as the proper disposal of urban and industrial waste, avoiding u-POPs emissions. Special consideration should be given to the involved business models, financing options, and private sector engagements, addressing aspects related to how to support alternatives to POPs and mercury products and promote their adoption by consumers, as well as solutions for sound management of existing waste. Active participation of the private sector linked to waste management as well as involvement, commitment, support and active participation of the public sector in the development of these activities will be a key aspect for project success.

Gender equality must be addressed from a transversal point of view, including associations of women and women workers throughout the project.

The diverse group of stakeholders identified implies that there are different interests, levels of education, cultural norms and values, and therefore different approaches should be used to communicate with different stakeholders.

The gender targets of the project also require appropriate communication and knowledge products that educate audiences on the importance of women in the waste sector and enhances their role by encouraging participation in project activities.

In-person events may be cancelled, rescheduled or shifted online depending on the state of the COVID-19 pandemic in the future.

A detailed stakeholder engagement monitoring plan will be prepared by the PEE in the first year of the project implementation, based on the draft provided below. As soon as the stakeholder engagement monitoring plan is finalized and approved by the PSC, additional relevant indicators may also be incorporated therein.

Complete Stakeholder Engagement Plan can be found in Annex G.

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

STAKEHOLDER ENGAGEMENT DURING PROJECT IMPLEMENTATION PHASE

During the implementation of the project, special attention will be paid to ensuring the participation of all the actors involved, including those that have already been identified, as well as others to be identified through the project lifecycle.

The main goal of Component 1 is the creation of the necessary legislative framework targeting municipalities to advance the ESM agenda by promoting POPs alternatives, BAT/BEP and RECP for separate valuable/recyclable resources and final disposal of non-recyclable POPs and Hg-containing fractions. The inputs of all the identified public and private stakeholders, as well as their participation in the discussion sections and final validation will be essential.

Component 2 aims to enhance national capacity related to ESM to better understand, encourage, promote and implement sustainable approaches with a focus on aligning urban with peri-urban and rural cities. The inputs of all the identified public and private stakeholders will be necessary for developing guidelines and training and awareness materials. In addition, their participation in training sections and supporting awareness-raising campaigns will be essential for project sustainability.

Component 3 will pilot BAT/BEP for the environmentally sound management of PFOS and Hg-containing items, including separation of valuable/recyclable fractions and introduction of ESM principles to demonstrate re-use and recyclability. This component also includes the final disposal of POPs and Hg-containing items, as well as the proper disposal of urban and industrial waste, avoiding u-POPs emissions. Special consideration should be given to the involved business models, financing options, and private sector engagements, addressing aspects related to how to support alternatives to POPs and mercury products and promote their adoption by consumers, as well as solutions for sound management of existing waste. Active participation of the private sector linked to waste management as well as involvement, commitment, support and active participation of the public sector in the development of these activities will be a key aspect for project success.

Gender equality must be addressed from a transversal point of view, including associations of women and women workers throughout the project (see Gender Analysis annex).

The diverse group of stakeholders identified implies that there are different interests, levels of education, cultural norms and values, and therefore different approaches should be used to communicate with different stakeholders.

The gender targets of the project also require appropriate communication and knowledge products that educate audiences on the importance of women in the waste sector and enhances their role by encouraging participation in project activities.

In-person events may be cancelled, rescheduled or shifted online depending on the state of the COVID-19 pandemic in the future.

Select what role civil society will play in the project:

- Consulted only;
- Member of Advisory Body; contractor;
- Co-financier;
- Member of project steering committee or equivalent decision-making body;
- Executor or co-executor;
- Other (Please explain): The project will include civil society in awareness raising activities in components 2 and 3.

3. Gender Equality and Women's Empowerment. Provide the gender analysis or equivalent socio-economic assessment. (Type response here; if available, upload document or provide link)

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

If possible, indicate in which results area(s) the project is expected to contribute to gender equality:

- closing gender gaps in access to and control over natural resources;
- improving women's participation and decision making; and or
- generating socio-economic benefits or services for women.

Does the project's results framework or logical framework include gender-sensitive indicators? (yes /no)

GENDER BASELINE

Country Context

Paraguay has a population of 7,353,038, with 41.1 per cent of the population living in rural areas. 49.6% of the population are women. The indigenous population constitutes 2 per cent of the total population, equivalent to approximately 115,944 people divided into 19 ethnic groups and five linguistic families. Paraguay is considered a middle-income country distinguished, nonetheless, by marked socioeconomic inequalities. Firstly, in terms of human development, the country is in 111th place out of 187 countries with a Human Development Index considered average (0.676), albeit lower than the average for Latin America and the Caribbean (0.740). There are high relative levels of poverty, affecting 22.6 per cent of the population, of whom 16.2 per cent live in urban areas and 32 per cent in rural areas. Extreme poverty affects 10.5 per cent, 19.2 per cent of whom live in rural areas and 4.6 per cent in urban areas, evidencing the gap in terms of poverty between the urban and rural populations. Secondly, a Gini coefficient of 0.5102 reflects the population's unequal distribution of income.

According to the 2021 Global Gender Gap Report by the World Economic Forum, Paraguay has closed 70% of its overall gender gap, at the global level the country is in position 86 of 150 countries. Comparing the country's scores in

2006 and 2021, economic participation and opportunity increased by 5%. At the regional level (Latin American and Caribbean) Paraguay's position is 21st of 26 countries.

Besides the poverty gap and rural-to city migration, the gender pay gap is another source of inequality. According to UN Women the integration of women in the workplace occurs unequally, with markedly different rates of economic activity or effective or potential involvement in the labour market between men (87.1 per cent) and women (62.0 per cent). For those living in poverty, the proportion of economically active women is considerably reduced (50.9 per cent), while it remains virtually unchanged for men (86 per cent). Women's monthly incomes are equivalent to only 71 per cent of those of men, with the majority of women working in the informal sector with highly vulnerable working conditions and no access to social security.

Politics

In 1986, under Law 12/15, the Government of Paraguay decreed the “Elimination of all forms of discrimination against women.” The State shall adopt all appropriate measures to eliminate discrimination against women, ensure their equal rights with men in the sphere of education, and ensure conditions of equality between men and women”. Later, in 1992, through Law 34/12, the Secretary of Women was created to: a) Advocate the role and participation of women in the sphere of political, cultural, family, labour and social life within the framework of the Law; b) develop plans and programs aimed at free, equal and supportive access for women, according to their qualities, to the labour market, social security, housing, ownership and exploitation of land and business administration for individual and collective production, with the benefits of technology and credit assistance; c) promote and implement policies that tend to develop the creativity and qualities of women in the scientific, technological, artistic and cultural fields”.

Finally, through Law 4675, the Government elevated the Secretary to the level of the Ministry of Women. The Ministry of Women is a governing, regulatory and strategic public body for gender policies in Paraguay with technical and managerial autonomy. The Ministry promotes action plans to promote equal opportunities and equity between women and men and currently coordinates the implementation of the IV National Equality Plan (PlaNi) 2018 – 2024.

The Government of Paraguay ratified the Conventions of the International Labor Organization in 1964 and 1967, respectively: (i) Convention on Equal Remuneration (1951) and (ii) Convention on Discrimination (Employment and Occupation) (1958) that are most relevant to gender equality.

In Paraguay, 91.7% of the legal frameworks promote, enforce, and monitor gender equality under the SDG indicator, focusing on violence against women. However, socio-cultural practices still support discrimination against women in some areas. Paraguay is still working to achieve gender equality. Although the law exists in several cases, it does not apply, for example, in the gender gap related to wages in the labour market.

Discrimination against women in the workplace and sexual harassment at work is common in Paraguay. The Labor Code prohibits but does not penalize discrimination or harassment based on sex. Therefore, complaints are usually resolved privately.

Women in Paraguay have no legal restrictions on holding political office. Women have served in the Government as members of the Congress (as National Deputies and as Senators), as governors, as heads of ministries, and there has been one female Supreme Court judge. They are underrepresented in comparison to male members of the Government, however, and even relative to the rates of female representation in the governments of other countries of Latin America. Indeed, Paraguay has one of the lowest percentages of women in parliament in Latin America, significantly lower than neighbouring Argentina and Bolivia, although higher than Brazil.

Economy

In Paraguay women make up 74% of Paraguay's labor force (2021). The labour participation rate for women is 63.8, and for men, 88.1. The average salary of women represents 71% compared to that of men. The equal pay rate for a similar job in Paraguay is 0.579 and places the country at level 112 in the Global Gender Gap ranking worldwide. Women's salaries in relation to men's are the second-lowest in Latin America.

According to the Gender Atlas of Paraguay, women participate more in the informal sector, where working conditions make them more vulnerable and without access to social security benefits. The proportion of informal employment in the agricultural sector is 97.9% for women and 91% for men, and in non-agricultural activities, the proportion is 68.1% for women and 63% for men. On average, 20.78% of women work in "unskilled" jobs compared to 19.60% of men; in the urban sector, the gap between men and women is much higher (21.82% women and 17.63% men).

The proportion of time spent on unpaid domestic chores and care work for women in 2021 was 13.8% and 4.6% for men. In general, women have less access to and participation in economic and training activities, especially among young generations. Regardless of age or residence, women represent the majority of people who do not have any income of their own; in almost all age groups, the percentage doubles.

In Latin America and the Caribbean, the proportion of women with an account in a financial institution or mobile money service is 46.7% and 51.22% of men. Women have low rates of possession of productive assets, which is why private financial institutions do not identify women as their primary target group for loans.

Discrimination against women in the workplace, as well as sexual harassment on the job is common in Paraguay. The Labor Code prohibits, but does not criminalize, discrimination or harassment on the basis of sex. Complaints are generally settled privately. The Secretariat of Women's Affairs occasionally operates programs supporting women's access to employment, social security, housing, land ownership and business opportunities.

Education and Technology Skills

Illiteracy rates for women in Paraguay are higher than those of men, although there is a much more pronounced difference for older generations. The education rate in Paraguay is 99.8; the country is placed 48 in the global rank. The literacy rate for women is 94% and among men 93.5%. The participation rate for women in formal and non-formal education and training is 73%. Paraguay has 54 accredited universities; women represent approximately half of the university student population. The number of women in the Paraguayan scientific system has remained at around 50%. However, the most significant number of women is found at the lowest level (researcher candidate), while men represent the majority at levels II and III.

In Paraguay, 74% of men and 76.5% of women have internet access. Women are advancing as information and technology users at great speed, but not as specialists or developers. Their participation in IT-related training, research, and employment is markedly lower than that of men.

Social Institutions

The Social Institutions and Gender Index (SIGI) measures gender-based discrimination in social norms, practices and laws across 160 countries and the score for Paraguay was 0.058 in 2014, placing it among countries with a low level of

discrimination in social institutions. It had very low levels of discrimination in physical integrity and son bias, but medium levels of discrimination in family codes and resources and assets.

Gender challenges in COVID context

The COVID-19 pandemic reversed the progress of women in the economic sphere. This reality has particularly affected Paraguay, where due to the current crisis, the gender gaps in the labour market (already critical pre-pandemic) have been exacerbated. More than half of women reported losing their jobs in May 2020, right at the start of the disease outbreak, compared to 35% of men. The effects of the crisis limit the ability of women to generate income and, in general, lead independent lives. In addition, women who are entirely financially dependent on another person, often their partner, have less opportunity to get out of abusive relationships.

Gender mainstreaming in MADES

MADES is part of the network of public institutions that receive technical assistance from the Ministry of Women for the mainstreaming of the gender perspective and the development of gender indicators that allow the evaluation of progress towards equality in the public agenda.

UNIDO - GEF PCB Project

It is worth highlighting some aspects related to gender perspectives, including within the Mid-Term Review of the 9357 UNIDO – GEF Project: “Strengthening the environmentally-sound management and final disposal of PCBs, in Paraguay”. It is mentioned that the majority of the project stakeholders’ representatives are women: MADES (GEF Focal Point), ANDE (General Directorate), PMU (National Coordination and Field Techniques), ITAIPU (Representative of the organization in the Directive Committee) and most of the international and local consultants who have supported the project are women. In the case of ANDE, they carried out an organizational diagnosis related to the company’s gender approach in 2021, organized a gender committee and prepared an action plan to incorporate the gender perspective. In the case of MADES, gender perspective aspects are considered through implicit policies and women’s inclusion based on equal opportunities in staff selection and training activities.

Gender mainstreaming

UN Women supports the Paraguayan State in the challenge to extend women's rights and to achieve gender equality and the empowerment of women. It also supports civil society initiatives, contributing mainly to strengthening women's organizations to ensure that their voices are heard with regard to equality of rights and opportunities, such as the leadership and political participation of women, the economic empowerment of women, the elimination of violence against women, and the promotion of international regulatory frameworks and intergovernmental political commitments on gender equality and the empowerment of women.

The project gender mainstreaming strategy deals primarily with the following aspects of gender awareness:

- a) the social and economic inclusion/empowerment of women and vulnerable communities in the waste management sector.
- b) the health and safety of the people involved in waste management, emphasizing vulnerable groups: women, boys and girls.
- c) access to information and knowledge relevant to waste management for all those, directly and indirectly, involved and their awareness.
- d) the inclusion of women in decision-making processes.
- e) the contribution of women in the generation of knowledge, innovation and sustainability.

GENDER ACTION PLAN – MAIN CONTRIBUTIONS

Financial Resources

Co-financing counterparts will support some strategies at PSC and TAC level by institutional agreements; for example, the Ministry of Women implements credit loans to women entrepreneurs; this resource would contribute to the new micro-enterprises with cooperative models. In coordination with MADES, PIU will identify external resources fundraising with national and international stakeholders identified in the gender analysis to increase the project gender investment.

Training and Skills

Policymakers and high-level managers will receive training about the economic and social costs, risks and gender gaps. The content should show the main information about the negative impact of the waste management sector's four most vulnerable groups (informal workers, population without waste collection services, population next to dumpsites and direct waste collectors). The training at this level aims to raise institutional awareness about the risks of exposure to Mercury and POPs. Municipalities' general staff will receive information about how their waste management model harms vulnerable groups and addresses socio-economic issues related to personal security, waste collection service expansion and improvement, and waste impact on the population and vulnerable groups. Communities will receive information about their role in waste management and how to contribute with actions for gender issues improvement. The project will offer formal and informal workers training, particularly to the more vulnerable groups. Additionally, training will allow qualitative data collection to enrich the project monitoring and evaluation of performance indicators.

Knowledge and Information

It was identified that there is no national or municipal information on the waste management sector with gender disaggregation, especially about the gender risks of exposure to mercury and POPs. Nor is it known who are the beneficiaries in economic terms of the waste management models and their quantification.

This reality requires that actors at all levels develop a strategy for generating, collecting, and managing information during this project so that said model can be replicated, sustained, and expanded. Reducing the information gap requires political, managerial and operational will; a monitoring and evaluation system with a gender focus is vital. The project M&E system will be strengthened by identifying technological opportunities for data collection and processing.

It is essential to ensure that the organizations selected for project execution and the National Coordinator have gender knowledge and experience.

GENDER ACTION PLAN – RECOMMENDED PRACTICES AND ACTIVITIES

The Gender Action Plan was conceived as a set of criteria to be included across the main project activities, during the preparatory phase, execution and monitoring. UNIDO guidance on gender mainstreaming as well as the GEF policy on gender mainstreaming were used as key references.

Events, meetings, conferences, platforms and events

- 1) **For open calls, including gender aspects of the specific topic in the invitation, agenda and main program, as appropriate.**
- 2) **For individual invitations, consider approximate gender parity (40-60%).**
- 3) **For institutional invitations, request that gender aspects be taken into account when appointing participants.**
- 4) Ensure approximate parity of male and female speakers and **organizing team** (40%- 60%) when applicable.
- 5) **Evaluate the gender distribution in all meetings, events, training events, etc. and define and implement corrective measures when appropriate.**

Procurement of procurement of goods and services

- 1) **Include gender perspective in the preparation of the ToR.**
- 2) For services, goods and equipment, take the needs of both women and men into account.
- 3) For consulting services, **request gender aspects be taken into account when the technical consulting teams are assembled.**
- 4) **Ensure male and female representation in the evaluation panel of proposals.**

Capacity-building and training

- 1) Integrate a gender component directly related to the specific topic into all training activities, including the base line of gender consideration in the specific topic and potential actions to **correct or prevent gender inequality.**
- 2) Develop specific activities for the underrepresented gender when applicable.
- 3) Ensure equal access to training, taking into consideration practical gender needs such as specific needs of women regarding safety, location, timing, childcare, etc.

Preparation of guidelines and legal framework

- 1) **Prior diagnosis of the gender perspective is required in each specific sector or topic covered by the guidance or legal framework and a specific approach to correct or prevent gender inequality** considering:
 - Avoid perpetuating or reinforcing gender inequalities.
 - Overcome barriers to women's full participation in the related activities.
 - Ensure that women and men benefit equally from the related results.
 - Incorporate specific aspects to address gender inequalities and constraints, and meet gender-specific needs and priorities.
- 2) **Include a section to discuss the gender perspective within the process of socialization and validation.**

Advocacy, public awareness and sensitization

- 1) **Include aspects associated with egalitarian models of environmental management.**
- 2) Knowledge and advocacy materials include a section on gender issues (e.g. information on gender-differentiated impacts).
- 3) Photos and interviews include both women's and men's pictures and voices.
- 4) Produce specific knowledge and advocacy products on gender issues of the specific topic.

Stakeholders' participation

- 1) Ensure relevant women's representation.
- 2) Ensure approximate gender parity (40-60%) and gender expertise within project committees.

- 3) Promote stakeholders' **awareness** on gender issues to ensure that gender-responsive implementation continues after the end of the project.

Pilot projects

- 1) Ensure approximate parity of male and female participation (40%- 60%) in all pilot project stages and activities.
- 2) **When the design of processes and infrastructure is required, ensure the participation of women in order to ensure adaptation to their configuration and physical condition.**

Project monitoring and evaluation

- 1) Use gender-specific and sex-disaggregated indicators.
- 2) Systematically monitoring gender-related indicators correlated with progress and results during activities' implementation as part of the M&E process.
- 3) **If the gender goals are not achieved, identify the barriers and obstacles and introduce corrective measures.**
- 4) Towards the end of the project (around the time of the TE), the gender assessment will be updated in order to reflect contributions from the project towards the achievement of SDG 5: Achieve Gender Equality and Empower all Women and Girls, and in particular Target 5.5 "Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life".

Detail about the gender action plan based on Project Logical Framework outcomes and outputs are included in Annex I: Gender Analysis and Action Plan.

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

Beyond the important participation of the public sector (both at the national and municipal levels), the project will rely heavily on private sector engagement, participation and co-financing.

The Ministry of Environment and Sustainable Development (MADES), together with the Ministry of Industry and Commerce (MIC) and the Paraguayan Industrial Union (UIP)⁷, will enable the project to identify ways to strengthen the main incentives for private sector involvement and overcome the key existing barriers for the development of national recycling and waste treatment industries.

In addition to the implementation of the pilot projects, Component 3 includes the development of tools for the promotion of business and financing options for ESM activities to support an entrepreneurial landscape, especially targeting a business incubator for SMEs.

The pilot project "Environmentally sound and sustainable management of lights and medical devices that contain mercury and its wastes" involves the participation of the National Electricity Administration (ANDE) and private waste managers (COMPASA and TAYI AMBIENTAL) who have expressed their interest in the project.

The pilot project "**Environmentally sound management of used hydraulic fluids containing PFOS**" involves the participation of at least one of the two private hazardous wastes managers (COMPASA and TAYI AMBIENTAL), aeronautical service companies, local laboratories and universities that have expressed their interest in the project.

⁷ With over 1250 members, UIP is a key stakeholder in identifying private-sector entities that may be interested in engaging in the project. It has already worked with MADES and UNIDO on GEF project 9357 "Strengthening the Environmentally-sound Management and Final Disposal of PCBs"

The other pilot projects involve municipalities, private operators (collection, final disposal site, recyclers/material collectors) and universities. The private sector is a key stakeholder since most municipalities outsource services related to waste management.

Taking into account that the waste management sector is underdeveloped in Paraguay, the execution of the project will make it possible to identify new business opportunities, which will be supported by the project, creating the necessary regulatory framework and technical capacities, promoting entrepreneurship and identifying sources financing.

In addition, there is a significant degree of informality in the waste management sector, mainly in primary collection and classification, which represents an additional challenge that will be addressed by the project.

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

Risk	Risk level	Risk reduction measure
Government change and the new government has less interest in ESM issues.	M	The project intends to address this risk by establishing a strong supervisory mechanism, e.g. the project technical committee will be drawn from a wide variety of national stakeholders.
Difficulties in enhancing the regulatory system within the project timeframe.	L	The Government of Paraguay has ratified several MEAs including the BRS and Minamata Convention, by developing its NIP and by formally applying for this project has already established strong pillars towards the sound management of chemicals and waste. In this project, relevant contact persons at the Ministry will be engaged as early as possible. Specific awareness-raising events will be organized and targeted at them. The project will include the review of the legal framework to enable the inclusion of ESM aspects into existing legislation, regulations, etc. This is usually more efficient and results in a faster endorsement process compared to the drafting and adoption of new regulations.
Project resources are not sufficient to ensure the necessary interventions to achieve sustainability of ESM activities.	L	The project will allocate enough grants to implement sustainable BAT/BEP pilots, however, most important is to secure private sector cooperation and co-financing for ownership and commitment.

Risk	Risk level	Risk reduction measure
<p>Paraguay is susceptible to three potential risks: a) floods, b) droughts and e) fires, which depend on weather conditions.</p> <p>Climate Change Risks might include unexpected weather events that disrupt the project process on sites, causing further contamination.</p>	L	<p>In relation to flood risks, site selection criteria will be applied for new facilities, avoiding areas susceptible to flooding or the application of containment measures and the preparation of contingency plans in the case of existing facilities.</p> <p>With regard to the risk of fire, in the case of new installations, preventive measures will be incorporated in the design phase, mainly with regard to infrastructure requirements and practices associated with the management of flammable materials, in strict compliance with the regulatory framework. For existing facilities, a risk assessment will be carried out identifying the necessary corrective measures to minimize the risks. In all cases, preventive control mechanisms will be implemented and contingency plans will be developed.</p> <p>Climate Change may increase the identified potential risks of unexpected weather extremes such as heavy rainfall or heat waves. These extremes were assessed as part of the ESMP and risk reduction measures were defined accordingly.</p>

COVID-19 Related Risks and Potential Opportunities

- COVID-19 Risk Analysis:

Risk	Risk level	Risk reduction measure
<p>Technical expertise is not readily available due to the pandemic.</p>	M	<p>The project should identify alternate technical expertise in case it is required. Planning should be flexible enough to reschedule activities onsite that require specific expertise. This is particularly important if government experts are not available due to emergencies.</p>
<p>Possible re-instatement of COVID-19 containment measures limits available capacity or effectiveness of project execution/implementation</p>	M	<p>The Government of Paraguay dictates/updates COVID-19 containment measures. The project must be ready to strengthen the capacity of the stakeholders for remote work and online interactions by securing access to commercially available conferencing systems.</p>
<p>Some project supporters, co-financiers or beneficiaries may not be able to continue with project execution/implementation.</p>	L	<p>The project will have to monitor closely the situation of these counterparts in order to find alternate supporters or co-financiers, or to readjust the list of beneficiaries.</p>
<p>Project staff and stakeholders are not able to engage and interact effectively due to the pandemic.</p>	L	<p>The project will have to monitor closely the situation of its staff and stakeholders to strengthen their capacity for remote work and online interactions by securing access to commercially available conferencing systems and alternate interaction arrangements; e.g. reduced-size meetings in open spaces.</p>
<p>Price increases for procurement of goods/services.</p>	M	<p>The project team will have to work harder in finding alternate providers and making sure that competitive pricing is obtained.</p>

- COVID-19 Opportunity Analysis:

Opportunity	Opportunity level	Opportunity optimization measure
Mitigate potential impacts on medical waste management during future pandemics and epidemics due to vector-borne diseases.	M	The subcomponent of the project dedicated to medical waste management must apply the best available techniques and best environmental practices, in addition to the lessons learned and the recent recommendations brought by the WHO and reputed national and international organizations.

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

The following section describes the institutional arrangements for project governance and project execution as well as the planned coordination with other GEF-funded and further initiatives. The institutional arrangements, as well as a description of the roles and responsibilities of the different bodies are described herein and summarized in the following Figure:

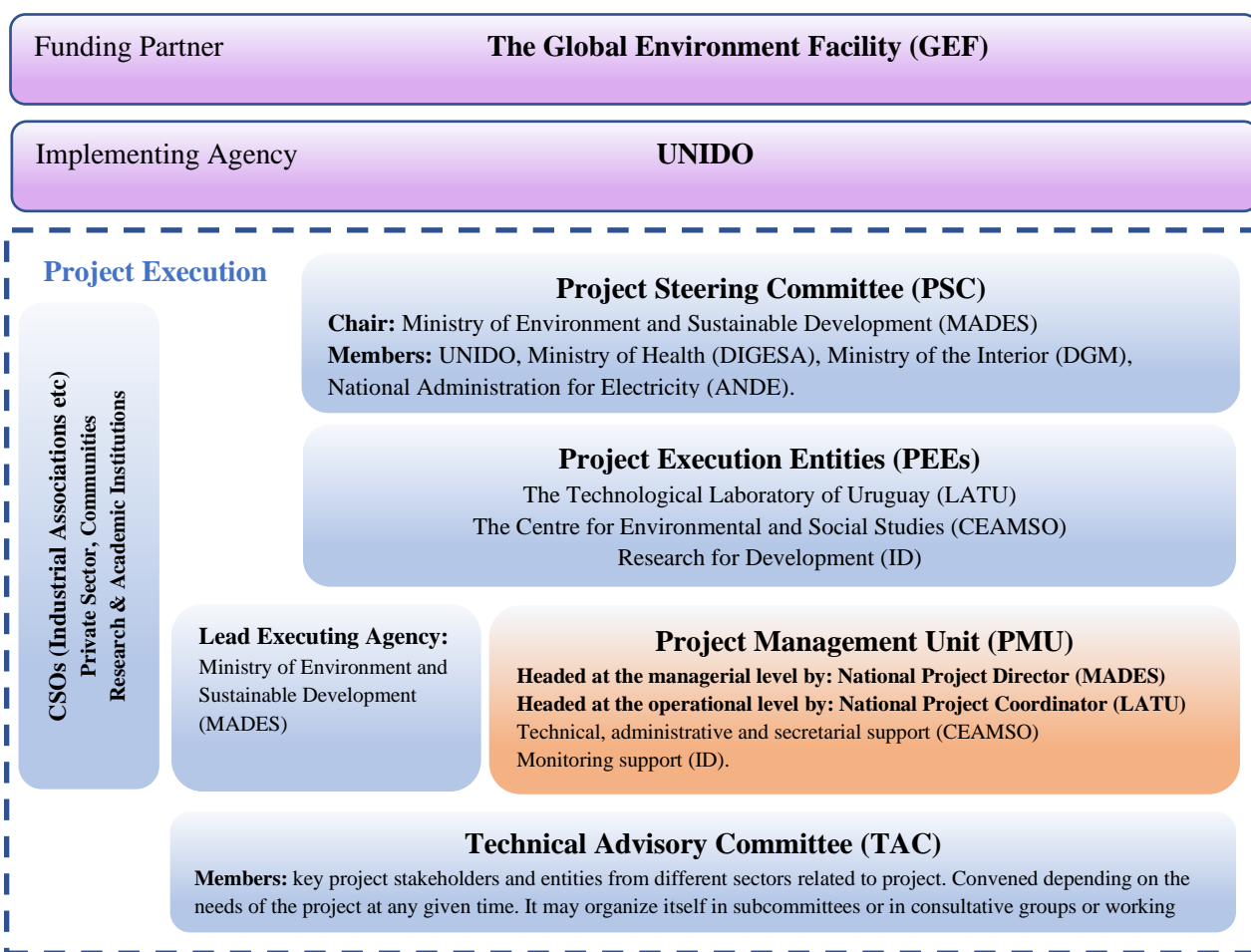


Figure. Institutional arrangements and project execution

- The **Project Executing Entities (PEEs)** are responsible for the overall management of the financial and human resources directly related to project execution within the country. The PEEs will be accountable to the implementing agency for the achievement of project outputs and outcomes. The PEEs will consult both with UNIDO as the GEF Implementing Agency and with the Project Steering Committee (PSC) in all matters

concerning the project. In the delivery of its functions, LATU will take the role of leading PEE and will be entrusted the Project Coordination. Seconded by the other two PEEs (CEAMSO and ID), it will act as the Secretariat of the PSC;

- A **Project Steering Committee (PSC)** will be established to provide project direction, overall supervision, and overall guidance to project execution, making critical decisions on strategic matters. This body will also ensure the timely delivery of project outputs and the eventual achievement of the project outcomes by reviewing work plans and progress reports, approving work reports, approving the work plan for the upcoming year, and taking adaptive management decisions if required. The PSC will be chaired by the Ministry of Environment and Sustainable Development (MADES) and includes representatives from UNIDO, Ministry of Health (DIGESA), Ministry of the Interior (DGM - General Directorate of Municipalities), National Administration for Electricity (ANDE). and other key stakeholders (if required). The GEF-OFP will be invited to attend the PSC meetings; and,
- A **Project Management Unit (PMU)** will be located within the MADES and is in charge of the day-to-day management of the project and be set up by MADES and the Project Executing Entities (PEEs) in Paraguay within MADES. It will be composed of a National Project Director, assigned and paid by the MADES, who will lead the PMU at the political/managerial level. A **National Project Coordinator (NPC)** selected competitively by LATU under specific terms of reference, who will lead it at the operational level. Required technical, administrative and secretarial support provided by CEAMSO under specific terms of reference. Required monitoring support provided by ID, under specific terms of reference. The PMU will regularly provide updates to MADES, LATU and UNIDO by submitting progress reports. LATU and UNIDO will share the updates with the PSC members and other relevant stakeholders.
- A **Technical Advisory Committee (TAC)** will be chaired by MADES and integrated by the key project stakeholders and entities from different sectors related to project. It is convened depending on the needs of the project at any given time. It may organize itself into subcommittees or into consultative groups or working groups. The PMU shall ensure to obtain advice on technical, managerial and/or practical issues from the key stakeholders when making relevant decisions for the project implementation.

Any project amendments will be done following the [GEF Council Document GEF/C.39/Inf.03](#).

The project will be implemented by the United Nations Industrial Development Organization (UNIDO) in line with the [GEF Project and Program Cycle Policy](#). UNIDO, through a designated **Project Manager**, will cooperate with the Ministry of Environment and Sustainable Development (MADES) during the project development, with the participation of the PEEs and other key stakeholders.

The project will be mainly executed by LATU as the leading Project Executing Entity, with technical, administrative and secretarial support provided by CEAMSO, and with monitoring support provided by ID. They will be responsible for the day-to-day management of the activities. All procurement will have to adhere to the provisions of the UNIDO model agreement and should be based on annual procurement planned in line with the annual work plans, budget and this document and its corresponding annexes.

The Technological Laboratory of Uruguay (LATU) is a non-state public law organization, created in 1965 to provide services aimed at the production chain. It coordinates and carries out international technical cooperation activities for the standardization and technical regulation of products and services and the evaluation of their conformity. LATU hosts in its facilities the Basel and Stockholm conventions Regional Centre located in Uruguay (BCCC-SCRC Uruguay). Its mission is to strengthen the national and regional capacities of the GRULAC countries for the application of the Basel, Stockholm, Rotterdam, Minamata and other forums, through the training of key actors in the comprehensive and environmentally sound management of substances and hazardous waste, in the preparation and dissemination of specialized information and in the execution of projects in coordination with the Regional Centers or complementary to them, within a framework of sustainable development.

UNIDO will also work with specialized national entities for specific activities: Research for Development (ID) and Centre for Environmental and Social Studies (CEAMSO).

The selection of the Project Executing Entities was carried out through a screening and consultation process within the project preparation team and with MADES officials. This process was conducted during project preparation and the preselected entities were subjected to the HACT assessment through KPMG. LATU had already this certification and the two others, CEAMSO and ID, passed successfully the assessment.

Due to the characteristics and complexity of the activities to be carried out within the framework of this project, the executing entities (PEEs) must have specific technical and managerial expertise. They shall work in complementarity and in coordination among themselves and with the MADES and other stakeholders to support the different components, outcomes and outputs of the project. In addition, all of them must have a broad capacity and experience in engaging with the public and private sector, municipalities, SMEs, academia, NGOs, CSOs, media and journalists, other related GEF projects and stakeholders of interest for adequate development of work synergies. This was the basis and the rationales for selecting LATU, CEAMSO and ID as the PEEs for this project.

The Ministry of Environment and Sustainable Development (MADES) will coordinate the government efforts related to the project and be the governmental focal point. Within MADES, the Stockholm Convention and the Minamata Convention Focal Points will be responsible for day-to-day compliance with these treaties and their provisions.

Other relevant stakeholders and representatives from regional or national projects on environmentally sound waste management will be engaged throughout the project lifetime to assist and provide advice for specific activities as well as discussing their experiences, sharing their lessons learned in particular on the sustainable management of solid waste in Paraguay, through the segregation and environmentally sound management of hazardous organic pollutants and fractions containing mercury.

The PSC will meet at least once annually. If COVID-19 restrictions are still in place, these meetings will be held virtually. Additional monitoring mechanisms are presented in section 9 “Monitoring and Evaluation”.

Coordination with GEF Initiatives

This proposed project will align with the existing Global Platform for Sustainable Cities (GPSC) created under the GEF-6 Impact Program “Asuncion Green City of the Americas – Pathways to Sustainability” (GEF Project 9127) on management of municipal solid waste, and utilization of green space and infrastructure; and, the GEF ID 9357 project, entitled “Strengthening the Environmentally-sound Management and Final Disposal of PCBs”.

The project will also assure coordination and knowledge sharing with other initiatives, particularly other GEF-funded projects including the FSP “Asuncion Green City of the Americas – Pathways to Sustainability” (GEF ID 9127), taking advantage of the Global Platform for Sustainable Cities (GPSC).

In addition, the project will follow the development of the GEF projects addressing simultaneously POPs and Hg (Annex N). In particular, the project will seek to coordinate with the projects under development in Latin America: Environmentally sound management of hazardous wastes containing POPs and Mercury (GEF 10721; UNDP, Panama); Environmentally sound management of PCBs, Mercury and other toxic chemicals in Peru (GEF 10419; UNDP, Peru); Environmentally Sound Management of POPs, Mercury and other Hazardous Chemicals in Argentina (GEF 10094; UNDP, Argentina); Reducing UPOPs and Mercury Releases from Healthcare Waste Management, e-Waste Treatment, Scrap Processing and Biomass Burning (GEF 6928; UNDP, Colombia).

Coordination with other initiatives

Further, the project will also coordinate with the Latin America and the Caribbean Circular Economy Coalition that was officially launched in February 2021. This is a new initiative to promote circular economy with the aim of supporting the region to advance and invest in the circular economy transition as part of the COVID-19 recovery. The Coalition partners are: Climate Technology Centre & Network (CTCN), the Ellen MacArthur Foundation (EMF), the Inter-

American Development Bank (IDB), the Konrad Adenauer Foundation (KAS), the Platform for Accelerating the Circular Economy Coalition (PACE), the United Nations Environment Programme (UNEP), the United Nations Industrial Development Organization (UNIDO), and the World Economic Forum (WEF).

The project will build on UNIDO's expertise in previous GEF projects addressing simultaneously POPs and Hg (Annex N). Moreover, wherever relevant, the project will create synergies with the following UNIDO global projects:

- Global Alliance on Circular Economy and Resource Efficiency (GACERE). Launched in February 2021, the Alliance brings together governments and relevant networks and organizations, and provides the global impetus for initiatives related to the circular economy transition, resource efficiency and sustainable consumption and production. GACERE was initiated by the European Union and the UNEP, in coordination with UNIDO. Its members include 16 countries and 3 strategic partners.
- SWITCH to Circular Economy Value Chains. The EU-funded project supports and facilitates effective and replicable pilot projects that involve all relevant actors across selected value chains and enable enterprises to meet their circularity goals.
- Partnership for Action on Green Economy (PAGE): Supporting Change for the Future We Want, is a 7-year Trust Fund programme responding to the Rio+20's call for the UN system to support countries interested in pursuing green economy policies. It will deploy the joint expertise of four UN agencies – ILO, UNEP, UNIDO, and UNITAR – to progressively assist a total of 30 countries in their efforts to embark on green economy pathways.
- Parliamentary action on climate and energy (PACE). The EU-funded Climate Parliament was set up in 2009 as an international cross-party network of legislators committed to preventing climate change and promoting renewable energy. Its objective is to raise awareness and engagement of parliamentarians worldwide on climate change and energy related policies. The Climate Parliament receives support from the EU (DG DEVCO) to hold awareness-related activities and parliamentary roundtables on key energy policies related to the Africa and MENA Regions.

Legal clause

The Government of the Republic of Paraguay agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed on 7 October 1977 and entered into force on 29 June 1978.

Transfer of Assets

Full or partial ownership of equipment/assets purchased under the project may be transferred to national counterparts and/or project beneficiaries during the project implementation as deemed appropriate by the government counterpart in consultation with the UNIDO Project Manager.

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

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

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

- Others

This project is fully consistent with Paraguay's Stockholm Convention NIP, including action plans addressing institutional and regulatory strengthening measures, and measures to reduce releases from PFOs and u-POPs, and national priority areas such as the environmentally sound management of waste, improvement in the policy and legal frameworks; institutional strengthening and capacity building; and the development of appropriate and environmentally sound technologies, cleaner production, and promotion of BAT and BEP.

This project is also aligned with the Minamata Convention on Mercury to phase out mercury added products. The Government of Paraguay promotes economic growth and welfare for its population through the sound management of national resources and the improvement of access to electricity services in the country. This project is consistent with priorities in the national agenda and related actions.

This project is aligned with SAICM's overall objective, the achievement of the sound management of chemicals throughout their life cycle so that by the year 2020, chemicals are produced and used in ways that minimize significant adverse impacts on the environment and human health. Specifically, it is aligned with the following basic elements recognized as critical at the national and regional levels to the attainment of sound chemicals and waste management, including in the "Guidance towards the achievement of the 2020 goal": legal frameworks that address the life cycle of chemicals and waste; strong institutional frameworks and coordination mechanisms among relevant stakeholders; collection and systems for the transparent sharing of relevant data and information among all relevant stakeholders using a life cycle approach; industry participation and defined responsibility across the life cycle; inclusion of the sound management of chemicals and waste in national health, labour, social, environment and economic budgeting processes and development plans; and development and promotion of environmentally sound and safer alternatives.

The project is also in line with the National Development Plan Paraguay 2030, adopted in 2014, which provides the country with a long-term strategic development vision and clear policy objectives for reducing poverty, achieving inclusive economic growth and strategically integrating Paraguay into the international community. As such this project especially promotes the objective to "Adopt a coherent, strategic approach to regional development through more effective decentralization and better multi-level governance. Such an approach will help ensure that policies are tailored to the circumstances and conditions in different regions of Paraguay and meet citizens' needs across territories characterized by acute regional disparities".

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

An information management mechanism will be put in place covering: (a) generation of information such as compilation of regulatory and BAT/BEP pilot information governing the execution of project activities, including the regulatory framework, training, BAT/BEP pilots, ESM approach, capacity management and outreach. Archiving and sharing of general information, which mainly describes mechanisms and tools that will be used in the dissemination of information to all stakeholders and project implementers in order to assess the project performance and progress; and (c)

appropriate institutions involvement and feedback mechanism for free flow and exchange of information between the project management, all stakeholders and the general public.

The established national information management mechanism could be supported by a web-based portal for knowledge management on sustainability, BAT/BEP for ESM of POPs and Hg and their final disposal. It is planned to promote existing national and regional platforms and networks for information and knowledge exchange and experience-sharing.

Lessons learned from on-going GEF projects, e.g. the Asuncion project (GEF IF 9127) and the PCB-project (GEF ID 9357) were compiled during the project preparatory phase and used to adjust the project design (see Annex L). For the conceptual design of the mercury related pilot project, a similar project implemented in Uruguay, with financing from the GEF (GEFSEC (PMIS) ID: 4998 "[Environmental Sound Life-Cycle Management of Mercury Containing Products and their Wastes](#)") was taken as a reference. Also, the following related GEF projects within the region were identified and reviewed in terms of objectives, approaches, outputs and planned activities, since the problems addressed in the projects usually have many points in common.

Project Title	GEF ID	Countries
Environmentally sound management of hazardous wastes containing POPs and Mercury	10721	Panama
Environmentally sound management of PCBs, Mercury and other toxic chemicals in Peru	10419	Peru
Environmentally Sound Management of POPs, Mercury and other Hazardous Chemicals in Argentina	10094	Argentina
Reducing UPOPs and Mercury Releases from Healthcare Waste Management, e-Waste Treatment, Scrap Processing and Biomass Burning	6928	Colombia

In terms of the knowledge management within the project, almost all the project activities were designed considering aspects related to the management of the knowledge generated during the implementation of the project, including the lessons learned. Relevant documents will be accessible to the public and will be available in the national System of Environmental Information (SIAM) tool (<https://apps.mades.gov.py/siam/portal>). As part of output 2.1.3, the existing national System of Environmental Information (SIAM) managed by MADES and included on its website, will be strengthened with POPs and Hg data in waste streams, BAT/BEP and ESM options to ensure that data are shared among all relevant stakeholders.

As part of output 1.1.1, legal instruments for the sound management of waste, POPs and mercury through their life cycle will be drafted and/or updated. This includes two workshops with relevant stakeholders to socialize and validate the policy recommendations.

Output 1.1.2 includes the preparation of guidelines on ESM and sustainable waste management and circular economy aimed at policy and decision makers. The planned activities include a guidelines launch event for relevant policy and decision makers and the distribution of printed and electronic versions of the guidelines.

Output 2.1.1 includes the preparation of reports corresponding to updated PFOS, Mercury and u-POPs inventories. These reports will be socialized and validated through a workshop with relevant stakeholders.

Output 2.1.2 includes the preparation of technical manuals targeting practitioners and operators. The planned activities include a manuals launch event for practitioners and operators and the distribution of printed and electronic versions of the manuals.

Output 2.1.4 refers to the training of relevant stakeholder groups on ESM of POPs and Hg-containing items along with aspects of the legal framework and practical and sustainable solutions for dealing with hazardous and valuable waste fractions. The geographical distribution, gender aspects and cultural diversity of the different target groups will be taken into account. The plan will include at least 25 training events and a final report of lessons learned and recommendations will be delivered.

Output 2.1.5. refers to the design and implementation of comprehensive awareness-raising programs and customized events, especially for media, general public and specific target groups on ESM and sustainability approaches for waste management. In addition, a final report of lessons learned and recommendations was included among the planned activities.

Output 3.1.2 refers to the establishment of a business incubator to provide tools for promotion of business and financing options for ESM activities. Among the planned activities is delivering trainings on soft skills and entrepreneurship skills and holding seminars, networking events, field visits, mentorship program, etc., to bring stakeholders together and find synergies, partners and investors.

The activities planned for the execution of pilot projects under output 3.1.3 include: design and implementation of awareness-raising campaigns aimed at the different stakeholders, training, guided technical tours, technical reports as well as the documentation of the lessons learned and preparation of guidelines aimed at facilitating the replication of the pilot projects.

In relation to obtaining and sharing information and lessons learned with the rest of the related GEF projects that are being executed or that will begin to be executed in the short term, efforts will be made at the project coordination level to establish formal contacts and define cooperation mechanisms. Upon acceptance of our project proposal, UNIDO will reach out to the coordinating teams of these similar projects to discuss and exchange views about strategies, technologies, approaches, etc. A periodic exchange mechanism will be set in order to optimise resources, exchange lessons learnt and establish synergies, where relevant. UNIDO has ample expertise in coordinating with stakeholders, including other implementing and UN Agencies, and on identifying potential synergies that generate mutual benefit

In the following table the main activities related to knowledge management are summarized, indicating the key deliverables and timeline.

Activity	Key deliverables	Timeline
Implementation of an information management mechanism	Report on the implementation of an information management mechanism.	First 3 months of the project.
Strengthen the existing national System of Environmental Information (SIAM) with POPs and Hg data in waste streams, BAT/BEP and ESM options (output 2.1.3)	Separate platform within the SIAM website including all relevant aspects related to POPs and Hg.	During the second year of the project.

Activity	Key deliverables	Timeline
Hold two workshops with relevant stakeholders to socialize and validate the policy recommendations (output 1.1.2)	Draft and/or update legal instruments for the sound management of waste, POPs and mercury through their life cycle.	At the end of the first year of the project. At the beginning of the second year of the project.
Preparation of guidelines on ESM and sustainable waste management and circular economy aimed at policy and decision makers, including a guidelines launch event for relevant policy and decision makers and the distribution of printed and electronic versions of the guidelines (output 1.1.2).	Guideline on ESM and sustainable waste management and circular economy aimed at policy and decision makers.	At the beginning of the second year of the project.
Preparation of updated PFOS, Mercury and u-POPs inventories, including a socialization and validation workshop with relevant stakeholders (output 2.1.1).	Reports of updated PFOS, Mercury and u-POPs inventories.	At the end of the first year of the project.
Preparation of technical manuals targeting practitioners and operators, including manuals launch event and the distribution of printed and electronic versions (output 2.1.2).	Technical manuals targeting practitioners and operators.	During the second year of the project.
Training of relevant stakeholder groups on ESM of POPs and Hg-containing items along with aspects of the legal framework and practical and sustainable solutions for dealing with hazardous and valuable waste fractions (output 2.1.4).	25 training events. Final report of lessons learned and recommendations.	Between the end of the first year and the beginning of the second year of the project.
Comprehensive awareness-raising programs and customized events, especially for media, general public and specific target groups on ESM and sustainability approaches for waste management (output 2.1.5).	Awareness-raising materials. Final report of lessons learned and recommendations.	During the first, third and fifth year of the project.
Deliver trainings on soft skills and entrepreneurship skills and hold seminars, networking events, field visits, mentorship program, etc., to bring stakeholders together and find synergies, partners and investors (output 3.1.2).	Training events, seminars, networking events, field visits.	From the second to the fourth year of the project.
Design and implementation of awareness-raising campaigns aimed at the different stakeholders, training, guided technical tours, technical reports, documentation of the lessons learned and preparation of guidelines aimed at facilitating the replication of the pilot projects (output 3.1.3).	Awareness-raising materials. Training events. Guided technical tours. Technical reports. Report of the lessons learned. Guidelines.	From the second to the fifth year of the project.

Activity	Key deliverables	Timeline
Sharing information and lessons learned with the rest of the related GEF projects that are being executed or that will begin to be executed in the short term.	Information exchanged.	From the beginning of the project.

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

Monitoring

Continuous monitoring of the project activities, outputs and outcomes is required to track the progress and achievements of targets as well as overall project performance. It will also contribute to the early detection of potential issues and the related development of corrective measures. The monitoring will improve the performance of project activities and facilitate adapting to changes that might occur in the project environment.

The monitoring activities are developed in line with the [GEF Policy on Monitoring](#) and [UNIDO Monitoring and Reporting Policy](#). However, the day-to-day monitoring of the project is the responsibility of LATU as the leading PEE.

LATU will prepare an annual progress report as part of the reporting to the GEF (Project Implementation Report – PIR). The annual progress report will include (i) a narrative report on the progress of activities and outputs against the targets and desired outcomes using the means of verification and impact indicators including GEF core indicators and UNIDO IRPF; and ii) a financial report according to UNIDO accounting procedures as well as information on the co-financing commitments of the project, in order to ensure proper supervision by UNIDO as the implementing agency. The narrative reports will be shared with the GEF OFP, Government entities, and other relevant stakeholders. A quarterly meeting between UNIDO and LATU will be organized by the latter through teleconference to discuss the progress status, challenges faced and mitigation measures as well as planned next steps.

LATU shall inform UNIDO of any delays or difficulties faced during the implementation so that the appropriate support or corrective measures can be adopted in a timely and preventative, rather than in a remedial manner.

During the inception phase, LATU in consultation with other project stakeholders, will elaborate a monitoring plan that will be approved by the IA and later on updated annually. The monitoring plan will include the tracking of progress, performance and accomplishments related but not limited to:

- Implementation of project activities;
- Initiatives of project partners to promote environmentally sound waste management;
- Impact of the enforcement of the regulatory framework;
- Mobilization of stakeholders;
- Environmental and Social Management Plan (ESMP); and,
- Gender action plan.

In addition, gender-disaggregated data will be used to track gender equality results and assess gender impacts.

The national Project Steering Committee (PSC) consisting of the main project stakeholders (refer to section 6, Institutional arrangements and coordination) will meet at least annually to (a) review progress made against M&E indicators as stated in the project results framework, (b) review interim and final deliverables, (c) approve annual work-plan for the following year, and (d) assess any gaps or challenges and make appropriate adaptive management decisions.

Evaluation

In line with the [UNIDO Evaluation Policy](#) and the [GEF Evaluation Policy](#), the project will be subject to an independent Terminal Evaluation (TE). The UNIDO Independent Evaluation Office will be responsible for the TE.

Additionally, a mid-term Review (MTR) will be conducted at the project’s mid-point by an independent evaluator under the responsibility of the IA. The objectives of the MTR are to review the progress of the activities, outputs, and outcomes and to assess the effectiveness of the implementation according to the indicators presented in the project results framework. The findings and recommendations will be incorporated into the implementation strategy for the remaining duration of the project.

The TE will focus on the project performance regarding the attainment of objectives based on different criteria such as design, relevance, effectiveness, efficiency, sustainability and impact, partners’ performance, and gender mainstreaming. The TE will (i) ensure project accountability and (ii) develop recommendations for UNIDO staff, partners, and other relevant stakeholders.

The TE will typically be conducted by independent(s) evaluator(s) after the project’s operational completion or during the final six month of operation. The draft TE report will be sent to project stakeholders for comment. Formal comments on the report will be shared openly and transparently, and the final evaluation report will be publicly disclosed.

In the framework of the TE, all project partners and contractors are obliged to (a) make available studies, reports and other documentation related to the project and (b) facilitate interviews with staff involved in the project activities.

More detailed information on monitoring and evaluation activities, related budget and timeframe is summarized in the following.

Table: Monitoring and Evaluation summary table

M&E Activity	Purpose	Responsible	M&E Budget (USD)	Timeframe
Inception workshop and report	Adaptation of project activities, outputs and outcomes and proposed indicators and work-plan	PEE	0	Within three (3) months of the project start
Project Steering Committee (PSC) meetings	Review of progress against work-plan and budget Provide oversight to ensure the project achieves desired outputs and outcomes Provide guidance on proposed changes or revisions of project	PEE	10,000	Annually (5 meetings)
Annual Progress Reports (APRs) / Progress Implementation Reports (PIR)	Progress and effectiveness review for GEF Documentation on lessons learned	PEE / IA	0	30 June
Ongoing monitoring (project execution)	Monitor continuously the execution of the project and gather data against indicators	PEE	170,665	Ongoing (5 years)
Mid-Term Review (MTR)	Assess project progress and recommend corrective actions		55,000	At mid-term of the project implementation
Final Report	Measure progress against baseline Highlights technical outputs	PEE	0	At the end of project implementation

M&E Activity	Purpose	Responsible	M&E Budget (USD)	Timeframe
	Identify lessons learned and likely design approaches for future projects, assesses likelihood of achieving design outcomes			
Terminal Evaluation	Review project performance and coordination mechanisms Identify lessons learned and actions for future projects Highlight technical achievements	UNIDO	65,000	No later than three (3) months after project activities completion
TOTAL			300,665	

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

There are various socio-economic benefits which will be delivered by the project at national and local levels. The project will create the necessary legislative framework to advance in the ESM agenda by promoting POPs alternatives, BAT/BEP and RECP for separate valuable/recyclable resources and final disposal of non-recyclable POPs and Hg-containing wastes. In addition, the project will support the implementation of four demonstration and replicable projects, which will result in a reduction of POPs, u-POPs, mercury and greenhouse gases releases currently impacting human health and the environment, as well as in the recovery of valuable resources.

The reduction in POPs, u-POPs and mercury releases will ultimately reduce future health care costs, human suffering and costs for environmental remediation as a result of pollution caused by these toxics. Reducing the greenhouse gases releases will contribute to reducing climate change and its global impacts.

The project will improve the monitoring and analysis frameworks, to safeguard human health and the environment.

The demonstration projects will benefit from the GEF funds and investments accounted as project co-financing. Such funds and investments will be used to put in place Best Available Technologies (BAT) and introduce Best Environmental Practices (BEP), which will allow the country to advance the ESM agenda at national and local levels, creating local and national capacities for the recycling and treatment of various types of wastes, while reducing POPs, u-POPs and mercury releases.

The project will strengthen the national capacity and awareness to accelerate the adoption of ESM principles, BAT/BEP, financing options resulting in sustainable and POPs and mercury (Hg)-free operations, considering gender dimensions related to these matters.

Social sustainability will be ensured by strengthening public participation and ensuring access to project outcomes to the general public. In particular, local communities, women and children will be involved in project activities to ensure that risks and problems associated with POPs and Hg will be properly addressed and mitigation strategies can be formulated. The general public will also be informed about health and environmental risks related to POPs and Hg and benefits of the implementation of ESM, BAT and BEP concepts.

In addition, the project will create job opportunities in the waste treatment and recycling industry.

11. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification*

PIF	CEO Endorsement/Approval	MTR	TE
Low	<input data-bbox="500 514 1136 556" type="text" value="Medium/Moderate"/>		

Measures to address identified risks and impacts

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

The following tables show: the Identified Risks and Mitigation Measures (table 1) and the Environmental and Social Risk Monitoring (table 2).

Table 1 Identified Risks and Mitigation Measures

Identified risk	Operational safeguard	Mitigation measure	Technical details	Timeline	Location	Responsibility	Cost of mitigation
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<p>Workers' safety during pilot project execution.</p>	<p>Labour and working conditions</p>	<p>Ventilations and other occupational and health systems.</p> <p>Provision of work clothes and personal protective equipment (PPE): goggles, gloves, respiratory masks and protective suits during any potential contact with PFOS and Hg during storage and treatment.</p> <p>Occupational Risk Management in work areas.</p> <p>Storage of toxic and hazardous substances and waste under BAT and BEP to avoid any harm to workers</p> <p>Selection of technology and operating conditions according to BAT and BEP.</p> <p>Implementation of an emergency and first aid plan.</p> <p>Employees training to create awareness of the hazards involved (POPs, Mercury and waste as appropriate)</p>	<p>Apply the Occupational Health and Safety Management System approved by the Ministry of Labor, Employment and Social Security. Refer to Law No. 5804 which establishes the national system for the prevention of occupational risks.</p> <p>Proven technologies will be used and methods will be applied including exhaust ventilation systems and systems for removing contaminated air from the presence of workers.</p> <p>During project implementation, detailed ESM plans for each pilot project will be finalized to plan (Output 3.1.1). This includes the definition of PPE for each specific task, as well as the elaboration of occupational risk management protocols, the definition of storage requirements and the preparation of emergency and first aid plans.</p>	<p>At all times during pilot project execution, as indicated in their respective protocols. Monitoring of mitigation measures every 3 months.</p>	<p>Pilot facilities and related units (e.g., collection and transportation).</p>	<p>P E E</p>	<p>Non substantial costs (included in the budget allocated for the delivery of the related technical activity).</p>
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Presence of child labour in waste sector.	Labour and working conditions	Monitor and ensure that children are not involved in waste management activities in selected sites.	Refer to Law 1680, Code of Childhood and Adolescence. If the involvement of children is detected, ask the person in charge of the operation to correct the situation. In case of reoccurrence, file a complaint with the corresponding authorities.	At all times. Monitoring of mitigation measures every 3 months.	Pilot facilities and related units (e.g., collection and transport operations).	P E E	Non substantial costs (included in the project monitoring activities).
Displacement of women as a consequence of the design of processes and infrastructure.	Labour and working conditions	When the design of processes and infrastructure is required, ensure representative participation of women in order to ensure adaptation to their configuration and physical condition.	N/A	During design of processes and infrastructure.	Pilot facilities and related units (e.g., collection and transport operations).	P E E	Non substantial costs (included in the project monitoring activities).
Spread of COVID-19 among project beneficiaries/team	Labour and working conditions	Implementation of the national COVID-19 biosafety protocols. Promote control of COVID-19 vaccination cards.	Refer to national COVID-19 biosafety protocols.	At all times. Monitoring of mitigation measures every 3 months.	Where project activities take place.	P E E	Non substantial costs (included in the project monitoring activities).

<p>Pilot projects affect health of workers and surrounding communities (pollutant emissions, noise emissions, handling of hazardous substances and waste).</p>	<p>Health, safety, and community protection</p>	<p>Provision of appropriate measures to avoid negative impacts on the health of workers/communities: avoid noise, dust and generation; avoid smoke, vapours and other gaseous pollutants; ensure chemicals and waste are managed in an environmentally sound manner.</p> <p>Selection of technology and operating conditions according to BAT and BEP to reduce any negative impact on the environment and comply with the current environmental legislation.</p>	<p>Preferred use or purchase of equipment with silencers and emission reduction and ensure proper maintenance.</p> <p>If needed, provision of scrubbers, filters, and dust collectors.</p> <p>Limit working hours and operations of equipment > 80dB to lessen nuisance to the community.</p> <p>Compliance with national and international standards on hazardous and toxic chemicals management.</p> <p>Refer to the national specific environmental framework.</p> <p>In case of Hg treatment plant, the selected company will implement a comprehensive Hg monitoring plan.</p> <p>In case of co-processing of used oils containing POPs, the project includes a burning test to demonstrate environmental feasibility.</p>	<p>At all times.</p> <p>Monitoring of mitigation measures every 3 months.</p>	<p>Pilot facilities and related units (e.g., collection and transport operations).</p>	<p>PEE</p>	<p>Investment costs included in the budget located for the delivery of the related technical activity.</p> <p>Non substantial costs (included in the project monitoring activities).</p>
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Table 2: Environmental and Social Risk Monitoring

Identified risk	Parameters to be measured	Monitoring methods	Timing/Frequency	Threshold/Detection limit	Monitoring location	Responsibility
Workers' safety during pilot project execution.	Number of reported accidents/incidents (including: direct skin contact with PFOS, inhalation of Mercury vapours above threshold values, uncontrolled burning occurring at selected landfills, spills of used oils with PFOS).	Review of records.	Quarterly	No accidents are reported.	Pilot facilities and related units (e.g., collection and transport operations).	PEE Pilot facility
Presence of child labour in waste sector.	Number of children involved.	Review of records.	Quarterly	No children are present.	Pilot facilities and related units (e.g., collection and transport operations).	PEE Pilot facility
Displacement of women as a consequence of the design of processes and infrastructure.	Number of women affected by introduction of processes and infrastructure.	Review of records.	Quarterly	No women are affected by the introduction of processes and infrastructure	Pilot facilities and related units (e.g., collection and transport operations).	PEE Pilot facility
Spread of COVID-19 among project beneficiaries/team	Number of cases reported during project activities.	Review of records.	Quarterly	According to the latest guidelines established by the Ministry of Public Health.	Where project activities take place.	PEE Pilot facility

<p>Pilot projects affect health of workers and surrounding communities (pollutant emissions, noise emissions, handling of hazardous substances and waste).</p>	<p>Noise levels in dB (A) scale.</p> <p>Mercury concentration in the air in mg/N3.</p> <p>PM10 concentration in the air in mg/N3.</p>	<p>Portable monitoring equipment</p>	<p>Semi-annual</p>	<p>Acoustic quality = 65 dBA</p> <p>Occupational noise (8 hours) = 85 dBA</p> <p>Indoor air quality: TLV- TWA 0,05 mg Hg/m3, NIOSH (National Institute for Occupational Safety and Health – USA).</p> <p>Air quality = 0,2 mgHg/Nm3, 50 mg PM10/Nm3</p>	<p>Pilot facilities</p>	<p>PEE</p> <p>Pilot facility</p>
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PART IV: ANNEXES

Annex A: Project Results Framework (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Interventions	Indicators	Baseline	Target	Sources of Verif.	Assumptions
<p>Project Objective</p>	<p>To transform the linear, wasteful solid waste management sector in Paraguay into an environmentally sound and sustainable model by restricting the type of products imported, promoting awareness, segregating and managing hazardous POPs and mercury-containing fractions in an environmentally sound way.</p>				
<p>Outcome 1.1</p> <p>Enhanced policy and regulatory framework to include environmentally sound management (ESM) for waste for municipalities.</p>	<p># of policies, strategies, laws and regulation related to environmentally sound management (ESM) of waste approved/enacted.</p>	<p>Insufficient national and municipal policies and regulations related to environmentally sound management (ESM) for waste, promotion of POPs and Hg alternatives, BAT/BEP and RECP for separate valuable/recyclable resources and final disposal of non-recyclable POPs and Hg-containing fractions.</p>	<p>New or improved environmentally sound management (ESM) for waste policies and strategies on the national and municipal level approved/enacted.</p> <p># at least 1 national legislation/strategy improved or drafted and approved.</p>	<p>Copies of new/improved legislations.</p>	<p>National and local governments are committed to enhance policy and regulatory framework to include sound and sustainable management of POPs and</p>

Interventions	Indicators	Baseline	Target	Sources of Verif.	Assumptions
<p>Output 1.1.1</p> <p>Policy recommendations drafted on ESM principles for industrial waste management, including import ban of POP-containing and mercury-added products, Extended Producer Responsibility-EPR, alternative product promotion and recyclability of valuable parts.</p>	<p># of policy recommendations on ESM principles drafted.</p>	<p>Insufficient national and municipal policies recommendations on ESM principles for industrial waste management, including import ban of POP-containing and mercury-added products, Extended Producer Responsibility-EPR, alternative product promotion and recyclability of valuable parts.</p>	<p>Policy recommendations available to carry out ESM principles for solid and hazardous waste management.</p> <p># at least 1 draft of policy recommendations.</p>	<p>Copy of the policy recommendations.</p>	<p>mercury throughout their life cycle at national and local level.</p>
<p>Output 1.1.2</p> <p>Guidelines for ESM and sustainable waste management targeting policy and decision makers drafted.</p>	<p># of guidelines for ESM and sustainable waste management drafted.</p>	<p>Lack of national and municipal guidelines for ESM and sustainable waste management targeting policy and decision makers.</p>	<p>Guidelines for ESM and sustainable waste management available to policy and decision makers.</p> <p># at least 1 draft of guidelines for ESM and sustainable waste management.</p>	<p>Copy of the guidelines.</p>	
<p>Outcome 2.1</p> <p>Strengthened capacity and awareness to accelerate the adoption of ESM principles, BAT/BEP and financing options resulting in sustainable and POPs and mercury (Hg)-free operations.</p>	<p># of updated inventories of POPs/Hg, materials and waste-streams.</p> <p># of technical manuals for the ESM of waste, including EPR and BAT/BEP for sustainable and POPs and Hg-free waste management.</p> <p># of technical related documents included in the SIAM.</p>	<p>Insufficient national and municipal baseline information, capacity and awareness to accelerate the adoption of ESM principles, BAT/BEP and financing options resulting in sustainable and POPs and mercury (Hg)-free operations.</p>	<p># 1 inventory for relevant PFOS, 1 U-POPs emissions from waste disposal practices and 1 inventory for Hg, including waste management and the identification of ESM opportunities.</p> <p># 1 technical manual on management of solid and hazardous waste.</p> <p># 1 technical manual on sound management of articles containing POPs and Mercury throughout their entire life cycle.</p>	<p>Inventories and technical manuals documents.</p> <p>List of contacts, meetings and sources of information.</p> <p>SIAM web site.</p> <p>Training materials.</p> <p>Meeting minutes and participant's list (female/male)</p>	<p>National and local governments are committed to strengthen capacity and awareness to accelerate the adoption of ESM principles, BAT/BEP and financing options resulting in sustainable and POPs and mercury (Hg)-free operations.</p>

Interventions	Indicators	Baseline	Target	Sources of Verif.	Assumptions
	<p># of training participants/trainees at national/ municipal levels (male/female).</p> <p># of awareness-raising programs and events for media, general public and specific groups.</p>		<p># At least two sections or sub-sections for POPs and Hg in waste streams, BAT/BEP and ESM options included in the SIAM.</p> <p># At least 100 people relevant Stakeholders (60% male /40% female) trained.</p> <p># At least 5,000 people (60% male/40 % female) reached by awareness organized event /programs on waste and POPs and Hg management.</p>	Awareness and communication materials.	
<p>Output 2.1.1</p> <p>Updated inventory of POPs and Mercury materials and waste-streams to identify opportunities for ESM and further Global Environmental Benefits.</p>	<p># of updated inventories of POPs/Hg, materials and waste-streams.</p> <p># of identified opportunities for ESM and further Global Environmental Benefits.</p>	<p>During the PPG an update of firefighting foams, aviation hydraulic fluids, textiles, paper and paperboard was carried out. It was also updating the main mercury figures, however, due to the complexity of PFOS and Hg-containing products and the widespread use of items across Paraguay, additional detailed mapping of waste streams is necessary during project initiation.</p>	<p># 1 inventory for relevant PFOS, 1 U-POPs emissions from waste disposal practices and 1 inventory for Hg, including waste management and the identification of ESM opportunities.</p>	<p>Draft and final inventory documents.</p> <p>List of contacts, meetings and sources of information.</p>	
<p>Output 2.1.2</p> <p>Technical manuals drafted for the ESM of waste in selected sectors, including EPR and BAT/BEP for sustainable and POPs and Hg-free waste management targeting practitioners and operators.</p>	<p># of technical manuals for the ESM of waste, including EPR and BAT/BEP for sustainable and POPs and Hg-free waste management.</p>	<p>Lack of technical manuals adapted to the national situation and targeted to practitioners and operators on ESM of waste, including EPR and BAT/BEP for sustainable and POPs and Hg-free waste management.</p>	<p>Technical manuals for environmental sound and sustainable waste management, including EPR and BAT/BEP for sustainable and POPs and Hg-free waste management targeting practitioners and operators.</p> <p># 1 technical manual on management of solid and hazardous waste.</p> <p># 1 technical manual on sound management of articles</p>	<p>Draft and final version of technical manuals.</p>	

Interventions	Indicators	Baseline	Target	Sources of Verif.	Assumptions
			containing POPs and Mercury throughout their entire life cycle.		
Output 2.1.3 Improved knowledge management on POPs and Hg in waste streams, BAT/BEP and ESM options feeding and strengthening the national System of Environmental Information (SIAM) as a tool for assisting decision-making and knowledge management.	# of sections or sub-sections related with POPs and Hg in waste streams, BAT/BEP and ESM options included in the SIAM. # of technical related documents included in the SIAM.	Insufficient national information systems available on POPs and Hg in waste streams, BAT/BEP and ESM options.	# At least two sections or sub-sections included in the SIAM: 1 related to POPs and 1 related to Hg in waste streams, BAT/BEP and ESM options. # at least 12 technical related documents included in the SIAM.	SIAM web site.	
Output 2.1.4 Trainings for government officials at national and local levels, as well as private sector (especially waste collectors and recyclers), and media professionals on potential sustainable solutions for selected sectors to understand and tackle waste, POPs and Hg issues.	# of training participants/trainees at national/ municipal levels (male/female).	Insufficient knowledge on waste and POPs and Hg management among officials and staffs at national and local levels, as well as private sector and media professionals.	# A training plan establishing the different target groups prepared and implemented. # At least 100 people relevant Stakeholders (60% male /40% female) trained.	Copy of training plan. Copy of training materials. Copy of meeting minutes. Participants list (female/male)	
Output 2.1.5 Awareness-raising programs and customized events, especially for media, general public and specific target groups (i.e. children and women), on ESM and sustainability approaches for waste management.	# of awareness-raising programs and events for media, general public and specific groups.	An awareness raising activity on the specific topic was never conducted in the country.	# A communication plan prepared and implemented. # At least 5000 people (60% male/40 % female) reached by awareness organized event /programs on waste and POPs and Hg management.	Copy of awareness and communication materials. Copy of meeting minutes and participants list male/female)	

Interventions	Indicators	Baseline	Target	Sources of Verif.	Assumptions
<p>Outcome 3.1</p> <p>Reduction of POPs and Hg through BAT/BEP and ESM applications, including upgrading and/or upscaling of recycling infrastructures.</p>	<p># of ESM plans for the pilot projects.</p> <p># of tools for promotion of business and financing options.</p> <p># of pilot projects implemented.</p> <p># Quantity of environmentally sound disposal of POPs and Hg containing fractions.</p> <p># Quantity of materials recycled.</p>	<p>POPs and Hg containing fractions are not properly classified or managed and are disposed of in an unsustainable and non-environmentally sound manner.</p> <p>During the PPG, a set of pilot projects on POPs and Hg reduction, recovery of valuable/ recyclable materials and final disposal of POPs and Hg containing materials and wastes, as well as the proper disposal of urban and industrial waste, avoiding u-POPs emissions, were drafted.</p> <p>There are initiatives in the country regarding the promotion of small and medium-sized industries and support for new entrepreneurs, however, there are not specific lines or related experiences for the specific ESM activities for POPs and Hg containing fractions.</p> <p>There are not national facilities that fulfill BAT/BEP recommendations for proper disposal of POPs and mercury containing fractions.</p>	<p># one ESM plan and detailed project description developed and documented for each identified pilot project.</p> <p># of new or adapted tools for promotion of business and financing options for ESM activities.</p> <p># of new/formalized business units.</p> <p># All pilot projects fully and successfully executed.</p> <p>The project will ensure the environmentally sound disposal of a minimum of POPs and Hg containing fractions, as outlined in the GEB sections.</p> <p>The project will also ensure that a maximum of indirect GEB will be achieved simultaneously.</p>	<p>Copies of the plans and pilot projects.</p> <p>Description of the tools issued by the respective institutions.</p> <p>Final detailed reports of each pilot project.</p> <p>Registers of quantities of material recovered /disposed.</p>	<p>National Government is committed to reduction of POPs and Hg through BAT/BEP and ESM applications, including upgrading and/or upscaling of recycling infrastructures, involving local governments and private stakeholders.</p>
<p>Output 3.1.1</p> <p>Specific ESM plans for the pilot projects on POPs-reduction, recovery of valuable/recyclable materials and final disposal of POPs and Hg-containing materials and wastes.</p>	<p># of ESM plans for the pilot projects on POPs-reduction, recovery of valuable/recyclable materials and final disposal of POPs and Hg-containing materials and wastes.</p>	<p>During the PPG, a set of pilot projects on POPs and Hg reduction, recovery of valuable/ recyclable materials and final disposal of POPs and Hg containing materials and wastes, as well as on proper disposal of urban and industrial waste, avoiding u-POPs emissions, were drafted.</p>	<p>During project implementation detailed ESM plans and disposal strategies for each pilot project will be finalized to plan, select and execute national management plans for waste and POPs and Hg-containing items, including the identification of technically and economically feasible disposal alternatives. Once the BAT/BEP technologies are defined, a national elimination plan for</p>	<p>Copies of the plans and pilot projects.</p>	

Interventions	Indicators	Baseline	Target	Sources of Verif.	Assumptions
			<p>each pilot will be developed to align potential synergies and ensure cost-effectiveness in line with Paraguay's commitment to fulfil the Stockholm Convention and Minamata Convention.</p> <p># one ESM plan and detailed project description developed and documented for each identified pilot project.</p>		
<p>Output 3.1.2</p> <p>Tools for promotion of business and financing options for ESM activities, including support for the establishment of a business incubator to help relevant startups succeed, and identifying potential Public-Private Partnerships.</p>	<p># of tools for promotion of business and financing options for ESM activities.</p>	<p>There are initiatives in the country regarding the promotion of small and medium-sized industries and support for new entrepreneurs, however, there are no specific lines or related experiences for the specific ESM activities for POPs and Hg containing fractions.</p>	<p># of new or adapted tools for promotion of business and financing options for ESM activities.</p> <p># people (60% male /40% female) trained.</p> <p># of new/formalized business units.</p>	<p>Description of the tools issued by the respective institutions.</p>	
<p>Output 3.1.3</p> <p>Pilot projects implemented for ESM of valuable/recyclable fractions (e.g. source separation, collection and transport, pre-processing, recycling or re-use) of selected fractions as well as for the proper disposal of urban and industrial waste, avoiding u-POPs emissions.</p>	<p># of pilot projects implemented.</p>	<p>During the PPG, four pilot projects on POPs and Hg reduction, recovery of valuable/ recyclable materials and final disposal of POPs and Hg containing materials and wastes, as well as on proper disposal of urban and industrial waste, avoiding u-POPs emissions, were drafted.</p>	<p># All pilot projects fully and successfully executed.</p>	<p>Final detailed reports of each pilot project, including list of executed activities, all technical information collected and generated during project execution, assumptions, references, conclusions and recommendations.</p>	

Interventions	Indicators	Baseline	Target	Sources of Verif.	Assumptions
<p>Output 3.1.4</p> <p>Final BAT/BEP disposal of POPs and mercury containing fractions.</p>	<p># Quantity of environmentally sound disposal of POPs and Hg containing fractions (tonnes).</p> <p># Quantity of materials recycled (tons).</p>	<p>POPs and Hg containing fractions are not properly classified or managed and are disposed of in an unsustainable and non-environmentally sound manner.</p> <p>There are no national facilities that fulfill BAT/BEP recommendations for proper disposal of POPs and mercury containing fractions.</p>	<p>The project will ensure the environmentally sound disposal of a minimum of POPs and Hg containing fractions, as outlined in the GEB sections.</p> <p>Priority will be given to the use of previously upgraded existing national facilities for the environmentally sound conditioning, treatment and final disposal of POPs and Hg containing fractions.</p> <p>The project will also ensure that a maximum of indirect GEB will be achieved simultaneously.</p>	<p>Report of the upgraded of national facilities for the treatment/conditioning/disposal of POPs and mercury containing fractions.</p> <p>Registers of quantities of material recovered /disposed.</p>	
<p>Outcome 4.1</p> <p>Monitoring</p>	<p># of monitoring and evaluation reports according to the Monitoring & Evaluation plan.</p> <p># monitoring of socio-economic benefits.</p> <p># monitoring gender dimensions.</p>	n.a	<p>According to M&E plan.</p> <p>According to the ESMP, Gender Action Plan and Stakeholder Engagement Plan.</p>	<p>According to M&E plan.</p> <p>According to the ESMP, Gender Action Plan and Stakeholder Engagement Plan.</p>	<p>Government is committed to fulfill monitoring and evaluations requirements as outlined in the M&E plan; in accordance with GEF's and UNIDO's evaluation policy.</p>
<p>Output 4.1.1</p> <p>Monitoring system set and operational (including monitoring of ESMP, Gender Action Plan and Stakeholder Engagement Plan).</p>	<p># of monitoring and evaluation reports according to the monitoring and evaluation plan</p> <p># monitoring of socio-economic benefits</p> <p># monitoring gender dimensions</p> <p># monitoring of SEP.</p>	n.a	<p>According to M&E plan.</p> <p>According to the ESMP, Gender Action Plan and Stakeholder Engagement Plan.</p>	<p>According to M&E plan.</p> <p>According to the ESMP, Gender Action Plan and Stakeholder Engagement Plan.</p>	

Interventions	Indicators	Baseline	Target	Sources of Verif.	Assumptions
	# monitoring of ESMP.				
Outcome 4.2 Evaluation	# 1 mid-term report. # 1 final evaluation report. # lessons learned summarized. # terminal project workshop.	n.a	# 1 mid-term report. # 1 final evaluation report. # 1 lessons learned document summarizing lessons learned at national and local level. # 1 terminal project workshop.	According to M&E plan.	
Output 4.2.1 Mid-term and final external evaluations conducted.	# 1 mid-term report. # 1 final evaluation report.	n.a.	# 1 mid-term report. # 1 final evaluation report.	According to M&E plan.	
Output 4.2.2 Lessons learned shared with all relevant stakeholders for future application, development and improvement.	# lessons learned summarized as document.	n.a	# 1 lessons learned document summarizing lessons learned at national and local level. # 1 terminal project workshop.	According to M&E plan.	

Annex B: Response to Project Reviews (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion, and responses to comments from the Convention Secretariat and STAP at PIF).

Comments from Council

Comment by Hannah Boyne, Senior Policy Advisor and Programme Manager, Department for Environment, Food and Rural Affairs, Council, United Kingdom made on 1/7/2021:

For the United Kingdom comments below, an initial agency response has been provided and can be found in the list of documents specific to the project in the GEF Portal.

10721, 10682, and 10419 look very similar, but with 2 different implementing partners - what's the plan to coordinate?

Response:

In section “Knowledge Management” the following was included:

In relation to obtaining and sharing information and lessons learned with the rest of the related GEF projects that are being executed or that will begin to be executed in the short term, efforts will be made at the project coordination level to establish formal contacts and define cooperation mechanisms.

Comment by Kordula Mehlhart, GEF Council Member, Head of Division on Climate Finance, BMZ, Council, Germany made on 1/7/2021:

Germany approves the following PIF in the work program but asks that the following comments are taken into account: This is a straightforward designed project addressing the implementation of the Stockholm and Minamata conventions in Paraguay. It is well designed, only one minor comment at this point.

Suggestions for improvements to be made during the drafting of the final project proposal:

Please refer explicitly to how this project can be aligned with the Strategic Approach to International Chemicals Management (SAICM) and its priorities.

Response:

The project is aligned with SAICM's overall objective, the achievement of the sound management of chemicals throughout their life cycle. Specifically, it is aligned with the following basic elements recognized as critical at the national and regional levels to the attainment of sound chemicals and waste management, including in the “Guidance towards the achievement of the 2020 goal”; legal frameworks that address the life cycle of chemicals and waste; strong institutional frameworks and coordination mechanisms among relevant stakeholders; collection and systems for the transparent sharing of relevant data and information among all relevant stakeholders using a life cycle approach; industry participation and defined responsibility across the life cycle; inclusion of the sound management of chemicals and waste in national health, labour, social, environment and economic budgeting processes and development plans; and development and promotion of environmentally sound and safer alternatives.

Comment by Tom Bui, Director, Environment, Global Issues and Development Branch (MFM), Global Affairs Canada, Council, Canada made on 1/11/2021:

Canada agrees with the findings and recommendations of the STAP review, however, there are some additional areas of the proposal that may require further elaboration and consideration. In particular:

- For output 1.1.1, there may be some misunderstanding of the intersessional work being undertaken by the secretariat. We recommend that the proponents review the programme of intersessional work under the Minamata Convention and contact its Secretariat to ensure the intersessional work is accurately reflected in the project proposal.

The phrasing of output 1.1.1 has been amended to adequately reflect the work being done under the Minamata Convention as well as the recent developments from the Conference of the Parties.

During the implementation, the project team will liaise with the Secretariat as well as with the Global Mercury Partnership areas of mercury in products and mercury waste management.

- For output 2.1.2, Canada suggests that the proponents may wish to consider the existing technical guidance on managing hazardous waste under the Basel Convention as well as the Stockholm Convention's BAT/BEP documents.

In the description of the activities related to the preparation of the manuals the following was included:

Environmentally sound management of articles containing POPs and Mercury throughout their entire life cycle, contemplating BAT/BEP and including the evaluation of substitution alternatives for POPs and Mercury-free articles. The amendments and guidelines emanating from the latest COPs of the Stockholm, Basel and Minamata Conventions will be taken into account.

- Projects 10721, 10682, and 10419 have many of the same objectives and are close in proximity. Canada suggests that there should be some degree of collaboration between these projects to share experiences and best practices. Additionally, there may be some knowledge or lessons learned gained under previous GEF projects in Argentina (10094) and Colombia (6928) that could be applicable to these projects.

Response:

The following related GEF projects within the region were identified and reviewed in terms of objectives, approaches, outputs and planned activities, since the problems addressed in the projects usually have many points in common: Colombia (6928), Argentina (10094), Peru (10419) and Panama (10721).

In relation to obtaining and sharing information and lessons learned with the rest of the related GEF projects that are being executed or that will begin to be executed in the short term, efforts will be made at the project coordination level to establish formal contacts and define cooperation mechanisms.

Comments from STAP

1. The current objective does not seem to adequately describe the substantial work that the project seeks to accomplish. The transformation of a linear solid waste management sector cannot happen through interventions that focus only on the segregation and management of hazardous material. For transformation to occur, interventions must focus on downstream end-of-pipe waste management solutions while addressing upstream issues of product design, the type of products imported and used in Paraguay, and consumer behavior. Based on the section on the theory of change (ToC) and associated figures, the project seems to have incorporated some upstream and downstream solutions (albeit with more focus on downstream interventions). Yet, the current objective suggests that the project is mainly addressing downstream solutions (segregation and ESM of wastes). We recommend that the project objective be revised to capture adequately what the project sets out to accomplish.

Response: Objective was modified as follows:

To transform the linear, wasteful solid waste management sector in Paraguay into an environmentally sound and

sustainable model by restricting the type of products imported, promoting awareness, segregating and managing hazardous POPs and mercury-containing fractions in an environmentally sound way.

2. In line with the comment above, STAP recommends that the interventions and associated activities for this project include downstream and upstream solutions to waste management issues. For example, the business models, financing options, and private sector engagements should be considered under Component 3, and should address how to support alternatives to POPs and mercury products, and promote their adoption by consumers (upstream), and solutions for sound management of existing waste.

Response: In the Theory of Change, description of Component 3 “Pilot projects, including public-private partnerships, BAT/BEPs and final disposal of POPs-containing parts as well as mercury-added products, for sustainable waste management” was modified as follow:

Component 3 will pilot BAT/BEP for the environmentally sound management of PFOS and Hg-containing items, including separation of valuable/recyclable fractions and introduction of ESM principles to show re-use and recyclability. This component also includes the final disposal of POPs and Hg-containing items. Special consideration should be given to the involved business models, financing options, and private sector engagement, addressing aspects related to how to support alternatives to POPs and mercury products and promote their adoption by consumers, as well as solutions for the sound management of existing waste.

3. Theory of change: a very brief description of the ToC is presented on page 22. However, the description did not include the various elements of an adequate theory of change, including the assumption, outputs, proposed and alternative (plan B) pathways, and expected short and long-term impacts. This description is necessary to explain how the proposed activities contribute to the chain of results that lead to the intended impacts. Figures 1 and 2 provided in the theory of change section on page 23 are on the right track, and can be modified to represent an adequate theory of change. STAP recommends that this should be done.

Response: Theory of change was modified as requested.

4. Figure 1 (life-cycle intervention for POPs and Hg-containing products) recognized that this project would deliver chemicals and waste and climate change mitigation GEBs. However, the climate change mitigation GEB was not accounted for in the core indicator or the description of GEBs. Also, as recognized in the sections on the project description, baseline, and alternative scenarios, the targeted wastes may be directly or indirectly responsible for groundwater and air pollution. This indicates that this project could deliver multiple co-benefits. Furthermore, the increased reuse and recycling to be achieved through this project will contribute to material and resource management. While it is not a GEF requirement to report on co-benefits that are not GEBs, it would be useful to account for these benefits. Doing so would provide a more holistic account of the project's impact and highlight the substantial return on investments that can be achieved. The project will also deliver health and economic benefits, which should be accounted for during implementation, monitoring, and evaluation.

Response: Global environmental benefits and socioeconomic benefits were modified as requested.

5. It was indicated in the project description that CSOs would be engaged, and one CSO was included as part of the co-financing source. However, the response on Section 2 on CSO stakeholder consultation was "No." We assume that this is a typographical error. Please correct as appropriate.

Response: Properly corrected.

6. The potential risk of climate change on project success was recognized, but a climate risk assessment will be carried

out at the PPG stage. This is very important, and STAP recommends that this should be done.

Response: Climate change risk assessment was included (Annex J).

7. Coordination is key to project success. Currently, the PIF provides the roles and modus operandi of the Steering Committee. The PIF lacks elaboration on how other stakeholders will be coordinated.

Response: Coordination with stakeholders was included.

8. The project proponents should clearly state the lessons learned from other projects and how they have been used in the project design.

Response: Lessons learned from other projects currently being executed in Paraguay were identified (see Annex K) and incorporated in the final project adjustment.

9. Are the barriers and threats well described, and substantiated by data and references?
Barriers are described however no data is provided and no references.

Response: Available data and references were included in the baseline section.

10. innovative, sustainability and potential for scaling-up.

Is there a clearly-articulated vision of how the innovation will be scaled-up, for example, over time, across geographies, among institutional actors?

The PIF states that "the up-scaling aspect of the project will be through the promotion of business and financing options for ESM activities to ensure that successful project activities are replicated and up-scaled at the national level." This statement does not explain how upscaling will be achieved.

Response: Upscaling was modified as requested.

Annex C: Status of Utilization of Project Preparation Grant (PPG) (Provide detailed funding amount of the PPG activities financing status in the table below:

Table 1. Status of Utilization of Project Preparation Grant (PPG)

<i>Project Preparation Activities Implemented</i>	<i>GETF/LDCF/SCCF Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent To date</i>	<i>Amount Committed</i>
International Consultants: Stakeholder engagement activities; consultations with national stakeholders, preparation of Stakeholder Engagement Plan, Preparation of ESMP, Gender Assessment, Climate risk Assessment; Finalization of project documents	33,100.00	44,471.84	19,306.05
Local Travel	7,000.00	0.00	7,000.00
National Consultants: Baseline data collection and analysis; data collection for Gender Assessment, Climate risk Assessment; Obtaining co-financing commitments	43,900.00	19,337.00	5,000.00
Contractual Services	30,000.00	0.00	5,000.00
Train/Fellowship/Study	4,000.00	0.00	4,000.00
Other Direct Costs (e.g. HACT assessment)	2,000.00	13,885.11	2,000.00
Total	120,000.00	77,693.95	42,306.05

If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue to undertake exclusively preparation activities up to one year of CEO Endorsement/approval date. No later than one year from CEO endorsement/approval date. Agencies should report closing of PPG to Trustee in its Quarterly Report.

Annex D: Calendar of Expected Reflows (if non-grant instrument is used)

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

Not applicable

Annex E: Project Map(s) and Coordinates

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

The Republic of Paraguay is a landlocked country, with an area of 406,752 km² and is located in the southern hemisphere of the American continent, between parallels 19°18' and 27°03' South latitude, and meridians 54°15' and 62°38' West longitude. It borders Bolivia and Brazil to the north, Brazil to the east, and Argentina to the south and to the west. The borders with Argentina are the Pilcomayo River, the Paraguay River and the Paraná River. The border with Brazil is also marked by the Paraná River from Ciudad del Este at the confluence with the Iguazú River to Saltos de Guairá further north. The coordinates for the capital Asuncion are: 25°16'S, 57°40'W.

The Paraguayan territory is divided by the Paraguay River that crosses it from North to South, into two very different regions, the Western region, also known as the Paraguayan Chaco, and the Eastern region (Region Oriental). There are fundamental differences between both regions, in terms of biophysical characteristics, topography, climate, access to water resources, and distribution of the population.

The Eastern region in the south of the country represents 39% of the territory and contains just over 97% of the population, with a density of 31.5 inhabitants/km². On the other hand, the Western region, in the north of the country, occupies 61% of the territory and just over 2% of the population resides there, with a density of 0.5 inhabitants/km². The population density at the country level is 12.7 inhabitants/km². Asunción and the Central department have the highest population densities, 552.9 inhabitants/km², respectively.

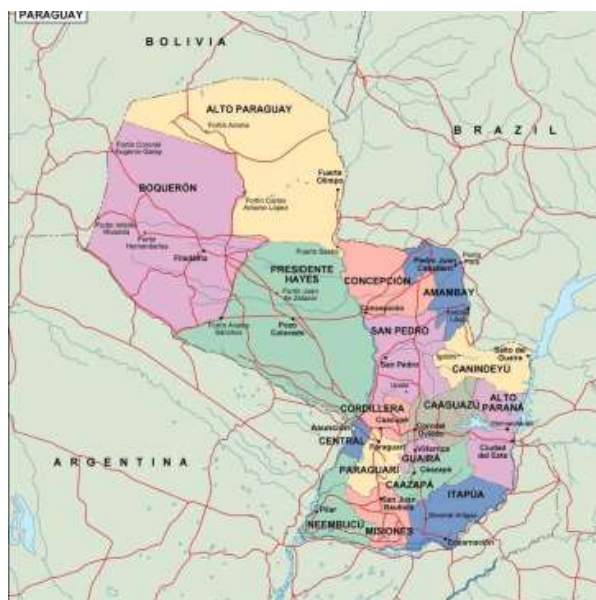
Paraguay consists of seventeen departments and one Capital District (Distrito Capital). These are: Alto Paraguay, Boquerón, Presidente Hayes, Concepción, Amambay, San Pedro, Canindeyú, Caaguazú, Cordillera, Central, Paraguairí, Guairá, Alto Paraná, Caazapá, Misiones, Ñeembucú and Itapúa, in addition to the district of the capital, Asunción. To determine the number of districts, several sources have been consulted.

The country also has 256 municipalities mainly located in peri-urban or rural areas, except for six main conglomerates: the capital Asunción and its surrounding Departamento Central, Ciudad del Este, Encarnación, Caaguazú, Coronel Oviedo, and Pedro Juan Caballero.

Paraguay is a landlocked country with a rural population of around 40% who largely depend on agricultural, livestock and incipient industrial activities.

It is also divided into two regions: The "Occidental Region" or Chaco (Boquerón, Alto Paraguay and Presidente Hayes), and the "Oriental Region" (the other departments and the capital district).

All the activities foreseen in this project are concentrated in the Eastern region of the country.



Administrative division.

Department	Capital	Population (2021)	Area (km2)
Distrito Capital	Asunción	524,559	117
Concepción	Concepción	261,976	18,057
San Pedro	San Pedro	463,126	20,007
Cordillera	Caacupé	323,273	4,953
Guairá	Villarrica	247,747	3,991
Caaguazú	Coronel Oviedo	609,803	11,479
Caazapá	Caazapá	205,031	9,503
Itapúa	Encarnación	622,565	16,536
Misiones	San Juan Bautista	168,130	9,568
Paraguari	Paraguari	278,957	8,710
Alto Paraná	Ciudad del Este	854,943	14,898
Central	Areguá	2,210,109	2,665
Ñeembucú	Pilar	93,287	12,155
Amambay	Pedro Juan Caballero	204,169	12,935
Canindeyú	Salto del Guairá	254,978	14,677
Presidente Hayes	Villa Hayes	129,951	72,917
Alto Paraguay	Fuerte Olimpo	18,330	82,394
Boquerón	Filadelfia	71,836	91,676
Paraguay	Asunción	7,359,000	406,796

Annex E: Budget.

See separate file

Annex F: Workplan

Year	1				2				3				4				5			
Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Outcome 1.1: Enhanced policy and regulatory framework to include environmentally sound management (ESM) for waste for municipalities.																				
Output 1.1.1: Policy recommendations drafted on ESM principles for industrial waste management, including import ban of POP-containing and mercury-added products, Extended Producer Responsibility-EPR, alternative product promotion and recyclability of valuable parts.																				
Output 1.1.2: Guidelines for ESM and sustainable waste management targeting policy and decision makers drafted.																				
Outcome 2.1: Strengthened capacity and awareness to accelerate the adoption of ESM principles, BAT/BEP and financing options resulting in sustainable and POPs and mercury (Hg)-free operations.																				
Output 2.1.1: Updated inventory of POPs and Mercury, materials and waste-streams to identify opportunities for ESM and further Global Environmental Benefits.																				
Output 2.1.2: Technical manuals drafted for the ESM of waste in selected sectors, including EPR and BAT/BEP for sustainable and POPs and Hg-free waste management targeting practitioners and operators.																				
Output 2.1.3: Improved knowledge management on POPs and Hg in waste streams, BAT/BEP and ESM options feeding and strengthening the national																				

System of Environmental Information (SIAM) as a tool for assisting decision-making and knowledge management.																				
Output 2.1.4: Trainings for government officials at national and local levels, as well as private sector (especially waste collectors and recyclers), and media professionals on potential sustainable solutions for selected sectors to understand and tackle waste, POPs and Hg issues.																				
Output 2.1.5: Awareness-raising programs and customized events, especially for media, general public and specific target groups (i.e. children and women), on ESM and sustainability approaches for waste management.																				
Outcome 3.1: Reduction of POPs and Hg through BAT/BEP and ESM applications, including upgrading and/or upscaling of recycling infrastructures.																				
Output 3.1.1: Specific ESM plans for the pilot projects on POPs-reduction, recovery of valuable/recyclable materials and final disposal of POPs and Hg-containing materials and wastes.																				
Output 3.1.2: Tools for promotion of business and financing options for ESM activities, including a support to the establishment of a business incubator to help relevant startups succeed, and identifying potential Public-Private Partnerships.																				
Output 3.1.3: Pilot projects implemented for ESM of valuable/recyclable fractions (e.g. source separation, collection and transport, pre-processing, recycling or re-use) of selected fractions as well as for the proper disposal of urban and industrial waste, avoiding u-POPs emissions.																				
Output 3.1.4: Final BAT/BEP disposal of POPs and mercury containing fractions.																				
Outcome 4.1: Monitoring																				
Output 4.1.1: Monitoring system set and operational.																				

Outcome 4.2: Evaluation																				
Output 4.2.1: Mid-term and final external evaluations conducted.																				
Output 4.2.2: Lessons learned shared with all relevant stakeholders for future application, development and improvement.																				

Annex G: Stakeholder Engagement Plan SEP

See separate file

Annex H: Environmental and Social Management Plan (ESMP)

Annex I: Gender Analysis

Annex J: Core Indicators Worksheet

Annex K: Taxonomy

Annex L: Lessons Learned from other projects

This section lists the Lessons Learned and Good Practices that were identified in other projects that are currently being executed in Paraguay and that can contribute to the enhanced execution of this project.

- **Mid-Term Review of the UNIDO – GEF Project: “Strengthening the environmentally-sound management and final disposal of PCBs, in Paraguay” – January 2022.**

Lessons learned

- i. Strengthen the Project Planning System breaking down the products at processes and activities level in order to identify a timeline that defines the critical path, milestones and tolerances as part of the Annual Operative Plan.
 - ii. Project Monitoring and Evaluation System incorporating tools that include adaptive management approaches and learning systems in a real-time shared online space.
 - iii. Updating of the Stakeholder Engagement Plan and the Organizational Structure at the beginning of the project and during its execution, if necessary.
 - iv. Centralizing and systematic monitoring for the follow up of co-financing agreements.
 - v. Due to the restrictions of the Covid pandemic, remote work and virtual meetings were adopted as alternative and valid options.
- **Midterm Review of Project 00100857: “Asuncion Green City of the Americas – Pathways to Sustainability” – June 2020.**

Lessons learned

- i. The project "Asuncion Green City of the Americas – Pathways to Sustainability" is a project in which several public institutions and civil society organizations converge. While this allows for a greater scope for the achievement of the results, it is evident that it is essential that they are clear about the role and responsibilities they assume and under which they adhere to the project.

- ii. The project raises specific issues that require municipalities to have established and consolidated units/areas. In this sense, it has become clear that there is low institutional or human resources capacity in the municipalities which makes it difficult to coordinate and implement the project's activities. Working first to strengthen these instances has been key, especially in the framework of leaving the capabilities installed.
- iii. In order to properly implement the project's products, municipalities should be expected to receive technical and financial resources and political support.
- iv. In a project of this size and involving a range of institutions, forming a working group within the Technical Committee has had positive results and contributes to the effectiveness and efficiency of project management.

Good practices

- i. Identify actions that are already being carried out in the areas of influence of the project, such as the work that the Binational Entity Itaipu has been doing in the San Francisco neighborhood and achieve synergy between the various institutions so that what has been done will have greater impact and is sustainable.
- ii. The design and socialization of knowledge materials, finding creative ways to translate technical concepts and adapt them to messages for other audiences, from infographics, audiovisual materials, and other formats. These materials remain as inputs that can be used as needed and help generate greater empowerment of counterparts.
- iii. The incorporation of the theme of territorial planning as a tool for the generation of public policies that enable an effective response, especially based on evidence.
- iv. Design strategies that allow plans and regulations developed from a general framework, such as the Solid Waste Management Plan, to be incorporated at the municipal level and thus, ensuring their implementation.

Annex M: Pilot Projects

See separate file

Annex N: GEF projects addressing simultaneously POPs and Hg

Project Title	ID	Countries	Focal Areas	Type	Agencies	GEF Grant	Co-financing	Status
Integrated Management and Environmentally Sound Disposal of POPs Pesticides and Mercury in Healthcare and Agricultural Sectors in Sri Lanka	10868	Sri Lanka	Chemicals and Waste	Full-size Project	United Nations Development Programme	5,040,000	40,860,000	Concept Approved
Reduction of unintentionally-produced persistent organic pollutants and mercury through an environmentally-sound approach on health care wastes management in the Philippines with a special focus on the pandemic	10798	Philippines	Chemicals and Waste	Full-size Project	United Nations Industrial Development Organization	4,880,000	34,700,000	Concept Approved
Assessment of existing and future emissions reduction from the coal sector toward the implementation of the Minamata and Stockholm Conventions	10748	Global	Chemicals and Waste	Medium-size Project	United Nations Environment Programme	594,000	652,000	Project Approved
Environmentally sound management of hazardous wastes containing POPs and Mercury	10721	Panama	Chemicals and Waste	Full-size Project	United Nations Development Programme	2,730,000	26,050,020	Concept Approved
POPs and mercury-free solutions for environmentally sound waste management in Paraguay	10682	Paraguay	Chemicals and Waste	Full-size Project	United Nations Industrial Development Organization	4,000,000	27,830,000	Concept Approved
Reduce the impact and release of mercury and POPs in Vietnam through lifecycle approach and Ecolabel	10519	Viet Nam	Chemicals and Waste	Full-size Project	United Nations Development Programme	4,600,050	28,550,000	Concept Approved
Environmentally sound management of PCBs, Mercury and other toxic chemicals in Peru	10419	Peru	Chemicals and Waste	Full-size Project	United Nations Development Programme	4,725,000	34,019,215	Concept Approved
AFLDC-2 Scaling-up Investment and Technology Transfer to Facilitate Capacity Strengthening and Technical Assistance for the Implementation of Stockholm and Minamata Conventions in African LDCs	10218	Africa, Angola, Ethiopia, Gambia, Guinea, Liberia, Mauritania, Senegal, Sierra Leone, Togo, Uganda, Zambia, Regional	Chemicals and Waste	Full-size Project	African Development Bank	21,300,000	237,143,479	Concept Approved

Project Title	ID	Countries	Focal Areas	Type	Agencies	GEF Grant	Co-financing	Status
Environmentally Sound Management of POPs, Mercury and other Hazardous Chemicals in Argentina	10094	Argentina	Chemicals and Waste	Full-size Project	United Nations Development Programme	8,930,250	46,625,509	Project Approved
Develop the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs) and the Minamata Initial Assessment for the Minamata Convention on Mercury in Iraq	9690	Iraq	Chemicals and Waste	Enabling Activity	United Nations Environment Programme	800,000		Project Approved
Impact Investment and Capacity Building in Support of Sustainable Waste Management to Reduce Emissions of Unintentional POPs (UPOPs) and Mercury in West Africa	9371	Benin, Burkina Faso, Mali, Niger, Senegal, Togo, Regional	Chemicals and Waste	Full-size Project	West African Development Bank	15,924,771	130,797,229	Project Approved
Reducing UPOPs and Mercury Releases from Healthcare Waste Management, e-Waste Treatment, Scrap Processing and Biomass Burning	6928	Colombia	Chemicals and Waste	Full-size Project	United Nations Development Programme	5,800,000	32,915,018	Project Approved
Protect Human Health and the Environment from Unintentional Releases of POPs and Mercury from the Unsound Disposal of Healthcare Waste in Kyrgyzstan	5068	Kyrgyz Republic		Medium-size Project	United Nations Development Programme	1,425,000	7,032,109	Project Approved
Reducing UPOPs and Mercury Releases from the Health Sector in Africa	4611	Ghana, Madagascar, Tanzania, Regional	Chemicals and Waste	Full-size Project	United Nations Development Programme	6,453,195	28,936,164	Project Approved