Africa Environmental Health and Pollution Management Project - Ghana

Part I: Project Information

Name of Parent Program

EHPMP - Environmental Health and Pollution Management Program in Africa

GEF ID

9851

Project Type

FSP

Type of Trust Fund

GET

Project Title

Africa Environmental Health and Pollution Management Project - Ghana

Countries

Ghana

Agency(ies)

World Bank

Other Executing Partner(s):

Executing Partner Type

GEF Focal Area

Chemicals and Waste

Taxonomy

Transform policy and regulatory environments, Influencing models, Focal Areas, Chemicals and Waste, Persistent Organic Pollutants, Mercury, Waste Management, Stakeholders, Civil Society, Private Sector, Gender Equality, Gender results areas, Capacity, Knowledge and Research, Knowledge Generation, Knowledge Exchange, Artisanal and Scale Gold Mining, Uninentional Persistent Organic Pollutants, eWaste, Strengthen institutional capacity and decision-making, Convene multi-stakeholder alliances, SMEs, Project Reflow, Non-Grant Pilot, Local Communities, Academia, Non-Governmental Organization, Capacity Development, Knowledge Generation and Exchange, Twinning, Conference, North-South, Peer-to-Peer, South-South, Field Visit, Exhibit, Seminar, Training, Workshop

Rio Markers

Climate Change Mitigation

Climate Change Mitigation 0

Climate Change Adaptation

Climate Change Adaptation 0

Duration

60In Months

Agency Fee($)

784,404

A. Focal Area Strategy Framework and Program

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount($)	Co-Fin Amount($)
CW-2_P3	Outcome 3.1: quantifiable and verifiable tonnes of POPs eliminated or reduced	GET	4,587,156	30,200,000
CW-2_P4	Outcome 4.1 Mercury is reduced	GET	4,128,440	20,400,000
		Total Project Cost($)	**8,715,596**	**50,600,000**

B. Project description summary

Project Objective

Ghana: To reduce exposure to mercury and uPOPs pollution in pilot sites and strengthen the institutional capacity to manage and regulate mercury use in artisanal small-scale gold mining (ASGM) and e-waste. Overall PDO: To reduce exposure to mercury and uPOPs pollution in pilot sites and strengthen the institutional capacity to manage and regulate mercury use in artisanal small-scale gold mining (ASGM) and e-waste in selected countries in Africa.

Project Component	Component Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)

Project Component	Component Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 1: Institutional strengthening, knowledge and capacity building	Technical Assistance	Improved and regular environmental monitoring and inspections Improved effective monitoring of air, water and soil for mercury emissions Improved monitoring of open burning of ewaste	Guidelines and monitoring protocols for the management of mercury usage and waste in ASGM developed. Training materials developed and training delivered to different stakeholder groups on the new/amended legislation, regulations, and bylaws on waste management Stakeholder Mapping finalized (including private and informal sectors) A public health strategy to prevent exposure of artisanal and small-scale gold miners and their communities to mercury Support to strengthening of E-waste Management Regulations and Guidelines. Targeted study tours organized and partcipation in the regional platform events.	GET	1,900,000	16,050,000

Project Component	Component Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 2: Policy dialogue and regulatory enhancements	Technical Assistance	Policy framework for management of e-waste and mercury usage and disposal from ASGM sector	Development of strategy for promoting the reduction of emissions and releases of, and exposure to, mercury in ASGM and processing, including mercury-free methods A methodology for screening and evaluating health and environment risks associated with POPs releases and other hazardous chemicals developed Guidelines for screening and evaluating health and environment risks for artisanal gold miners developed (for Mercury). National Steering Committee established. Trainings for health-care workers and awareness-raising through health facilities	GET	1,900,000	8,050,000

Project Component	Component Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 3: Demonstrating application of technological tools and economic approaches	Investment	Increased number of ASGM miners using non-mercury methods; Reduced environmental health risks from POPs releases	Supporting a multi-stakeholder partnership (Minerals Commission, LSM companies, and District authorities) for a pilot program to develop environmentally responsible community mining, including a minimum quota for female entrepreneurs' participation Implementation of pilot to adopt of use of mercury replacement technologies by local manufacturers. Adoption of use of cleaner technologies for e-waste recycling in selected county-level pilots. improved treatment of POPs and hazardous waste. Stakeholder engagement and awareness raising on use of cleaner technologies for e-waste recycling.	GET	4,500,568	25,115,136
				Sub Total ($)	**8,300,568**	**49,215,136**
Project Management Cost (PMC)						
				GET	415,028	1,384,864
				Sub Total($)	**415,028**	**1,384,864**

Project Management Cost (PMC)			
	Total Project Cost($)	**8,715,596**	**50,600,000**

C. Sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount($)
GEF Agency	World Bank artisinal and small scale mining formalization (P168002)	Loans	50,000,000
Government	Government of Ghana	In-kind	600,000
		Total Co-Financing($)	**50,600,000**

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

Agency	Trust Fund	Country	Focal Area	Programming of Funds	NGI	Amount($)	Fee($)
World Bank	GET	Ghana	Chemicals and Waste	Mercury	No	4,128,440	371,560
World Bank	GET	Ghana	Chemicals and Waste	POPs	No	4,587,156	412,844
					Total Grant Resources($)	**8,715,596**	**784,404**

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)

PPG Required

☐

PPG Amount ($)

PPG Agency Fee ($)

Agency	Trust Fund	Country	Focal Area	Programming of Funds	NGI	Amount($)	Fee($)
				Total Project Costs($)		**0**	**0**

G. Projects' Target Contributions to Global Environmental Benefits

Corporate Results	Replenishment Targets	PIF Project Targets	Project Targets
1.Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society	Improved management of landscapes and seascapes covering 300 million hectare		
2.Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management		
3. Promotion of collective management of transboundary water systems and implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services	Water-food-ecosystems security and conjunctive management of surface and groundwater in at least 10 freshwater basin		
	20% of globally over-exploited fisheries(by volume) moved to more sustainable levels		
4. Support to transformational shifts towards a low-emission and resilient development path	750 millions of CO2e mitigated (include both direct and indirect)		
5. Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern	Disposal of 80,000 tons of POPs (PCBs, obsolete pesticides)		37.0
	Reduction of 1000 tons of Mercury		
	Phase-out of 303.44 tons of ODP (HCFC)		

Corporate Results	Replenishment Targets	PIF Project Targets	Project Targets
6. Enhance capacity of countries to implement MEAs (multilateral Environmental agreements) and mainstream into national and sub-national policy, planning financial and legal frameworks	Development and sectoral planning frameworks integrate measurable targets drawn from the MEA in atleast 10 countries		1.0
	Functional environmental information systems are established to support decision-making in atleast 10 countries		1.0

Core Indicators

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

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
0.00	37.00	0.00	0.00

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

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

Indicator 9.2 Quantity of mercury reduced (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
	37.00		

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female		700		
Male		1,300		
Total	0	2000	0	0

PART II: Project JUSTIFICATION

Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

This is a child project under the overall program and has been developed within the context of implementing a regional approach to improve the management and reduce exposure to mercury and UPOPs. As designed the components of the Ghana child project contribute towards strengthening institutional capacity to manage mercury in AGSM in Ghana as well as e-waste to help address the goal of addressing pollution management and environment health issues at the national and regional levels. The PID provides individual country level annexes detailing the component contributions and activities which are aligned with the PFD.

Stakeholders

Please provide the Stakeholder Engagement Plan or equivalent assessment.

Please see the detailed Stakeholder Engagement Plan (SEP) included in the package. Stakeholders engagement is a key element of the project and key stakeholders are identified in the SEP.

The project's primary audience includes the Governments entities in particular the Ministries of Environment, Industries, Mines, Chemicals, ICT and Health as relevant, their regulatory enforcement agencies, and municipalities. They will benefit from the enhancement of policies, and development of guidelines and monitoring systems for the management of mercury and hazardous chemical waste, including e-waste.
The project's secondary audience will be industries, industry associations, NGOs, including CBOs, local organizations and communities affected by harmful chemicals and wastes. They will be actively involved in the design and implementation of country projects

Documents

Title	Submitted

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.

In general, the project will work closely with community-based organizations, private sectors, NGOs and local communities as relevant, who are invested in pollution management issues, including opportunities for income generation and green job opportunities. This engagement will go beyond consultation to actively involve communities in the design and implementation of child projects and in the learning across the Program. Special attention will be given to ensure the participation of indigenous people and local communities at the site level if applicable. It has been obvious that indigenous and local communities play a crucial role in environmental governance as traditional knowledge and practices can be used to manage and preserve natural areas as well as restore polluted or contaminated areas.

Also, being part of the overall program, the regional coordination project will establish the coordination framework for the Program and will enable a sustained communication with and among Program stakeholders through stakeholder consultations at the national and regional levels to support all components

Stakeholders Engagement and Information Disclosure: A wide range of stakeholders have been consulted and their roles and responsibilities have been clearly defined in the SEP. Stakeholders will be actively involved in decision making and project implementation processes through established project implementation framework. A Communication Strategy will be prepared to keep stakeholders informed on the project progress. This will ensure appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner format.

Key stakeholders in Ghana are the proposed implementing entities are the Environmental Protection Agency (EPA) under the Ghana Ministry of Environment Science, Technology, and Innovation (MESTI) and the Minerals Commission (MC) under the Ministry of Lands and Natural Resources (MLNR), both entities responsible for regulating and monitoring mercury use in ASGM in accordance with the country's mining laws. EPA will also be responsible for regulating and monitoring e-waste management, following Article 6 of the Stockholm Convention on wastes and relevant guidance and will lead the pilot project in Agbogbloshie in collaboration with the Accra Metropolitan Assembly.

ASGM: Two entities, the **Environmental Protection Agency (EPA)** under the Ghana Ministry of Environment Science, Technology, and Innovation (MESTI) and the **Minerals Commission (MC)** under the Ministry of Lands and Natural Resources (MLNR), will be responsible for regulating and monitoring mercury use in ASGM in accordance with the country's mining laws.

E-waste: The **EPA** and the local authority **Accra Metropolitan Assembly (AMA)** under the Ghana Ministry of Local Government and Rural Development (MoLGRD) will be responsible for regulating and monitoring the country's e-waste management, following Article 6 of the Stockholm Convention on wastes and relevant guidance and will lead the pilot project in Agbogbloshie.

Select what role civil society will play in the project:

Consulted only; Yes

Member of Advisory Body; Contractor;

Co-financier;

Member of project steering committee or equivalent decision-making body;

Executor or co-executor;

Other (Please explain) Yes

Engaged, consulted, trained.

Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assessment.

1. The SEP and Environment and Social Management Framework (ESMF) capture the gender considerations for the project and are attached to the package. As the specific sites are confirmed during the first year, site specific gender analysis as part of the socio economic assessment will be conducted.

Documents

Title	Submitted

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

Yes

If yes, please upload document or equivalent here

The project as designed will provide opportunities for women to increase benefits and minimize health risks. As mentioned, it will undertake site specific gender analysis as part of the socio-economic assessment (once the site selection is confirmed); will highlight best practices in integrating gender aspects in "empowerment" activities; and will help improve their livelihoods and scope of decision making. Specifically, under component 2, gender considerations will be integrated as part of the policy dialogue to build women's capacity to actively participate and have a voice in key decision-making, while providing dialogue platforms that are inclusive and action-oriented. Under components 1 and 3, the project will address various gender gaps in access to information (e.g. on safety measures, adoption to cleaner technology, availability of training and other public programs) and opportunities for decent work terms and conditions.

Women have the potential to play an important role in behavioral change that could significantly reduce exposure of children to hazardous environment, and can therefore play an important role in changing health seeking behavior, including mitigation of health impacts due to lead poisoning. Thus, the project has a strong emphasis on inclusion of women in the sensitization and communication campaign, participation in the health interventions that target affected children, and local level nutritional support, livelihood support activities. In addition, the project will build upon selected municipalities that have already implemented a number of initiatives targeting groups such as women headed households, the elderly, the disabled and youth. The project will provide special attention to these groups with dedicated grant opportunities under subcomponent 3.2 and targeted sensitization and education campaigns.

In the context of Ghana an estimated 30% of world's artisanal miners are women who occupy several roles ranging from labor-intensive mining methods to the processing aspect of artisanal mining, and thus this project within the overall program presents an opportunity to provide a rationale and strategy for women to maximize potential benefits from participation in the sector. The main approaches to support women's roles and health in the ASGM and recycling (from dumpsites and from electronic waste) sectors, would include addressing the associated environmental health risks. This would require increased and targeted communication and awareness of the risks, building capacity and supporting in adoption of clean technologies (e.g. training, small loans to purchase equipment and protective gear). Women who occupy administrative positions at artisanal mine sites (e.g. as bookkeepers) and spouses may also be able to advocate better practices. The project will consider implementation of targeted training programs to train women in various aspects of mining and recycling as well as in marketing, management and bookkeeping.

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 Yes

Generating socio-economic benefits or services or women Yes

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

No

While the project does not include a specific indicator for gender action, several activities as relevant will measure success and report results disaggregated by gender.

PART III: Certification by GEF partner agency(ies)

A. GEF Agency(ies) certification

GEF Agency Coordinator	Date	Project Contact Person	Telephone	Email
Shaanti Kapila	4/16/2020	Gayatri Kanungo	2024587870	skapila@worldbank.org

ANNEX A: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS.

A. Provide detailed funding amount of the PPG activities financing status in the table below:

N/A

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

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

N/A

ANNEX C: GEF 7 Core Indicator Worksheet

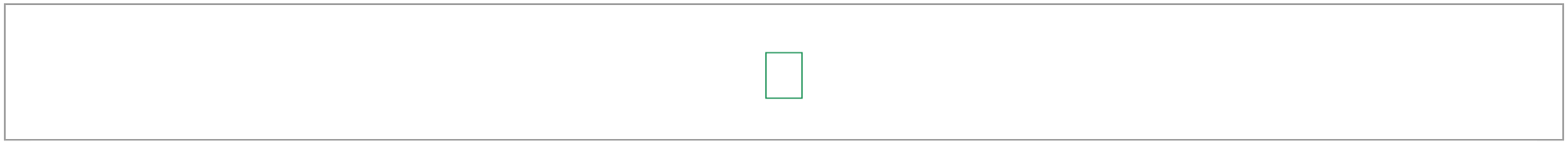
Use this Worksheet to compute those indicator values as required in Part I, Table G to the extent applicable to your proposed project. Progress in programming against these targets for the program will be aggregated and reported at any time during the replenishment period. There is no need to complete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

GEF-7 Core Indicator Worksheet attached in the GEF portal

ANNEX: Project Taxonomy Worksheet

Use this Worksheet to list down the taxonomic information required under Part1 by ticking the most relevant keywords/topics//themes that best describes the project

GEF-7 Taxonomy Worksheet attached in the GEF portal



Submitted to GEF Secretariat Review

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GEF-6 REQUEST FOR PROJECT ENDORSEMENT/APPROVAL

PROJECT TYPE: Full-sized Project
TYPE OF TRUST FUND:GEF Trust Fund

For more information about GEF, visit TheGEF.org

PART I: PROJECT INFORMATION

Project Title: Reducing environmental health risks in artisanal gold mining and e-waste in Ghana			
Country(ies):	Ghana	GEF Project ID:[1]	9851
GEF Agency(ies):	WB (select) (select)	GEF Agency Project ID:	P167788
Other Executing Partner(s):	Ministry of Environment Science, Technology and Innovations (MESTI)	Submission Date:	2018-11-29
GEF Focal Area (s):	Chemicals and Wastes	Project Duration (Months)	60
Integrated Approach Pilot	IAP-Cities ☐ IAP-Commodities ☐ IAP-Food Security ☐		Corporate Program: SGP ☐
Name of Parent Program	Environmental Health and Pollution Management (9444)	Agency Fee ($)	784,404

A. FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES[2]

Focal Area Objectives/Programs	Focal Area Outcomes	Trust Fund	(in $) GEF Project Financing	(in $) Co-financing
(select) CW-2 Program 3 (select)	Outcome 3.1.: Quantifiable and verifiable tonnes of POPs eliminated or reduced.	GEFTF	4,587,156	20,250,000
(select) CW-2 Program 4 (select)	Outcome 4.1.: Mercury is reduced.	GEFTF	4,128,440	30,800,000
(select) (select) (select)		(select)		
(select) (select) (select)		(select)		
(select) (select) (select)		(select)		
(select) (select) (select)		(select)		
(select) (select) (select)		(select)		
(select) (select) (select)		(select)		
	Total project costs		8,715,596	51,050,000

B. PROJECT DESCRIPTION SUMMARY

Project Objective: To strengthen the institutional capacity to manage and regulate mercury use in ASGM and e-waste in selected countries in Africa (Ghana).

Project Components/ Programs	Financing Type[3]	Project Outcomes	Project Outputs	Trust Fund	(in $) GEF Project Financing	(in $) Confirmed Co-financing
Component 1: Institutional strengthening, knowledge and capacity building	TA	Improved and regular environmental monitoring and inspections Improved effective monitoring of air,	Guidelines and monitoring protocols for the management of mercury usage and waste in ASGM developed.	GEFTF	1,900,000	20,050,000

[1] Project ID number remains the same as the assigned PIF number.
[2] When completing Table A, refer to the excerpts on *GEF 6 Results Frameworks for GETF, LDCF and SCCF*.
[3] Financing type can be either investment or technical assistance.

		water and soil for mercury emissions Improved monitoring of open burning of ewaste	Training materials developed and training delivered to different stakeholder groups on the new/amended legislation, regulations, and bylaws on waste management Stakeholder Mapping finalized (including private and informal sectors) A public health strategy to prevent exposure of artisanal and small-scale gold miners and their communities to mercury Support to strengthening of E-waste Management Regulations and Guidelines. Targeted study tours organized and partcipation in the regional platform events.			
Component 2: Policy dialogue and regulatory enhancements	TA	Policy framework for management of e-waste and mercury usage and disposal from ASGM sector	Development of strategy for promoting the reduction of emissions and releases of, and exposure to, mercury in ASGM and processing, including mercury-free methods A methodology for screening and evaluating health and environment risks associated with POPs releases and other hazardous chemicals developed Guidelines for screening and evaluating health and environment risks for artisanal gold miners developed (for Mercury). National Steering Committee established. Trainings for health-care	GEFTF	1,900,000	10,000,000

			workers and awareness-raising through health facilities			
Component 3: Demonstrating application of technological tools and economic approaches	Inv	Increased number of ASGM miners using non-mercury methods; Reduced environmental health risks from POPs releases	Supporting a multi-stakeholder partnership (Minerals Commission, LSM companies, and District authorities) for a pilot program to develop environmentally responsible community mining, including a minimum quota for female entrepreneurs' participation Implementation of pilot to adopt of use of mercury replacement technologies by local manufacturers. Adoption of use of cleaner technologies for e-waste recycling in selected county-level pilots. improved treatment of POPs and hazardous waste. Stakeholder engagement and awareness raising on use of cleaner technologies for e-waste recycling.	GEFTF	4,500,568	19,165,136
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
			Subtotal		8,300,568	49,215,136
			Project Management Cost (PMC)[4]	GEFTF	415,028	1,834,864
			Total project costs		8,715,596	51,050,000

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	Amount ($)

[4] For GEF Project Financing up to $2 million, PMC could be up to10% of the subtotal; above $2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

GEF Agency	World Bank Artisanal and Small-scale Mining Formalization (P168002)	Loans	50,000,000
Recipient Government	Government of Ghana	In-kind	1,050,000
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
Total Co-financing			51,050,000

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

GEF Agency	Trust Fund	Country Name/Global	Focal Area	Programming of Funds	(in $)		
					GEF Project Financing (a)	Agency Fee [a)] (b)[2]	Total (c)=a+b
WB	GEF TF	Ghana	Chemicals and Wastes	POPS	4,587,156	412,844	5,000,000
WB	GEF TF	Ghana	Chemicals and Wastes	Mercury	4,128,440	371,560	4,500,000
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
Total Grant Resources					8,715,596	784,404	9,500,000

a) Refer to the Fee Policy for GEF Partner Agencies

E. PROJECT'S TARGET CONTRIBUTIONS TO GEF 6 CORE INDICATORS

Update the relevant sub-indicator values for this project using the methodologies indicated in the Core Indicator Worksheet (as used in GEF 7 Endorsement template – Annex E) 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 CO2e)	
7	**Number of shared water ecosystems** (fresh or marine) under new or improved cooperative management	
8	Globally over-exploited **marine fisheries** moved to more sustainable levels (metric 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)	37 metric tons of mercury
10	Reduction, avoidance of emissions of **POPs to air** from point and non-point sources (grams of toxic equivalent gTEQ)	*0
11	Number of **direct beneficiaries disaggregated by gender** as co-benefit of GEF investment	2000 (of which 700 are female)

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

*Note for Core Indicator 9: Reports on mercury reduction (in Metric tons) as approved under the GEF-6 focal area objective. The program does not involve disposal of PCBs or obsolete pesticides and so the indicator of tons of POPs disposed of in Table E cannot be applied directly.

Note for Core Indicator10: As approved in the PFD, the Program directly contributes to GEF-6 Corporate Result #5 Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern. In line with GEF-6 Programming Directions for Chemicals and Waste and with Stockholm convention obligations, global environmental benefits as relates to POPs will accrue in particular from release reduction of unintentionally produced POPs, preliminary estimated at 12gTEQ/year using the UNEP toolkit taking into account replication, as well as release reduction of brominated flame retardants.The program does not involve disposal of PCBs or obsolete pesticides and the indicator of tons of POPs disposed of in Table E cannot be applied directly

F. PROJECT TAXONOMY

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

Level 1	Level 2	Level 3	Level 4
Influencing Models	Strengthen institutional capacity/decision-making	(multiple selection)	(multiple selection)
Stakeholders	Beneficiaries	(multiple selection)	(multiple selection)
Capacity, Knowledge and Research	Knowledge Generation and Exchange	(multiple selection)	(multiple selection)
Gender Equality	Gender results areas	(multiple selection)	(multiple selection)
Focal Area/Theme	Chemicals and wastes	(multiple selection)	(multiple selection)
Rio Markers	Climate Change Adaptation 0		

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN WITH THE ORIGINAL PIF[5]

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

See Project Document.

A.2. Child Project? If this is a child project under a program, describe how the components contribute to the overall program impact.

Yes, see Project Document.

A.3. 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 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) Participation in activities, as relevant.

A.4. 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☒)

[5] For questions A.1 –A.7 in Part II, if there are no changes since PIF , no need to respond, please enter "NA" after the respective question.

[6] For biodiversity projects, in addition to explaining the project's consistency with the biodiversity focal area strategy, objectives and programs, please also describe which Aichi Target(s) the project will directly contribute to achieving..

A.5 Risk. 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):

A.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.

Additional Information not well elaborated at PIF Stage:

A.7 *Benefits.* Describe the socioeconomic benefits to be delivered by the project at the national and local levels. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

A.8 *Knowledge Management.* Elaborate on the knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives (e.g. participate in trainings, conferences, stakeholder exchanges, virtual networks, project twinning) and plans for the project to assess and document in a user-friendly form (e.g. lessons learned briefs, engaging websites, guidebooks based on experience) and share these experiences and expertise (e.g. participate in community of practices, organize seminars, trainings and conferences) with relevant stakeholders.

B. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

B.1 *Consistency with National Priorities.* Describe the consistency of the project with national strategies and plans or reports and assessements under relevant conventions such as NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, etc.:

C. DESCRIBE THE BUDGETED M &E PLAN: See Project Document.

PART III: CERTIFICATION BY GEF PARTNER AGENCY(IES)

A. GEF Agency(ies) certification

This request has been prepared in accordance with GEF policies[7] and procedures and meets the GEF criteria for CEO endorsement under GEF-6.

Agency Coordinator, Agency Name	Signature	Date (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
Emilia Battaglini (GEF Program Manager, WB)		11/26/2018	Gayatri Kanungo	202-522-0703	gkanungo@worldbank.org

[7] GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, and SCCF

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).
See Annex C of the PAD

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

See attached Matrix of Responses

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS[8]

A. Provide detailed funding amount of the PPG activities financing status in the table below:

PPG Grant Approved at PIF:			
Project Preparation Activities Implemented	***GEF/LDCF/SCCF Amount ($)***		
	Budgeted Amount	***Amount Spent Todate***	***Amount Committed***
Total	0	0	0

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

N/A

Annex E: GEF 7 Core Indicator Worksheet
Use this Worksheet to compute those indicator values as required in Part I, Table E to the extent applicable to your proposed project. Progress in programming against these targets for the program will be aggregated and reported at any time during the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCF.
N/A

*Note for Core Indicator 9: Reports on mercury reduction (in Metric tons) as approved under the GEF-6 focal area objective. The program does not involve disposal of PCBs or obsolete pesticides and so the indicator of tons of POPs disposed of in Table E cannot be applied directly

Note for Core Indicator10: As approved in the PFD, the Program directly contributes to GEF-6 Corporate Result #5 Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern. In line with GEF-6 Programming Directions for Chemicals and Waste and with Stockholm convention obligations, global environmental benefits as relates to POPs will accrue in particular from release reduction of unintentionally produced POPs, preliminary estimated at 12gTEQ/year using the UNEP toolkit taking into account replication, as well as release reduction of brominated flame retardants.The program does not involve disposal of PCBs or obsolete pesticides and the indicator of tons of POPs disposed of in Table E cannot be applied directly

Annex F: GEF Project Taxonomy Worksheet

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

See attached file.

Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 28-Nov-2018 | Report No:

BASIC INFORMATION

A. Basic Project Data

Country	Project ID	Project Name	Parent Project ID (if any)
Africa	P167788	Africa Environmental Health and Pollution Management Program	
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
AFRICA	30-Jan-2019	30-April-2019	Environment & Natural Resources
Financing Instrument	**Borrower(s)**	**Implementing Agency**	**GEF Focal Area**
Investment Project Financing	Republic of Kenya, Republic of Ghana, Republic of Zambia, United Republic of Tanzania, Republic of Senegal	The National Environmental Management Council (NEMC), Environmental Protection Agency (EPA), National Environmental Management Authority (Ministry of Environment and Forests), Zambia Environmental Management Agency, Division de l'Environnement et des Etablissements Classés - DEEC	Persistent Organic Pollutants

Proposed Development Objective(s)

The program aims to strengthen the institutional capacity to manage and regulate mercury use in ASGM and e-waste in selected countries in Africa.

Components

Institutional Strengthening, Knowledge and Capacity Building

Policy Dialogue and Regulatory Enhancements

Demonstrating Application of Technological Tools and Economic Approaches

Contents

I. STRATEGIC CONTEXT

A. Regional Context

1. **Africa's economic growth is forecast to rise to 3.8 percent in 2018**[1]**.** The upward growth trend is likely to sustain if the African economy succeeds in reviving national and regional industrialization. The industrial sector is progressively gaining ground in many African countries. It represents 4 to 32 percent of the national GDPs in most African countries[2]. Undoubtedly, the pace of industrialization will be influenced by the changes in international demand and international prices, but sooner or later industrial growth will lead to increased production and consumption, and higher exploitation and processing of Africa's mineral and natural resources. This, in turn will lead to more environmental pollution and degradation.

2. **The continent's urbanization rate, the highest in the world, and the drive towards industrialization can lead to economic growth, transformation, and poverty reduction.** However, it can also lead to increased inequality, urban poverty, and the proliferation of slums, while exploitation and processing of the resources can, and has, resulted in environmental pollution and degradation. African Governments face challenges related to inadequate capacity to effectively monitor the use of chemicals, lack of capacity for regulation and weak enforcement, lack of access to cleaner production systems, technologies for waste management and availability of information.

3. **Most Sub-Saharan African countries have already experienced multiple environmental-health challenges related to inadequate capacity to effectively monitor the use of chemicals, and management of chemical waste.** Institutions lack effective regulations and enforcement, producers lack access to clean production and waste management technologies, and the public has no information on environmental-health risks. Nearly 35% of the deaths in sub-Saharan Africa are linked to environmental hazards from toxic chemicals. Diseases caused by pollution were estimated to have caused 9 million premature deaths in 2015, which was 16% of all deaths worldwide and three times more than deaths from AIDS, tuberculosis and malaria combined, and 15 times more than from all wars and other forms of violence.[3]

4. **Industrial growth, unplanned urban infrastructure, exploitation of natural resources (mining) are associated with the generation and the release of toxic chemicals and hazardous waste that enter the environment and the food chain and have potential health impacts on humans.** Africa has witnessed significant increase in trade of hazardous materials that is reflected in its significant share of toxic contaminated sites. The mismanagement of chemicals, releases of unintentionally produced POPs (UPOPs) from open-burning and other sources, stockpiles and chemical waste including persistent organic pesticides, polychlorinated biphenyls (PCBs) and heavy metals such as mercury, and releases of chemicals in products such as polybrominated diphenyl ethers (PBDEs) and other brominated flame retardants present serious

[1] AfDB: African Economic outlook 2017

[2] Ibid

[3] Lancet, 2018; 391: "The Lancet Commission on pollution and health": 462-512

threats to human well-being and the environment in many parts of Africa.

5. **The chemical waste challenge experienced by many sub-Saharan African countries is on par with global trends.** More than 200 million people around the world are at risk of exposure to toxic waste[4]. Pollution is the leading cause of death in low- and middle-income countries with estimated 23% of the total deaths in the developing world being attributable to environmental factors (World Bank, WHO 2015). Globally, estimated 3.5 million people are at risk of the health impacts from artisanal and small-scale gold mining (ASGM), of which 2.5 million are in Africa[5]. The complexity of unresolved chemical waste management issues in the region necessitates the proposed Bank assistance to strengthen the institutional interface and capacity of sub-Saharan countries to coordinate and synergize their efforts to improve chemical and related waste management and reduce associated risks.

6. Among the most critical pollution management issues in Sub-Saharan Africa are those related to mercury use in ASGM sector and management of e-waste:

   a. **Artisanal and Small-scale Mining (ASGM):** Rising international gold prices are pushing more people to ASGM that is becoming an attractive employment alternative for struggling farmers, poor rural communities, and migrant laborers. For instance, the ASGM workforce in Ghana and Tanzania is estimated at more than 1 million people in each country[6]. In Tanzania the ASGM sector contributes approximately 10% of its gold production. Mercury, a heavy metal highly toxic to humans, is used as an amalgamation agent in ASGM operations with significant health and economic consequences beyond direct health risks to miners and their families. The informal, illegal and unregulated nature of mercury use in such operations has created a legacy of severe adverse (and irreversible) environmental and health damage. Mercury contamination poses potentially serious economic consequences to the lucrative local and regional fisheries with potentially grave economic consequences due to its bio-accumulation in the food chain[7]. It is therefore a priority to reduce, and where feasible, eliminate mercury use in artisanal and small-scale gold mining. Institutional capacity to monitor use of mercury as well as its health and environmental consequences is limited. There are ongoing global efforts by donors, multilateral organizations, industrial associations, academia as well as civil society organizations to advance the formalization of ASGM, considering that such an approach will reinforce inclusive growth and sustainable development and promote the sound management of mercury in affected countries.

   b. **Electrical and electronic waste (e-waste):** The global generation of e-waste, currently growing at an annual rate of 5%, is expected to reach 49 million tons by 2018. Improper e-waste management contributes significantly to the increasing environmental health risks in sub Saharan Africa. Over the past 20 years, the market for Information and Communication Technologies (ICT) has grown exponentially and is estimated to be the fastest growing waste stream in the world at 20-50 million tons per year. The issue of e-waste has been migrating to developing countries in both Asia and Africa;

[4] Blacksmith Institute and Green Cross 2013
[5] UNEP's Global Mercury Assessment of 2013
[6] UNDP, 2013; World Bank Indicators, 2014
[7] UNEP's Global Mercury Assessment of 2013

countries which typically do not have the resources or infrastructure to manage the high volume of hazardous wastes. Around 80 percent of the e-waste is shipped, often illegally, to developing countries for recycling. Recognizing that e-waste challenge is on the rise and that current policies and practices are insufficient, a growing number of countries are adopting e-waste legislation to address this challenge. E-waste is expensive to treat in an environmentally sound manner and many developing countries lack the specific regulations and necessary, adequate infrastructure, and technologies to implement 'win-win' solutions of this growing challenge. E-waste is a valuable commodity with more than 92% recoverable and reusable commodities, containing precious metals including gold, silver, copper, platinum, and palladium, as well as valuable bulky materials such as iron and aluminum, along with plastics that can be recycled. Overall, UNU estimates that the resource perspective for secondary raw materials of e-waste is worth 55 Billion € of raw materials. Recycling of e-waste provides great business opportunities due to the high economic value of the materials. However, improper e-waste processing poses a serious hazardous waste problem. Recycling techniques such as burning cables for copper expose workers as well as their families to a range of hazardous substances. Open burning of non-segregated urban wastes and other toxic wastes (including e-waste, plastics containers, tires, etc..), result in incomplete combustion and release of unintentionally produced POPs (UPOPs) and pose a public health risk. The process generates harmful emissions that pollute the air, heavy metals and toxic chemicals that accumulate in soil and water causing food poisoning and serious health risks to workers and neighboring communities. Poor children in developing countries are especially vulnerable to these health risks as they are often forced to work in recycling of these materials or live in proximity of recycling facilities or their family members are often recycling at home. The widespread and unregulated dumping of municipal solid waste (MSW), comingled with hazardous, industrial and medical waste in urban areas is posing serious challenges in Africa where many cities are getting rapidly urbanized. Reducing open-burning practices and improving solid waste management leads directly to the reduction of releases and exposure from POPs, in particular from UPOPs. As can be seen from their NIPs, open-burning is a significant source of UPOPs releases in the participating countries, and a priority for Stockholm convention implementation. Improving e-waste management including addressing unsound recycling practices leads directly to POPs release and exposure reduction, notably from UPOPs and PBDEs.

7. **African Governments face challenges related to inadequate capacity to effectively monitor the use of chemicals**, lack of capacity for regulation and weak enforcement, lack of access to cleaner production systems, technologies for waste management and availability of information.

B. Sectoral and Institutional Context

8. **Africa is heavily dependent on import of chemicals since chemical production in Africa is still limited. To meet their developmental needs, African countries import chemicals for industry, domestic and agricultural use.** Trade liberalization and free trade industrial zones facilitates chemical trade across borders and continents. Many African countries lack the capacity and knowledge to assess and monitor the risks associated with the trade of chemicals and products containing chemicals. There are also concerns that African countries import chemicals that have been rejected by the industrialized countries. The transboundary trade of hazardous chemicals such as mercury, and heavy metals in e-waste, has also become

a public health concern due to the lack of knowledge on environmentally sustainable alternatives and proper quality control of products. African farmers have greatly increased their use of chemical-based pesticides and Persistent Organic Pollutants are still being used or stocked in make-shift stores where the dangers and risks due to exposure are enormous. **The problem of trade (in mercury and e-waste) and improper recycling and disposal of heavy metals is particularly acute in Africa, where environmental monitoring and regulatory enforcement is relatively weak.**

9. **Many African countries have introduced sector policies, enacted legislation and set up institutions for environmentally sound management of chemicals.** However, major concerns of human health hazards extend to heavy metal poisoning from metals like cadmium and mercury where regulations failed to protect vulnerable people. The latter is especially of importance due to its extensive use in small-scale mining in resources rich African countries.

10. **The Environment and Natural Resources GP conducted a mercury trade study diagnostic study in eight countries in Africa, namely, Burkina Faso, Côte d'Ivoire, DR Congo, Ghana, Senegal, Tanzania, Uganda, and Zimbabwe, measuring mercury consumption and trade-flows in these countries. It is estimated that gold production from large and small-scale mining in Africa accounts for about 45% of total mercury emissions on the continent**[8]**.** 90 to 95% of the mercury used in many African nations is obtained illegally and/or smuggled from neighboring nations (source). ASGM is the largest mercury user and demand sector in the region and globally, however there is limited data and knowledge about the amount of mercury used or the severity and extent of mercury contamination and its health, environmental, and social impacts. ASGM has been consistently listed as a driver of deforestation and a major source of water and soil pollution with serious impacts on human and environmental health.

11. **Effective regulations combined with incentives would help the governments to deliver on their commitments under Multilateral Environmental Agreements (MEAs) the (e.g, the Stockholm Convention on protecting human health and the environment from Persistent Organic Pollutants (POPs), Minamata Convention on mercury, the Basel convention on controlling transboundary movements of hazardous wastes and their disposal).** As signatory to the Minamata and Stockholm Conventions, participating countries will need to start phasing out the use of mercury and reduce releases of unintentional POPs. Legislation on chemicals management is still new in most African countries. Except for a few countries like Ghana, there are no policies in place to manage or control the use and/or importation of mercury. While at various stages of putting in place relevant policies and environmental legislation to support implementation of their commitments, many African countries must meet their obligations under these international conventions.

12. **Most African countries are now aware of and concerned with the dangers inherent to poor management of e-waste.** However, the legal and infrastructural framework for achieving sound management remains far from realized in most countries. An assessment supported by the Basel Action Network (BAN) tracking global movement of e-waste found that around one-third of the e-waste tracked

[8] Dabrowski JM, Ashton PJ, Murray K, Leaner JJ, Mason RP. Anthropogenic mercury emissions in South Africa: Coal combustion in power plants. Atmos Environ 2008; 42: 6620-6626.

in the US ended up in developing countries. A study commissioned by the World Bank[9] indicates that Ghana, Kenya and Nigeria have the highest levels of e-waste in the region due to their growing involvement in ICT imports, recycling and refurbishing. The global e-waste trade is growing exponentially. Countries such as Senegal and Uganda can expect e-waste flows from computers alone to increase four- to eightfold by 2020[10] . Many African countries have begun showing increasing concerns and interest in adopting comprehensive and integrated approaches to solving the e-waste problem.

13. **The Minamata Convention on mercury, aims to regulate anthropogenic emissions and releases of mercury and its compounds to protect human health and the environment.** Tanzania, Kenya, Ghana and Zambia signed the Minamata Convention and thus undertaking a commitment to reduce and where feasible eliminate, mercury use in artisanal and small-scale gold mining. They will benefit from harmonizing countries' efforts in addressing institutional capacity gaps at national and regional levels and shifting to sound management of chemicals and waste through measures that are fully integrated into budgets and sector level plans. The implementation of national programs for management of chemical waste will benefit from a shared regional platform for knowledge management, communication, partnership in policy dialogue, and capacity development. Country programs and coordinated measures are likely to have a larger impact if viewed through a regional lens. Hence, the prosed regional approach to enable adoption of a more inclusive and comprehensive mechanism to address cross-border issues related to trade of hazardous materials. An effort to tackle these issues at a regional scale will help increase the sustainability of the Program.

14. **While each country faces a unique challenge regarding e-waste policies, regulation, and institutional capacity, there are common root causes in the region, that would benefit from consistency across national borders and a coordinated regional response.** These include:
    - Lack of existing data on e-waste, including the extent of open burning on urban waste disposal sites
    - Weak regulations on imports of second-hand electronic goods and unclear exports labeling standards resulting in illegal imports of e-wastes
    - Flouting of Basel Convention regulations by 'importers'
    - Difficulty tracking the flow of products over borders in personal luggage or other smuggling operations;
    - Under-funded and under-trained Customs officials, and
    - Lack of financial resources to enforce regulations where they exist.

15. **At national level specific factors that undermine national efforts to address human health risks associated with mercury and e-waste in the region are:** a) illegal trade (mercury and e-waste), b) informal recycling of e-waste, c) inadequate hazardous waste management infrastructure for proper treatment and disposal of hazardous waste, d) weak institutions, lack of monitoring and lack of awareness

[9] The World Bank 2014: Green ICT: Sustainable E-waste Management in Sub-Saharan Africa

[10] Lindgren K. The global impact of e-waste: addressing the challenge / Karin Lundgren; International Labour Office, Programme on Safety and Health at Work and the Environment (SafeWork), Sectoral Activities Department (SECTOR). – Geneva: ILO, 2012

of risks; and e) lack of coordination and shared objectives among key stakeholders on addressing harmful impacts.

16. **Sub Saharan Africa countries are at various stages of putting in place relevant policies and environmental legislation to support implementation of their commitments under the international conventions.** Legislation on chemicals management is still new in most of the countries. Except for a few countries like Ghana, there are no policies in place to manage or control the use and/or importation of mercury. Zambia has tackled to some extend objectively the costing of environmental liabilities in the extractive industry including in small scale mining companies that are a major sources pollution. Due to weak enforcement, however not all measures that have been put in place by government to ensure that the environmental degradation caused by mining activities are adequately managed, are not working effectively[11].

17. **There are no specific policies to ensure recognition of chemical management as a national priority, and to mainstream it into national development plans and strategies.** The functional organization and institutional and staff capacity are incompatible with the needs for robust reporting on chemical incidences and managing a comprehensive inventory of chemicals and chemical wastes, and to ultimately reduce their environmental and health effects across sectors. Private sector has little incentive to engage and participate along with civil society and governments in discussions and decisions regarding chemicals management. There is no comprehensive national data on chemicals or adequate monitoring of chemical residues, nor on environment and human impacts. Lack of up-to-date information systems has made informed decision making difficult. Often there are overlaps and incompatibility in the existing national legislation, conflicting institutional functions, and interests, competing sector priorities and low level of public awareness on issues related to chemical management which impairs a policy shift.

Rational for the regional approach

18. **Multiple and fragmented approaches to deal with specific chemicals have not yielded the expected results.** The rationale behind this Program proposal is the fact that past experiences have shown that isolated policy and regulatory reform interventions in one country may not necessarily produce significant results, but rather run the risk of shifting the problem toward other countries where regulations and enforcement are weak. There have been many programs which have been implemented in the region by various development agencies, funded under GEF, and by bilateral donors. Although the coverage of GEF POPs activities is broad, most of the programs have been site-specific and uncoordinated, which has prevented a sustained and comprehensive impact on the management of hazardous chemicals, resulting in minimal improvement on environmental health and pollution impacts. Emerging recommendations from the studies and assessments conducted during the preparation of this program support a need to harmonize efforts and to understand the institutional capacity constraints and their economic, environmental and social implications both at the national and regional levels.

[11] Cuthbert Casey Makondo, Sydney Sichilima, Matthews Silondwa, Richard Sikazwe, Lombe Maiba, Chawezi Longwe, Yvonne Chiliboyi. Environmental Management Compliance, Law and Policy Regimes in Developing Countries: A Review of the Zambian Case. International Journal of Environmental Protection and Policy. Vol. 3, No. 4, 2015, pp. 79-87. doi: 10.11648/j.ijepp.20150304.11

19. **Some of these barriers have been addressed at country level through multiple initiatives under the framework of Multilateral Environment Conventions.** They present an opportunity to engage on environmental health issues at regional level also. The Minamata Convention on Mercury provides an opportunity to catalyze policy reforms to protect human health and the environment from the adverse effects of a toxic compound. The Stockholm Convention is a global treaty to protect human health and the environment from persistent organic pollutants (POPs). The Strategic Approach to International Chemicals Management (SAICM) is a policy framework to foster the sound management of chemicals. Under the Stockholm Convention, a total of 26 chemical substances are listed as POPs, including pesticides (such as DDT), industrial chemicals (such as PCBs) and unintentional by-products of industrial or combustion processes (such as dioxins and furans or "UPOPs"). The program would leverage partnerships developed and build on initiatives under the Stockholm and Minamata conventions, as well as under the Basel convention as appropriate. Various guidance documents have been developed by the Stockholm Convention to help parties fulfil their obligations. The Stockholm and Basel conventions, which share a joint Secretariat have also established a network of regional and sub regional centers to provide technical assistance and to promote transfer of technologies, including four in sub-Saharan Africa, two of which are joint. Under the Basel convention, the Partnership for Action on Computing Equipment (PACE) was launched in 2008 that includes public and private multi-stakeholders providing a forum for representatives of personal computer manufacturers, recyclers, international organizations, associations, academia, environmental groups and governments to tackle environmentally sound refurbishment, repair, material recovery, recycling and disposal of used and end-of-life computing equipment. In 2015, PACE was requested to develop a strategy and workplan for the implementation of concrete actions at the regional and national levels. Similarly, the UNEP Global Mercury Partnership consists of stakeholders from governments, industry, NGOs, and academia who are dedicated to protecting human health and the environment from the impacts of mercury, and to reducing global environmental releases of mercury. Initiated in 2005 by a decision of the UNEP Governing Council, the Partnership played an important role in catalyzing global action on mercury and offering information, capacity-building, and awareness-raising in support of international negotiations to establish a legally-binding instrument on mercury.

20. **While there has been progress over the last decade, with all African countries for example developing their initial NIP under the Stockholm convention and NAP under the Minamata Convention, focused and targeted interventions in the Africa region to address the environmental health impacts of POPs, mercury and other hazardous chemicals are relatively few and small.** The efforts are often fragmented, providing technical solutions without necessary and complementary institutional approaches to strategically target environment and human health issues that are considered priority at the highest level in governments. Additionally, they often do not fully engage affected communities in pollution management stewardship, nor leverage the benefits generated from reduced environmental health risks. Finally, policies, laws and penalties are often an opportunistic patchwork creating implementation challenges, compounded by a fragmented approach focusing on one chemical after the other. Extensive consultations with African governments and partners in preparation of this Program indicate that there is a common understanding and demand for a more harmonized approach towards reducing environmental risks resulting from mercury waste and POPs emissions. Feedback from multiple client countries indicate that: a) the resources and opportunities provided through multiple conventions could enhance impacts through an integrated

approach; and b) there is significant room for countries in Africa to collaborate and learn from each other on institutional, regulatory and financial aspects of reducing environmental health risks.

21. **The World Bank has responded to requests from participating countries to leverage its convening power at the highest levels of national governments, led by Ministry of Finance, to help accelerate action toward addressing commitments under the above-mentioned Conventions.** The World Bank's comparative advantage is its ability to leverage resources, convene stakeholders around the issue and lead a dialogue both at national and regional levels. The Bank brings its unique convening power to help elevate the policy dialogue to focus on shifting the allocation of resources from national budgets to meet Convention obligations and promote increased contributions from the private sector. This will allow GEF interventions to be sustained after the projects and programs are completed, building on the co-financing leveraged for this program from the WB through IDA funding (US$ 240m). Activities with high environmental health consequences, such as artisanal gold mining, e-waste recycling and scavenging in urban dumpsites are a reflection of poverty and vulnerability; usually a livelihood option for the poor and marginalized people often unaware of long term impacts to their health and the surrounding environment. These are complex social and economic, as well as environmental challenges, requiring an integrated and long-term approach through policy, infrastructure and health investments and capacity building and awareness interventions. While focusing on higher level objectives of environmental health risks, the program is targeted to activities that bring about measurable reduction of POPs and mercury through application of cleaner technologies and approaches for eliminating releases from waste and other sources.

22. **The need for a regional approach is predicated not only on the physical transboundary nature of mercury and POPs emissions and impacts, but on regional opportunities for solutions and regional causes for mismanagement.** The preparatory studies and assessments carried out through the GEF-funded MSP[12] on "Reducing Environmental Health Impact of Harmful Chemicals in Africa Region" and under the World Bank's Pollution Management and Environmental Health (PMEH) program validate a regional approach to addressing these issues. For example, the recently commissioned Mercury Trade study, under the GEF-MSP, revealed significant gap between the estimated consumption of mercury and official imports, indicating that there is major illegal trade across African countries. Unless there is a regionally-harmonized policy on mercury import licensing and its use in the ASGM sector, country-level interventions may not have the desired outcomes. There are existing regional entities that the program will leverage to further enhance the national level interventions. These include the Regional Economic Communities (REC) such as ECOWAS, WAEMU, COMESA and SADC, to support such regional harmonization, thereby strengthening national and regional systems to enforce regulations and manage illegal trade flows. For example, the adoption of pesticides regulation in one country of ECOWAS automatically applies to other countries. Countries also can gain from a shared response to a common problem. For instance, the current Bank engagement in Tanzania for formalization of ASGM miners is being closely observed for relevance and customization in other countries. The RECs provide therefore an opportune platform to promote experience-sharing and harmonization of appropriate policies and dissemination of good practices and lessons learned through development of tested models and methodologies.

[12] Reducing Environmental Health Impact of Harmful Chemicals in Africa Region (https://www.thegef.org/gef/project_detail?projID=5583)

23. EHPMP draws lessons from the Sustainable Artisanal Mining project implemented by the Swiss Agency for Development and Cooperation (SDC) and from the Community Artisanal and Small-Scale Mining (CASM) initiative. The SDC project conducted a study on existing ASM knowledge sharing initiatives that concluded that a combination of information and knowledge sharing approaches (i.e. Social media, websites, study tours, training & learning events, conferences, targeted workshops) was key to success.

24. The Program will establish a virtual platform for regional partnerships and policy dialogue, knowledge management and communication, will leverage lessons learned and disseminate information, tools, and techniques to scale up best practices. It aims to bring together environmental regulators and urban municipal councils with jurisdiction over the contaminated land. The investments, institution and information ideas proposed under the Program to tackle the environmental health issues have been discussed in a significant high-level roundtable with various interested countries, namely, the Governments of Ghana, Tanzania, Zambia, Kenya, and Senegal and with the USEPA, NRDC, UNDP, UNIDO, UNEP, industry associations, and Non-Governmental Organizations.

25. The EHPMP will work closely with local communities and community-based organizations who are invested in and benefit from current practices in ASGM sector or from solid and electronic waste management, including opportunities for income generation and green jobs.

C. Relevance to Higher Level Objectives

26. **The proposed EHPMP is aligned with the WBG's twin goals of ending extreme poverty and promoting shared prosperity.** This program follows the Regional Integration Assistance Strategy FY18-FY23, specifically Strategic Priority 4 "Promote Collective Action to Address Regional Economic Contagion, Fragility, Epidemic and Climate 'Hot Spots'" aiming to build regional collaboration and knowledge sharing to address common problems such as waste management and pollution and to share good practices and support capacity building and strengthen civic engagement. The EHPMP is aligned with and will support to the objectives of Pillars 1 and 2 of the Bank's Africa Strategy -- competitiveness and employment, and vulnerability and resilience, and the foundations of the strategy —governance and public-sector capacity. Most African countries have already experienced multiple challenges related to inadequate capacity to effectively monitor the use of chemicals, and management of chemical waste. They lack regulations and effective enforcement, access to clean production and waste management technologies, and up to date information on environmental-health risks. The EHPMP will complement other regional initiatives and individual projects that the Bank supports; focusing on competitiveness, sustainability and governance.

27. **The project will contribute to the GEF 6 Chemicals and Waste Focal Area Strategy that aims to achieve the long-term goal "to prevent the exposure of humans and the environment to harmful chemicals and waste of global importance including POPs, mercury and ozone depleting substances."** The project is consistent with the GEF-6 objective CW#2: Reduce the prevalence of harmful chemicals and waste and support the implementation of clean alternative technologies/substances, Program 3: Reduction and Elimination of Persistent Organic Pollutants, and Program 4: Reduction or Elimination of

anthropogenic emissions and releases of mercury to the environment. The project will contribute to GEF core indicators 9 on *'**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)'*. The program reports on mercury reduction (in Metric tons) as approved under the GEF-6 focal area objective. But this program cannot report on the POPs indicator (metric tons of POPs destroyed) as it does not involve disposal of PCBs or obsolete pesticides. The Program will also contribute to GEF core indicator 10 on *'Reduction, avoidance and emissions of **POPs to air** from point and non-point sources (grams of toxic equivalent [gTEQ])'*. The program directly contributes to GEF-6 Corporate Result #5 '*Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern*'.

28. **The project is informed by the global conventions, the Stockholm Convention on POPs and Minamata Convention on Mercury, as well as other relevant multilateral environmental agreements such as the Basel Convention on the Control of Transboundary Movements of Hazardous waste and the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade.** The development and implementation of the regional- and national projects will be underlined by participating countries' obligations under the Stockholm Convention, in particular Article 5 on Measures to reduce or eliminate releases from unintentional production, and Article 6 on Measures to reduce or eliminate releases from stockpiles and wastes, and following relevant guidance such as the Guidance on best available techniques and best environmental practices for the recycling and waste disposal. The Program will support participating country priorities, as outlined in their NIPs, for implementation of the Stockholm Convention which requires parties to reduce the risks to human health and the environment arising from the release of Persistent Organic Pollutants "with the goal of their continuing minimization and, where feasible, ultimate elimination". Regarding the Minamata Convention, the project will build and rely on existing work, and in particular guidance developed through the Global Mercury Partnership such as the guidance on developing a national action plan to reduce and, where feasible, eliminate mercury use in artisanal and small-scale gold mining and others, as well as pay close attention to the development and adoption of emerging guidance as the Convention matures.

29. The countries participating in the program include Ghana, Kenya, Zambia, Tanzania and Senegal, based on their interest and willingness to coordinate under a regional program supported by GEF:

- **Tanzania:** The recently adopted Country Partnership Framework (2018-2022) focuses on enhancing productivity and accelerating equitable and sustainable growth by supporting natural resource management including mining. According to the Systematic Country Diagnostic (SCD) 2017, which informed the CPF, formalization of ASM is a channel of adding more value to natural resources. A significant portion of goods and services for ASM is sourced locally—for example, handheld tools, rudimentary grinding mills, blast services, timbering work, and courier services (bags of ore from pits downhill to distribution centers). The proposed GEF Project in line with the findings of the SCD, will support the formalization of the ASGM sector which will create incentives for artisanal miners to access relevant knowledge, financing and institutional support in line with the Government's efforts and obligations with the Minamata convention. Formalization of ASM is also expected to formalize its value-chain linkages with the rest of the economy, thereby improving their efficiency and productivity.

- **Ghana:** The proposed project is well aligned with the FY13-18 Country Partnership Framework. More specifically, the proposed operation will contribute to (1) improving economic institutions by improving artisanal practices of small-scale miners and venue collection practices that have lagged as the mining sector, and thereby enhancing management of natural resources. Additionally, the project will contribute to (2) improving competitiveness through increased adoption of new mining technologies, improved land and water management, improved access to education/knowledge about more efficient, safer, and environmentally friendly techniques, improved mobility of goods; and (3) protecting the poor and vulnerable through social protection, improved maternal and child health, labor practice, and access to improved water supply and sanitation.

- **Kenya:** The project is aligned with the CPS (FY14-18) Domain #2 Protection and Potential, Outcomes 5 and 6, with the Program targeting communities, including vulnerable groups and women, who suffer from direct impacts of unsustainable ASGM and e-waste management; and Domain #1 Competitiveness and Sustainability, Outcome 1 through improving business environment and infrastructure while responding to environmental health pressures associated with poor management of hazardous waste. The project is also fully aligned with Kenya's revised and updated NIP recently submitted to the Stockholm convention secretariat, and which shows the significance, and the priority attached to POPs releases from e-waste. The project will directly contribute to Kenya's Vision 2030, which calls for providing clean and secure environment. The project is also well aligned with the Government of Kenya's emerging drive to improve waste management in the country particularly, e-waste management strategies and plans.

- **Zambia:** EHPMP is consistent with the Country Partnership Framework that aims to help the Government of Zambia address the development challenges in its priority areas identified in the Seventh National Development Plan. The project will directly contribute to the CPF's focus area 1 "More even territorial development: Opportunities and Jobs for the poor" and Objective 1.2 "Selected rural communities become more resilient to climate and environmental shocks". Furthermore, Zambia recognizes that the challenges in pollution management facing the country require increasing efforts to reach a sustainable future growth scenario. 'Enhance provision of adequate solid waste management services' is also highlighted in the national development strategy, which identify improper solid waste management as a health risk to the affected communities. The objective of EHPMP follows closely the National Solid Waste Management Strategy (NSWMS) of 2004 which sets out the integrated approach to addressing the problem of poor solid waste management. The NSWMS focuses on 'contribution to strengthening the legal and regulatory framework to deal with producer responsibilities' and 'promotion of cost effectiveness in waste management as well as public awareness, education and communication', and aims to 'develop and adopt environmentally sound treatment and disposal methods/practices'. Specifically, EHPMP will align with the second National Implementation Plan (NIP) for Zambia (2017), which sets out the roadmap and methodology for implementing the Stockholm Convention in the country. In the newly updated plan, additional POPs were identified compared to the initial NIP (2004). The second NIP identified a need to strengthen environmental monitoring capacity, mechanisms and enforcement capacity of responsible institutions, as well as increase the level of awareness to the dangers of POPs issues and chemicals among all stakeholders and the public at large.

- **Senegal:** The EHMP is consistent with the FY2013-2017 Country partnership Strategy (CPS) for Senegal,

specifically Pillar 2 on improving service delivery. The proposed Project is in line with the draft Country Partnership Framework (CPF) for Senegal, specifically with focus area 3 on increasing resilience and sustainability in a context of growing risks. Objective 3.1 aims at ensuring decent living conditions in the most vulnerable areas with a focus on rural electricity, water/sanitation and urban waste; and objective 3.2 aims at promoting and protecting resilient livelihoods and ecosystems in the face of climate change. The project is envisioned to contribute to increase access to solid waste management services in Senegal, by supporting institutional strengthening and capacity building of stakeholders. The Program is also consistent with the Bank's strategy to provide multi-sector support to the Government of Senegal to support its PSE. The proposed Program is in line with the FY2013-2017 Country partnership Strategy (CPS) for Senegal, specifically Pillar 2 on improving service delivery. The project is envisioned to contribute to increase access to solid waste management services in Senegal, by supporting institutional strengthening and capacity building of the sector stakeholders. The Program activities are also consistent with the Bank's strategy to provide multi-sector support to the Government of Senegal to support its Plan Senegal Emergent (PSE).

30. **The project will contribute to the capacity of the individual countries to better understand the management aspects of chemical waste in relation to their aspiration to meet SDGs.** Chemicals play an important role in development, and so the Sound Management of Chemicals and Wastes (SMCW) is an important component of the global effort to achieve sustainable, inclusive and resilient human development and the SDGs. Widespread contamination from chemical waste and lack of policies to address human health risks may jeopardize the efforts of African countries the achieve SGDs. Management of hazardous chemicals is closely linked to Goal 3, 6, 8, 11, 12 and 14 and their specific targets. achieving environmentally sound management of chemicals and all wastes through entire product life cycle will help minimize the adverse impacts on human health and the environment.

31. **Several projects and initiatives support environmental-health agenda in Africa and the EHPMP will coordinate with these for greater synergy of development outcomes.** Principal among these projects are: (i) The Global Center of Excellence in Artisanal and Small-Scale Mining led by the Energy and Extractives GP in close collaboration with the Environment and Natural Resources GP and the Organization of Economic Cooperation and Development (OECD); (ii) the Ghana Forest Investment Program – Enhancing Forest Landscapes; (iii) the Zambia Mining and Environmental Remediation and Improvement Project; and (iv) the Lake Victoria Environmental Management Project. The Environment and Natural Resources GP has ongoing operations in most of the countries (Ghana, Tanzania, Zambia, and Kenya) considered under this Environmental Health and Pollution Management Program (EHPMP).

II. PROJECT DESCRIPTION

A. Project Development Objective

PDO Statement

The project aims to strengthen the institutional capacity to manage and regulate mercury use in ASGM and e-waste in selected countries in Africa.

PDO Level Indicators

The following PDO indicators are proposed, disaggregated by country:

1. Regional platform for sharing knowledge is established and functional (Yes/No)
2. Policy interventions on e-waste and mercury designed and consulted (Number)
3. Trained skilled staff in government with expertise on management of e-waste and mercury at national and regional levels (Number, % of female)
4. Stakeholder outreach events (Number)
5. Citizens and/or communities involved in planning, implementation and evaluation of demonstration pilots (Yes/No)
6. Demonstration pilots completed and evaluated (Number)

B. Project Components

32. **Project description:** The project aims to create a space and provide opportunities to share knowledge, expertise and mobilize funding to address common pollution management and environmental health issues at the regional level. The project engages the client countries at both national level, through the relevant institutions, and at the regional level through the regional platform.

33. The five countries benefiting from this first project (Ghana, Kenya, Tanzania, Senegal and Zambia) were selected based on their commitment and request for technical and financial support from the World Bank. A combination of Technical Assistance and Investments in each country targeting specific priorities for pollution management based on the National Implementation Plan and strategy and aligned with regional-level activities. For countries working mainly on wastes and POPs (Kenya, Senegal and Zambia), they have already developed their respective national waste management strategies outlining priorities for managing solid wastes. An Environmental and Social Management Framework (ESMF) and a Resettlement Policy Framework (RPF) is being prepared for each country. Fiduciary capacity assessments are underway, and Project Procurement Strategy Documents (PPSD) and Procurement Plans are being prepared as required. Environmental and Social Management Plans (ESMP) for site-specific activities will be prepared during project implementation.

34. The project is intended to promote a platform for countries heavily affected by environmental pollution health risks and their partners, where they may share knowledge, expertise, and potentially facilitate access to related project implementation financing. The regional coordination project, financed through a GEF BETF[13] grant will raise the conversation, allowing country leadership to mobilize at the regional and national level for an engaged policy and regulation development for improved environmental pollution management. The project will support technical assistance to align country priorities with best-practice to effectively advance concrete investment projects. In parallel, countries will engage at regional level harmonizing policies. The five countries benefiting from this first project were the first to request technical and financial support from the World Bank and GEF. They all developed their respective National Implementation Plan (NIP) for POPs and National Initial Assessment/Action Plans for mercury.

[13] This project is a GEF programmatic approach with five country projects supported through RETF GEF grants and the regional cooperation and knowledge activities supported through a GEF BETF grant.

35. The project comprises of four components, and each component presents activities by countries. Notably the regional cooperation and partnership related activity mentioned here is funded through a GEF BETF (P166233) and is presented in detail in a separate GEF project document.

Component 1: Institutional strengthening, knowledge and capacity building

36. The component aims to strengthen capacity to address environmental health risks associated with mercury use in ASGM sector and POPs releases from e-waste and solid waste dumpsites by enhancing the capacity of participating countries to obtain and share the information needed for their national decision-making. The component will create a framework for exchange of information to support national and regional policy development and activities related to reducing environmental health risks from pollution associated with mining (mercury) and waste management (uPoPs). The component will coordinate through a regional platform for knowledge sharing and technology dissemination efforts, specifically related to management of POPs and mercury, assisting the five countries in environmental and pollution monitoring for more transparent information on chemicals and waste management, licensing and enforcement. An aim is to enhance the communication and coordination among national and regional stakeholders by eliminating barriers/obstacles to information exchange. This component will strengthen the institutional capacity for managing risks from waste and releases of chemicals, including capacity building efforts further detailed based on country-specific institutional diagnosis and stakeholder engagement. In addition, the component will engage stakeholders and facilitate coordination and participation in the regional learning on the chemicals management agenda, development of best-practice guidelines in pollution prevention, monitoring, enforcement and compliance as well as awareness raising efforts on sound management of waste and its impact on human health and the environment.

37. Additionally, the program would focus on enhancing regional collaboration within Africa to address the crosscutting issues of illegal trade of mercury and e-waste. This would involve working closely with regional economic fora and national child projects to ensure consistency of policies and plans that is agreed at the regional level.

38. Capacity building interventions will be based on further institutional diagnosis, broad and active stakeholder engagement, and best international practices in reducing mercury emissions in ASGM sector, as well as reduced open burning of e-waste through improved pollution prevention, monitoring, enforcement and compliance. This component on improving capacity of environmental regulators will work primarily with government agencies and invest in five types of interventions:

    a. Developing and/or strengthening good policies and procedures to enforce existing environmental regulations;
    b. Building credible institutions and broad constituencies to effectively regulate mercury pollution and e-waste burning;
    c. Strengthening community level monitoring, through involvement of communities and link to demonstrative investments;
    d. Supporting capacity building of law enforcement agencies such as customs and border control environmental regulators; and
    e. Developing information based and remote sensing tools and techniques to track and monitor use

and disposal of mercury and e-waste within the Africa region.

39. The capacity building component will also include developing shared protocols and methodologies for assessment of environmental health risks associated with ASGM and urban waste sector based on site (and country) specific health and environmental data, knowledge, risks and impacts.

1.1. Regional platform for strengthening regional partnerships and policy dialogue (funded through a GEF BETF - P166233). This activity will facilitate the coordination among program participating countries and is funded through a GEF BETF and is described in detail in a separate project document. It will support the establishment and operation of a regional platform for dialogue, stocktaking and agenda-setting to advance sound management of chemicals and hazardous waste. The platform will build on the existing structures and institutions to coordinate regional efforts and promote the dissemination of results through a variety of effective communication methods and products. The platform will leverage the existing regional fora, such as ECOWAS/ COMESA/ SADC by mobilizing stakeholders contributing to the agenda of the Extractives Global Programmatic Support Multi-Donor Trust Fund (EGPS MDTF). It is expected that the platform will coordinate and enhance other partners efforts (e.g., USEPA, UNITAR, UNDP, UNIDO, and UNEP) for capacity building in targeted countries and will enable discussion on (1) common aspects of regional policies, strategies, and regulations related to transboundary impacts; (2) help generate and facilitate access to information and knowledge; and (3) support research and education on chemical management and to stimulate identifying potential regional solutions. The proposed activities include: development or enhancement of diagnostic tools, targeted training, events and communication tools to improve cooperation and coordination between countries on sound chemical management and related policies, development of tools for knowledge exchange and dissemination of results and south-south cooperation and exchange visits.

40. The expected outcomes will be (i) the regional platform operational and supporting the ASM Global Center of Excellence, (i) regional partnerships established, enhanced coordination among various national and regional institutions and organizations, (ii) improved leadership capacity and technical skills (e.g. to identify and assess risks and solutions of common problems), and (iii) increased effectiveness of organizations working on harmful chemicals and waste agenda in the region.

41. The WBG will collaborate with various development partners implementation and identify key institutions to support that can deliver both national and local level benefits. In selecting additional partners to leverage support, the WBG will use the following criteria: (i) potential impact on EHPMP national projects; (ii) ability to leverage co-financing, including private sector funding; and (iii) capacity to introduce state of the art knowledge, expertise, and technologies to maximize benefit of solutions deployed to EHPMP sites. Strategic advisory groups and task forces will be established as relevant for focused discussions on the thematic and sub-thematic sectors considered under the program.

1.2. Ghana: Institutional strengthening, capacity building and knowledge sharing (US$ 1.9 million GEF, US$ 20 million co-financing)

42. ASGM: The component will support activities for strengthening of institutional systems and capacity building for the Environmental Protection Agency (EPA) and the Minerals Commission (MC) for managing

the ASGM sector, through training at the national and local levels. It will support the development of guidelines and monitoring systems for the management of mercury usage and waste in ASGM. In addition, the component will engage national level stakeholders for coordination and participation in the regional learning and knowledge sharing activities on the management of hazardous chemicals and waste. This component will also include assistance to facilitate the formalization of artisanal and small-scale gold mining sector; studies for baseline assessment of the quantities of mercury used and the practices employed in artisanal and small-scale gold mining and processing within the country. The component will assist in the development of a strategy promoting reduction of emissions and exposure to mercury in artisanal and small-scale gold mining and processing, including application of mercury-free methods.

43. E-Waste: This component will support capacity building activities which include (a) benchmarking of key EPA staff to acquire best practices on waste management and ensure appropriate skills transfer; (b) Awareness raising/sensitization workshops on e-waste management along with stakeholders in the value chain country-wide; (c) support to waste management unit in EPA; and (d) streamlining Customs coding with appropriate training of the Customs Officers and borders inspectorate to curtail entry of illicit e-waste in the first place. It will support strengthening of E-waste Management Regulations and Guidelines and development of systems for monitoring and enforcement, relevant to waste management with a focus on e-waste.

44. The component will ensure both national level stakeholders' coordination and participation in the regional learning and knowledge sharing activities on the harmful chemicals agenda.

45. *Expected outputs:*
    a. Guidelines and monitoring protocols for the management of mercury usage and waste in ASGM developed.
    b. Training materials developed, and training delivered to different stakeholder groups on the new/amended legislation, regulations, and bylaws on waste management
    c. Stakeholder Mapping finalized (including private and informal sectors)
    d. A public health strategy to prevent exposure of artisanal and small-scale gold miners and their communities to mercury
    e. Support to strengthening of E-waste Management Regulations and Guidelines.
    f. Targeted study tours organized and participation in the regional platform events.

1.3. Tanzania: Institutional strengthening, knowledge and capacity building (US $ 1.5 million GEF, US $ 10.6 IDA).

46. The component will assist in: a) strengthening environmental monitoring by relevant agencies, such as Mines Resident Offices (MRO), Resident/Regional Mines Offices (RMO) and the National Environment Management Council (NEMC); b) strengthening various institutional players involved in regulating mercury trade, such as the Government Chemist Laboratory Authority (GCLA), customs/border control tax officials and business community; c) facilitate procurement of simple equipment for air, water and soil monitoring; d) enhance the institutional strengthening and capacity building for agencies that manage artisanal gold mining, including the monitoring of health and environmental indicators, implementation

support of mining and environmental legal frameworks, consultation with local stakeholders and disclosure of relevant information to mining communities as well as maintaining an inventory; e) ensure participation of stakeholders and coordination of stakeholders at national and regional level in the learning and knowledge sharing activities on the harmful chemicals agenda; f) promote transparency along the whole value chain.

47. The Project will build on the UNEP Integrated Health and Environment Observatories and Legal and Institutional Strengthening for the Sound Management of Chemicals in Africa (African ChemObs) project through specific assistance to strengthen mining policy and regulations focusing on Artisanal Gold Mining sector; strengthen institutional processes and capacity to be able to identify, analyze and address problems associated with environment and health impacts.

48. Expected Outputs of the component:

a. Monitoring protocols developed.
b. Guidance and training materials developed, and training delivered to different stakeholder groups on the new/amended legislation, regulations, and bylaws on waste management
c. Support for access to credit and technical knowhow on licensing, extraction and amalgamation
d. Stakeholder Mapping finalized (including private and informal sectors)
e. Targeted study tours organized to share knowledge and expertise and contribute to regional framework of action

1.4. Zambia: Institutional strengthening, knowledge and capacity building (US$ 1.8 million GEF, 15.9 million IDA). The component aims to strengthen the institutional, legislative, monitoring and enforcement capabilities of Zambia, as well as support the participation in regional activities for improved management of environmental health risks related to POPs and hazardous waste management. The component will coordinate activities in collaboration with SADEC, UNITAR and other regional and national actors contributing to the improvement of waste management. It will strengthen the capacity for municipalities to manage the collection, transportation and disposal of waste and build partnerships with private sector for improved recovery and recycling, leading to reduced UPOPs releases, as well as ensuring that POPs containing mining waste. Additionally, the municipality will establish linkages for improved livelihoods opportunities in collaboration with the private sector. This component will build capacity of these institutions and support development of guidelines and monitoring systems in place and building awareness on sound management of waste and its impact on human health and the environment. In addition, the component will ensure both national level stakeholders coordination and participation in the regional learning and knowledge sharing activities on the harmful chemicals agenda. This will contribute to strengthening the regional partnerships and collaboration. This component will support initiatives taken by Government of Zambia to formalize the waste sector, specifically to manage environmental health implications of poor management of waste and emissions of POPs associated with the solid waste management. This will include actions such as providing recommendations for improving collection and recycling systems and training recyclers and rag pickers on occupational health and safer practices.

49. Expected component outputs:

a. Guidelines and monitoring protocols developed.

b. Support to awareness on sound management of waste and its impact on human health and the environment
c. Monitoring protocols developed (training materials developed)
d. Training delivered on: 1) new/amended legislation, regulations, and bylaws on waste management 2) BAT/BEP for national and municipal waste management (generation, collection, transportation, sorting, treatment, recycling, and disposal).
e. Stakeholder Mapping finalized (including private and informal sectors)
f. Partnerships with private sector for improved recovery and recycling developed
g. Participation in regional platform events

1.5. Kenya: Institutional strengthening, knowledge and capacity building (US$ 1.9 m GEF, 5.0 million). This Component will support a) capacity building activities which include benchmarking of key NEMA staff to acquire best practices on waste management for reduction of releases of POPs from unsound e-waste management practices, and ensure appropriate skills transfer; b) sensitization workshops on waste management, including e-waste, with EEE and E-waste management stakeholders in the value chain country-wide; c) support NEMA staff on waste and e-waste management regulations; and d) training of the customs and borders inspectorate to curtail entry of illicit e-waste. In addition, the component will ensure both national level stakeholders coordination and participation in the regional learning and knowledge sharing activities on the harmful chemicals agenda, contributing to strengthening the regional partnerships and collaboration.

50. This Component will also support strengthening environmentally sound management of e-waste regulations and guidelines and development of systems for monitoring and enforcement, relevant to waste management with a focus on e-waste. The component will review existing documentation and undertake a country-wise situation analysis on waste, including inventory of major toxic pollutants emanating from the sector; assessment of environmental health implications of harmful chemicals and waste and options for risk management; and economic analysis of the waste management sector for the national economy. Scope of activities proposed under Component 1 includes:

a. Capacity building of NEMA staff to acquire best practices on waste management and Best Available Technologies for dissemination for reduction of releases of Persistent Organic Pollutants from unsound e-waste management practices and ensure appropriate skills and knowledge transfer.

b. Review of existing efforts to develop a national e-waste inventory of products and IT vendors and subsequently identify a robust solution to support sustainable management of electronic waste from collection to disassembly to waste reduction and reuse. The review will commence with stakeholder mapping, including private sector and informal recycling sector stakeholders.

c. Development of guidelines and monitoring protocols on waste management, including e-waste and hazardous waste resulting from electronic waste for EEE and E-waste management stakeholders in the value chain country-wide

d. Institutional strengthening of the Ministry of Environment and Forests, NEMA and customs officers to support implementation and enforcement of e-waste management regulations and laws including

at the port of entry. This will include training on best practices and technologies for reduction of POP releases related to e-waste.

e. Streamlining customs coding with appropriate training of the Customs and borders inspectorate to curtail entry of e-waste dumping as provided in Basel Convention on Trans boundary movement of hazardous waste and other waste.

f. Facilitate the national level stakeholders for coordination and participation in the regional learning and knowledge sharing activities on the harmful chemicals agenda.

51. Capacity building will include strengthening the current environmental policies and regulations and capacity to monitor; screen and evaluate health and environmental risks associated with e-waste and related uPOPs releases.

52. There are existing regional entities that the program will leverage to further enhance the national level interventions. These include the Regional Economic Communities (REC) such as COMESA, SADC, and East African Community (EAC), with its EAC Health Research Commission to support such regional harmonization, thereby strengthening national and regional systems to enforce regulations and manage illegal trade flows. The RECs, based on their sustainability commitments, provide an opportune platform to promote experience-sharing and harmonization of appropriate policies and dissemination of good practices and lessons learned through development of environmental management systems that not only address production processes but also promote waste minimization, treatment and disposal.

53. Expected component outputs:

a. Guidelines and monitoring protocols relevant to waste management with a focus on e-waste.
b. Training delivered on best practices and technologies for reduction of POP releases delivered to government and non-governmental stakeholders at national and county levels
c. Outreach and sensitization workshops conducted on e-waste and hazardous waste management for stakeholders in the value chain country-wide.
d. Streamlining customs coding with appropriate training of the Customs and borders inspectorate to curtail entry of e-waste dumping
e. Stakeholder Mapping finalized (including private and informal sectors)

1.6. Senegal: Institutional strengthening, knowledge and capacity building for Minimization of UPOPs from open burning of urban and other toxic wastes (US$ 1,5 GEF, US$ 3.3 million co-financing).

54. There is an urgent need to reform legal frameworks and to build capacities for minimizing UPOPs from open burning of urban and other toxic wastes. The project will assist the government of Senegal in ensuring that adequate official guidance documents are available to support the implementation of the Stockholm Convention and its amendments, specifically through the assessment and updating of the existing regulations and guidelines. Supporting material is needed to fill the legal gap for environmentally sound management of municipal solid waste and hazardous waste. Appropriate best available techniques (BAT) and best environmental practices (BEP) will be established and implemented to reduce the release of UPOPs

from open burning practices. This component will support initiatives taken by the government and the municipalities of Maristes and Dalifort to establish legal and institutional tools to formalize the waste management system and to promote resource reduction, re-use, recycling and composting. The creation of an enabling policy and regulatory environment is only effective if it is accompanied by regular monitoring. With support from NGOs, awareness campaigns, training and study tours on sound management of waste will be conducted at all levels. The awareness and training program will commence with stakeholder mapping (that will include private sector and informal sector stakeholders). The impact on human health and the environment from the release of UPOPs (dioxins and furans) from open burning will be considered. This requires providing recommendations that can discourage improper waste disposal and improving the collection and recycling systems. This, also, can lead to a switch of mentality from "dump-it-yourself" approach to an efficient collection system adoption. Under this component, an information, education and communication strategy will be developed to disseminate the policy and guidelines on harmful chemicals and wastes management to key stakeholders and to explain how appropriate project implementation can lead to the creation of profitable business and job opportunities. A series of events will be held to explain to the residents why sorted waste is important and how the collection of recyclable waste discharged from homes such as used paper, cardboard, empty containers (cans, plastic bottles) can generate income. Recyclers and waste pickers will receive adequate training on occupational health and safer practices. Operating an efficient, effective, environmentally sound municipal solid waste management program requires building administrative capacity for government and private sector players and technical capacity for designing, operating, maintaining, and monitoring each part of the process. The component will ensure national level stakeholder coordination and participation in the regional learning and knowledge sharing activities on the harmful chemicals agenda. This will contribute to strengthening regional partnerships and collaboration.

55. *Expected component outputs:*
    a. Assessment and updating of the existing regulations and guidelines
    b. Training delivered to different stakeholder groups on: 1). on the new/amended legislation, regulations, and bylaws on waste management; and 2) BAT/BEP for national and municipal waste management (generation, collection, transportation, sorting, treatment, recycling, and disposal)
    c. Stakeholder Mapping finalized (including private and informal sectors).
    d. Communication strategy developed and disseminated to key stakeholders.
    e. Targeted study tours organized to share knowledge and expertise and contribute to regional framework of action

Component 2: Policy Dialogue and Regulatory Enhancements

2.1. Regional: Policy dialogue and regulatory enhancements (funded through a GEF BETF - P166233):

56. The Program will be coordinated by the World Bank which will include enhancing the learning uptake from each child project and maintaining extensive and continued stakeholder engagement at national and international level to support all components of the program. This component will accelerate learning and

help strengthen the evidence base and increase transparency to underpin more effective and informed policy making and interventions on environmental health and pollution management. The Program will complement the national projects and will provide opportunities for south-south learning, foster intergovernmental cooperation, use M&E tools, apply best practices and peer review and develop portfolio-wide training and communication strategies. The child projects will be coordinated by key implementing agencies in participating countries – Zambia Environmental management Agency in Zambia; Environmental Protection Agency in Ghana; Ministry of Mineral and Mines in Tanzania, Ministry of Environment and Sustainable Development in Senegal and Ministry of Water and Environment and Natural Resources in Kenya. The component will include support to selected countries developing strategies for introduction of standards for mercury-free artisanal and small-scale gold mining and market-based mechanisms or marketing tools. These will feed into the design and implementation of the pilot demonstrations under component 3.

2.2. Tanzania: Support to policy dialogue and regulatory enhancements (US $ 1.5 million GEF, US $ 10.5 IDA).

57. One of the major changes in the Mining Act, 2010 through miscellaneous amendments of 2017 requires that Environmental Protection Plan (EPP) must be submitted to the Mining Commission before a Primary Mining License is granted. Holders must conduct baseline environmental investigations and propose ways in which possible environmental impacts will be mitigated. NEMC will participate in the approval process of the EPP to ensure that the proposed mitigation measures are adequate and conform with requirements of the EMA (2004). This component will support Government's efforts in strengthening the current environmental policies and regulations and capacity to monitor; screen and evaluate health and environmental risks associated with ASGM. The component will assist development of strategy for promoting the reduction of emissions and releases of, and exposure to, mercury in artisanal and small-scale gold mining and processing, including mercury-free methods; Managing trade and preventing the diversion of mercury and mercury compounds from both foreign and domestic sources to use in artisanal and small-scale gold mining and processing; Working with the ASGM miners at community level, which will be accomplished through stakeholder engagement and mobilization, recognizing that artisanal miners are not homogenous and tend to operate in areas of high informality; Involving stakeholders in the implementation and continuing development of the national action plan; developing a public health strategy on the exposure of artisanal and small-scale gold miners and their communities to mercury; and more localized training of artisanal miners and stakeholders. Such a strategy would include gathering of health data, training for health-care workers and awareness-raising through health facilities. Assistance would be provided to prevent the exposure of vulnerable populations, particularly children and women of child-bearing age, especially pregnant women, from mercury toxicity resulting from artisanal and small-scale gold mining; and dissemination of information to artisanal and small-scale gold miners and affected communities, in support for the implementation of the National Action Plan.

58. *Expected Outputs of the component:*

a. Development of strategy for promoting the reduction of emissions and releases of, and exposure to, mercury in ASGM and processing, including mercury-free methods

b. Developing a public health strategy on the exposure of artisanal and small-scale gold miners and their communities to mercury
c. Data collation of health data, training for health-care workers and awareness-raising through health facilities
d. Guidelines for monitoring, screening and evaluating health and environment risks for artisanal gold miners developed
e. National Steering Committee established and a communication strategy in place

2.3. Ghana: Support to policy dialogue and regulatory enhancements (US$ 1.9 million GEF, US$ 10 million co-financing)

59. ASGM: The component will support the EPA in strengthening the policy requirements targeted at the ASGM sector. This will include support for amending the Mining Act to include provisions for small-scale miners to prepare Environment Plans for rehabilitating mines after closure with prior environmental and social due diligence. The component will also enhance Government's policy towards shifting to appropriate land use for agricultural activities.

60. e-Waste: This component will support Government's efforts in strengthening the current environmental policies and regulations and capacity to monitor; screen and evaluate health and environmental risks associated with e-waste. The component will assist the development of strategy for promoting the reduction of emissions and releases of, and exposure to, harmful chemicals and hazardous waste. The strategy will be backed by studies and gathering of health data, training for health-care workers and awareness-raising through health facilities.

61. *Expected outputs:*
    a. Development of strategy for promoting the reduction of emissions and releases of, and exposure to, mercury in ASGM and processing, including mercury-free methods
    b. A methodology for screening and evaluating health and environment risks associated with POPs releases and other hazardous chemicals developed
    c. Guidelines for screening and evaluating health and environment risks for artisanal gold miners developed (for Mercury).
    d. National Steering Committee established.
    e. Trainings for health-care workers and awareness-raising through health facilities

2.4. Zambia: Support for policy dialogue and regulatory enhancements (US$ 1,8 million GEF, 12.5 million IDA).

62. This component will support Government's efforts in strengthening the current environmental policies and regulations and capacity to monitor; screen and evaluate health and environmental risks associated with POPs and hazardous chemicals. The component will assist development of strategy for promoting the reduction of emissions and releases of, and exposure to, POPs and priority chemicals. Such a strategy would include gathering of health data, training for health-care workers and awareness-raising through health

facilities. Attention will be taken to prevent the exposure of vulnerable populations, particularly children and women of child-bearing age, especially pregnant women, to POPs and hazardous chemicals; and dissemination of information to different actors and affected communities.

63. *Expected component outputs:*
   a. *A national strategy and implementation plan for promoting the reduction of emissions and releases of, and exposure to, POPs and priority chemicals developed*
   b. *A methodology for screening and evaluating health and environment risks associated with POPs releases and other hazardous chemicals developed*
   c. *Comprehensive assessment of the national and municipal institutional and technical framework for waste management (generation, collection, transportation, sorting, treatment, recycling, and disposal)*
   d. *Training for health-care workers and awareness-raising through health facilities*
   e. *National Steering Committee established and a communication strategy in place*

2.5. Kenya: Support for policy dialogue and regulatory enhancements (US$ 1.8 m GEF, US$ 2.5 million co-financing).

64. The component will support finalization of E-waste management regulation and its subsequent dissemination and adoption by selected county governments. Review the current environmental policies and regulations and capacity to identify strengthening measures to monitor the flow of e-waste throughout their life cycle. Regulatory enhancements for Environmental and Social management of e-waste will include assistance to strengthen existing legislations with respect to recycling and disposal; financing system for e-waste recycling and disposal (possibly through a prepaid fee, producer responsibility etc.); use of cleaner technologies (dismantling and recycling); and development of communication strategy for awareness raising and information dissemination. Development of strategy for promoting the reduction of emissions and releases of, and exposure to, harmful chemicals and hazardous waste e.g. collecting healthcare data on e-waste management, training for health-care workers and awareness-raising through health facilities. Based on stakeholder engagement under Component 1, the project will support an assessment on inclusion of vulnerable populations, particularly children and women of childbearing age, especially pregnant women, into the government policies. Based on the assessment outcomes, develop suitable mechanisms and specific policy level measures to prevent the exposure of these vulnerable populations to harmful chemicals and dissemination of information to different actors and affected communities. In parallel with finalization of the e-waste management regulation, the project will support development of a national integrated framework for monitoring and evaluation of e-waste for sustainable management to facilitate implementation of the e-waste policy provisions at the county government level.

65. *Expected component outputs:*
   a. Support to finalization of the E-waste Management regulation with subsequent dissemination to pilot county governments
   b. A national integrated framework for monitoring and evaluation of e-waste for sustainable management to prevent exposure developed.
   c. National Steering Committee established and a communication strategy in place

2.6. Senegal: Support to policy dialogue and regulatory enhancements (US$ 1 million GEF, US$ 7 million co-financing).

66. This component will support the Government's efforts to strengthen the current environmental policies, regulations and capacity to monitor, screen and evaluate environmental and health risks associated with POPs and hazardous waste. The component will assist the development of a strategy to promote the reduction of emissions and exposure to harmful chemicals and hazardous waste. Such a strategy would include gathering health data, training health-care workers and awareness-raising through health facilities. It will include dissemination of information to different actors and affected communities. Attention will be taken to prevent the exposure of vulnerable populations, particularly children and women of child-bearing age, especially pregnant women, to harmful chemicals. The project will develop guidelines and checklists to be easily accessible and understood by different actors; implement demonstration programs for reduction at source; and introduce new technologies to manage certain categories of waste including POPs.

67. This component will also support analysis and develop methodology to (i) reduce, in an economic and socially acceptable manner, the impact of chemical pollution from unregulated landfills and (ii) support the development of communication tools to raise awareness about the health costs and benefits of pollution management, including community outreach to increase public understanding and visibility of the scale and environmental health impacts. It will serve to accelerate the appropriation of revised policy and to implement good waste management practices in the municipalities.

68. The project intervention will be well monitored and reported to ensure a successful implementation. Lessons learned will be disseminated and replicated at national level and regionally via the regional economic communities (REC) leadership. Given that once a community legislation comes into force, it overrides all national laws dealing with the same subject matter and subsequent national legislation must be consistent with and made in the light of the community legislation.

69. *Expected component outputs:*
    a. A national strategy and implementation plan for promoting the reduction of emissions and releases of, and exposure to, POPs and priority chemicals developed
    b. A methodology for screening and evaluating health and environment risks associated with POPs releases and other hazardous chemicals developed
    c. A strategy and guidelines for screening and evaluating health and environment risks developed
    d. National Steering Committee established and a communication strategy in place

Component 3 – Demonstrating application of technological tools and economic approaches - for reduced environmental health risks due to mercury and e-waste.

70. The component will finance specific capacity building and community-focused cleaner technology demonstration activities in contaminated areas that would be prioritized based on social, environment and

economic factors. The demonstrative investments will be selected and designed based on environmental health risks and cost effectiveness of interventions. Opportunities to collaborate with the private mining companies in legacy cleaner technology demonstration will be explored. In this context, the proposed project aims to leverage GEF's Chemicals and Waste Focal Area Strategy, which supports, "Development and demonstration of private sector partnerships, economics instruments and financing models that can achieve large scale and long-term investment in the reduction of production and use and emissions of harmful chemicals, including cleaning up contaminated sites and closure". The investments on specific technologies will be at the national level to meet the specific needs of the participating countries. The program aims to be technology neutral when developing child projects to ensure the most appropriate and cost-effective technology choices are made for each country. The investments will target identification of the community-focused cleaner technologies to support local level problem solving throughout the supply chain.

3.1. Regional: Demonstrating application of technological tools and economic approaches (funded through a GEF BETF - P166233).

71. At the regional level, the Program will focus on developing communication tools to raise awareness about the health costs and benefits of pollution, including community outreach to increase public understanding and visibility of the scale and environmental health impacts. While recognizing that the risks of exposure, scope of regulations and capacity of enforcement and environmental health consequences of poor management of mercury and waste may vary among countries, attention would be paid to develop shared institutional approaches and solutions that could be replicated across the region for eliminating harmful chemicals and hazardous waste, focused on reducing overall environmental health implication. This component will also focus on dissemination of lessons learned and knowledge sharing across the region.

3.2. Tanzania: Demonstrating application of technological tools and economic approaches (US $ 3.99 million GEF, US $ 12.7 IDA).

72. This component will support formalizing the ASGM sector which will create incentives for artisanal miners to access relevant knowledge, financing and institutional support. Technical assistance under the program will help improve working conditions for local mining community by leveraging planned investment activities under the existing SMMRP-II Project to promote mercury abatement. The objective of this component is to collaborate with Small Enterprise Development Corporation (SEDCO/SIDO) or local manufacturers to manufacture/replicate low cost centralized gold extraction equipment to enable moving away from using mercury instead to adopt alternative technologies such as Vat leaching. This initiative will greatly reduce the amount of mercury to be procured and used, and consequently reduce the amount of mercury emissions in the environment and wastage. This effort will complement the MIA initiative for Tanzania by providing policy makers with tools and guidance needed to design and implement strategies for risk reduction.

73. The demonstrative investments will be selected and designed based on environmental health risks and cost effectiveness of interventions. The project will consider opportunity for climate change adaptation and mitigation, especially use of cleaner technologies, including available non-mercury options, use of reclaimed lands, and mitigating effect of mining sectors on carbon sequestering ecosystems, such as forests. Such environmental improvements will act as demonstration pilots for the PMLs who are mandated to

rehabilitate their mines based on the Mine closure policy in the Mining Act and any guidelines that will come into force in relation to the implementation of Minamata Convention. The demonstration investments will be linked with the Industrial Transformation for Growth Project (P160164) and will aim to enhance Government's policy towards appropriate land usage for pastoral and agricultural activities and strengthen community level monitoring, through involvement of communities in land use shits and link to demonstrative investments.

74. *Expected Outputs of the component:*
    a. Implementation of pilot to adopt of use of mercury replacement technologies by local manufacturers (e.g. low cost centralized gold extraction equipment).
    b. Stakeholder engagement and awareness raising on use of cleaner technologies to phasedown mercury usage.
    c. Tools and guidance notes developed for design and implementation of risk reduction strategy.

3.3. Ghana: Demonstrating application of technological tools and economic approaches (US$ 4.5 million GEF, US$ 19.2 million co-financing)

75. ASGM: Support under this component is linked to Component 1. It aims to demonstrate the environmental improvement of 2-3 pilot abandoned mines, based on cost-effective and environmentally sound technologies. This component will also support the improvement of environmental and social work conditions to promote mercury abatement techniques. Details on the formalization of ASGM and sustainable community-based ASM are in the Ghana Annex.

76. e-Waste: This component will support the initiation of a pilot project related to Agbobloshie on implementation of an integrated and environmentally sound management approach to improve collection, transportation, and safe disposal/recycling of e-waste, following Article 6 of the Stockholm Convention on wastes, and relevant guidance. This will include investment in infrastructure and technologies by looking at the entire e-waste management cycle. It includes formalizing recycling systems, providing protective equipment for the collectors and recyclers, training and capacity building and developing protocols and methodologies for assessment of environmental health risks associated with e-waste.

77. *Expected outputs:*
    a. Supporting a multi-stakeholder partnership (Minerals Commission, LSM companies, and District authorities) for a pilot program to develop environmentally responsible community mining, including a minimum quota for female entrepreneurs' participation
    b. Implementation of pilot to adopt of use of mercury replacement technologies by local manufacturers.
    c. Adoption of use of cleaner technologies for e-waste recycling in selected county-level pilots.
    d. improved treatment of POPs and hazardous waste.
    e. Stakeholder engagement and awareness raising on use of cleaner technologies for e-waste recycling.

3.4. Zambia: Component 3: Demonstrating application of technological tools and economic

approaches for improving recycling of waste and reducing environmental health risks (US$ 4,26 million GEF, US$ 30 million IDA).

78. The project will focus on improving the waste value chain and reducing environmental health risks to workers and surrounding communities. Several measures will reduce UPOPs releases from solid waste by strongly limiting the quantities of waste subject to uncontrolled burning. Key outcomes include: (i) improved management of waste collection and transportation; (ii) improved treatment of POPs and hazardous waste; and (iii) improved recycling of wastes. The current dumpsite will be upgraded into a sanitary landfill (through IDA financing), and a feasibility study of short- and long-term BAT/BEP actions will be supported to determine the volumes and types of waste and the economic viability for private sector collaboration. Following the waste characterization study initiated under the IDA project, the component will support the upgrading of an operating landfill to a recycling facility allowing for additional waste streams and value generation for sustainable growth of the sector. The component will ensure the segregation between hazardous contaminated wastes from the other non-hazardous waste streams. This component will also explore ways to reduce the impact of chemical pollution emanating from unregulated landfills in economic and socially acceptable manner and support the development of communication tools to raise awareness about the health costs and benefits of pollution management, including community outreach to increase public understanding and visibility of the scale and environmental health impacts. The component will support training and community awareness promotion, especially training the existing rag-pickers and providing them with occupational health and safety training and equipment.

79. *Expected component outputs:*
    a. An economic viability and waste value chain study conducted.
    b. Hazardous waste management is piloted at existing landfill sites (investment in infrastructure).
    c. Upgrading an operational landfill to a recycling facility
    d. Trainings conducted for ragpickers on occupational health and safety

3.5. Kenya: Demonstrating application of technological tools and economic approaches (US$ 3.99 m GEF, US$ 27.3 million co-financing).

80. This component will support the initiation of a pilot project in a selected county in Kenya on implementation of integrated waste management approach to reduce releases of POPs from e-waste through improving source reduction/reuse, collection, transportation, and disposal/recycling, and following Articles 5 and 6 of the Stockholm Convention and related COP guidelines and guidance. This will start with (a) analysis of the current plans, (b) inventory information on toxic substances like PBDEs production, importation and usage and, (c) priorities and institutional capacity (including private sector) for the selected county. Such analysis and inventory will ensure that appropriate solutions are selected, and the basic waste management services are in place and operating, before more advanced approaches are considered. Based on the identified priorities, the infrastructure investments will be designed and implemented, focusing on addressing the gaps in the collection and disposal system. This component will also support piloting e-waste management in a selected county in Kenya – starting with capacity building for all relevant stakeholders in the county (including government, CSOs, and private sector), investment in infrastructure for the entire e-waste management cycle from generation, to collection, transportation, setting up of collection centers or transfer stations and treatment (recycling) facility. It includes developing protocols and methodologies for assessment of environmental health risks associated with e-waste based on health and environmental data,

knowledge, risks and impacts.

81. The Bank is envisioning to engage stakeholders already working in the field of e-waste management, including CFSK, WEEE, HP and others to leverage and eventually mainstream the existing good practices. This component is aligned with the Kenya Urban Support Program (KUSP) which assists the Government of Kenya in operationalizing its National Urban Development Policy (NUDP) and achieving medium term planning goals in the urban sector. Under this Component EHPMP, in collaboration with KUSP, will identify pilot sites at the county-level to improve health outcomes of e-waste management and will focus on establishing treatment/recycling facility at the site of an already existing waste management facilities.

82. *Expected component outputs:*
   - *a.* Investments in infrastructure for the entire e-waste management cycle (from generation, to collection, transportation, setting up of collection centers or transfer stations and treatment facility.
   - *b.* Adoption of use of cleaner technologies for e-waste recycling in selected county-level pilots.
   - *c.* Inventory information on toxic substances like PBDEs production, importation and usage collated
   - *d.* Stakeholder engagement and awareness raising on use of cleaner technologies for e-waste recycling

3.6. Senegal: Demonstrating application of technological tools (US$ 2.74 million GEF, US$ 9.8 million co-financing).

83. This component will support actions to set up a system aiming at reducing environmental health risks from the release of POPs and other toxic chemicals through ESM of urban waste in Maristes and Dalifort municipalities, which can later be replicated and scaled-up nationally and regionally. Under this component the project will support activities to reduce UPOPs by better preventing UPOPs precursors such as plastic wastes mixed with municipal and organic wastes that are subject to open burning and consequently cause higher emissions of UPOPs. Control of unregulated combustion will be strengthened by improving uncontrolled dump sites through separation, segregation, recycling of municipal and hazardous waste which should be the primary responsibility of municipalities. The project will work with relevant partners, such as private companies and NGOs, specialized in waste management to develop a business model to ensure the capitalization of waste management experiences and sustainability of the accumulated knowledge.

84. A waste management unit will be set up in the participating municipalities to coordinate waste management efforts. With respect to the Guidelines on best available techniques and provisional guidance on best environmental practices relevant to Article 5 and Annex C of the Stockholm Convention on Persistent Organic Pollutants, appropriate actions will be developed to manage municipal solid waste and hazardous waste in a sound manner, to minimize the releases of UPOPs and greenhouses gases.

85. *Expected component outputs:*
   a. Support to municipalities for separation, segregation, & recycling of municipal and hazardous waste.
   b. Waste management unit set up in the participating municipalities to coordinate waste management efforts.

c. Identify relevant partners, private companies specialized in waste management, NGOs to develop a business model for waste management.

4. Program and Project Coordination and Management.

4.1. Regional Program Implementation and Coordination (funded through a GEF BETF - P166233).

86. This component will support program and project coordination and management, including monitoring and evaluation. This activity will enable the coordination on the EHPMP through stakeholder consultations at the national and regional levels. A Program Steering Committee (PSC) with representation from key partners and stakeholders will be established as an advisory mechanism to maximize synergies and support the successful design and implementation of the overall Program. The PSC will serve as a forum for guidance and monitoring on Program implementation. It will provide a high-level coordination on technical alignment and synergy among the overall EHPMP Program's components to allow cross-fertilization. This activity will enable coordination on chemical management policies and alignment with relevant international conventions towards the achievements of Sustainable Developments Goals. The PSC will provide guidance and recommendations on legacy and new emerging issues on chemicals and hazardous wastes.

87. This activity will support the monitoring and evaluation (M&E) framework for the EHPMP to measure and record the impact and progress against performance indicators. The program level M&E framework will incorporate information provided by the national projects. Country-level project information, including indicator baseline, reference sources and measurement methods will be consolidated to aggregate the results and development outcomes at EHPMP projects. In addition, to the extent necessary, the analytical and preparation work, will be carried out with GEF and other implementation stakeholders to harmonize the reporting templates, tools, and processes to facilitate the national project reporting.

88. **4.2. Tanzania Project Coordination and Management (GEF US$ 349’498; 1.8 million Co-Financing including $ 300,000 Counterpart funding).** This component focuses on project coordination at national, district and community levels. It will support the implementing entities with day-to-day project implementation and provision of basic project management support including procurement, financial management, environmental management and monitoring and evaluation.

89. **4.3. Ghana Project Coordination and Management (GEF US$ 415’028, $ 1.8 million Co-financing including 0.6 million in kind contribution).** This component will cover the cost for project management, implementation and supervision of project activities, administration of procurement and financial management, monitoring and evaluation, and monitoring of safeguards compliance. The component will cover the cost of the Project Implementation Unit (PIU) set up under the Ministry of Lands and Natural Resources and hosted by the PMMC (Precious Minerals Marketing Company).

90. **4.4. Zambia: Project coordination and management (US$ 393’185 GEF, 0.3 million Counterpart in-kind contribution).** This component will provide the resources necessary for effective project coordination and management; monitoring and evaluation at the regional, national, and local levels. This component will cover the cost for project management, implementation and supervision of project activities, administration

of procurement and financial management, monitoring and evaluation, and monitoring of safeguards compliance. The component will cover the cost of the Project Implementation Unit (PIU) set up under ZEMA. The project will strengthen the existing PIU under the Zambia Mining and Environmental Remediation and Improvement Project (ZMERIP - P154683) with additional staff to cover activities specific to this project and assist in preparing, implementing and monitoring approved activities.

91. **4.5 Kenya: Project coordination and management (US$ 384,447 GEF, 500.00 Counterpart in-kind contribution).** This component will provide the resources necessary for effective project coordination and management; monitoring and evaluation at the national, local and regional levels. NEMA will function as the main implementing agency for this project.

92. **4.6 Senegal: Project coordination and management (US$ 262,123 GEF, $ 1.0 million co-Financing including 0.3 Counterpart in kind contribution).** This component will provide the resources necessary for effective project coordination and management; monitoring and evaluation at the national, local and regional levels. The Environment and Classified Establishments Directorate (Division de l'Environnement et des Etablissements Classés - DEEC) is responsible for implementing this project.

93. **Summary of GEF Financing by Country**

Component	Tanzania	Ghana	Zambia	Kenya	Senegal
Component 1: Institutional strengthening, knowledge and capacity building	1,500,000	1,900,000	1,800,000	1,900,000	1,504,587
Component 2: Policy Dialogue and Regulatory Enhancements	1,500,000	1,900,000	1,800,000	1,800,000	1,000,000
Component 3: Program Implementation and Coordination	3,989,952	4,500,568	4,263,696	3,988,948	2,737,877
Component 4: Program Implementation and Coordination	349,498	415,028	393,185	384,447	262,123
Total	**7,339,450**	**8,715,596**	**8,256,881**	**8,073,395**	**5,504,587**

C. Project Beneficiaries

94. The EHPMP focuses on addressing environmental health risks related to harmful chemicals and waste management. Doing this will have immediate and longer term socio-economic benefits for local communities, local and national revenues, and international trade in chemicals (such as mercury) and waste (such as e-waste and recyclable waste material). There are significant health costs associated with poor chemical and waste management practices.

95. The program requires involvement and collaboration of multiple stakeholders from government (including ministries of environment, mining, and urban development), private sector and non-governmental organizations. The program will also work closely with the RECs and the AU, and with partners such as UNDP, UNEP and UNIDO, as well as organizations such as NRDC and Artisanal Gold Council, who have undertaken significant work in many of the countries. The Ministry of Environment has a key regulatory

role as well as being the focal point for the relevant conventions. The program can ensure that the dialogue is brought to the relevant sectoral ministries.

96. The development of the national projects involves significant consultation with stakeholders at each country level as well as at regional level. The investment, institution and information ideas proposed under the program have been discussed in a high-level round table with various interested countries, namely, the Governments of Ghana, Tanzania, Zambia, Senegal, Kenya and with the USEPA, NRDC, UNIDO, industry associations, and Non-Governmental Organizations. The EHPMP will also work closely with community-based organizations, private sectors, NGOs and local communities, who are invested in pollution management issues, including opportunities for income generation and green job opportunities. This engagement will go beyond consultation to actively involve communities in the design and implementation of child projects and in the learning across the Program. Attention will be given to ensure the participation of vulnerable groups and local communities at the site level.

97. **Gender:** An estimated 30% of world's artisanal miners are women who occupy several roles ranging from labor-intensive mining methods to the processing aspect of artisanal mining, and thus this program presents an opportunity to provide a rationale and strategy for women to maximize potential benefits from participation in the sector. It has been well documented that inequities in political power, distribution of income, capital assets, and access to education and information have resulted in the increased vulnerability of women to chronic poverty. Despite the diverse and important roles undertaken by women in artisanal mining, limited reliable information is available on this topic. Consistent with the GEF Policy on Gender Mainstreaming and the GEF-6 approach on gender mainstreaming and World Bank Group's renewed Gender Equality strategy, the proposed program recognizes the gender dimensions of chemicals. The project will undertake gender analysis as part of the socio-economic assessment and highlight best practices in mainstreaming gender in chemicals and waste management projects. The project aims to raise awareness about the linkages between harmful chemicals and hazardous waste exposure, human health, environmental threats, and gender differences in risks and impacts. Gender considerations would be integrated as part of policy dialogue (under component 2) to ensure that women's and men's, concerns and experiences are considered in the design, implementation, monitoring and evaluation of environmental health implications.

98. The main approaches to support women's roles and health in the ASGM and recycling (from dumpsites and from electronic waste) sectors, would include addressing the associated environmental health risks. This would require increased and targeted communication and awareness of the risks, building capacity and supporting in adoption of clean technologies (e.g. training, small loans to purchase equipment and protective gear). Women who occupy administrative positions at artisanal mine sites (e.g. as bookkeepers) and spouses may also be able to advocate better practices. The EHPMP will consider implementation of targeted training programs to train women in various aspects of mining and recycling as well as in marketing, management and bookkeeping.

1. Regional: Program Beneficiaries

99. The EHPM Program targets the key stakeholders and policy makers in the participating countries as the primary audience but aims also to engage secondary audience. The primary audience will be the governments of Ghana, Tanzania, Zambia, Kenya, and Senegal and the respective Ministries of Environment, Industries, Mines, Chemicals and Health & their regulatory enforcement agencies. The secondary audience will be industries, industry associations, non-governmental organization including

community-based organizations and local organizations representing those who face environmental health issues arising from the harmful chemicals and wastes.

2. Project Beneficiaries in Tanzania:

100. Direct beneficiaries of this project will include artisanal and small-scale gold miners, service providers in mining sites and the surrounding communities in Geita, Mwanza, Shinyanga, Mara, Singida, Mbeya, and Songwe Regions. These artisanal and small-scale will have improved health conditions, and they will acquire safe and clean technologies. Indirect beneficiaries of this project will include the government, regional and the global community. Sound chemicals management at the national level, as underpinned regional and international agreements, brings many global economic, social and environmental benefits as reflected in GEF strategic objective on Chemicals.

3. Project Beneficiaries in Ghana:

101. The primary beneficiaries of the project will be an estimated number of one million people who are engaged in and depending on ASGM industry for a living, and an estimated population of 200,000 people in Ghana who are partially or entirely dependent on refurbishing and e-waste recycling operations. Additionally, the public entities responsible for regulating and monitoring e-waste management and mercury use in ASGM will be benefitted from this project. Poor households and informal settlement families in Accra city, Agbobloshie, and along the Odaw River will indirectly benefit from the project. The Government will benefit from support for the enhancement of Government's policies and development of guidelines and monitoring systems for the management of mercury and hazardous chemical waste including e-waste.

4. Project Beneficiaries in Zambia:

102. The development of this project involved significant consultations with stakeholders in Zambia. The EHPMP will benefit government institutions (Zambia Environmental Management Agency, Kabwe Municipal Council and local government) and their respective staff. The project will also benefit community-based organizations, private sectors, NGOs and local communities, who are invested in pollution management issues, including opportunities for income generation and green job opportunities. Special attention will be given to ensure the participation of local communities and vulnerable people at the site level.

5. Project Beneficiaries in Kenya:

103. Key players in e-waste generation, management and disposal include a variety of ministries and private and public-sector partners. The Table the Kenya annex outlines the key institutions, roles, and constraints of these actors both up and downstream in the sector.

6. Project Beneficiaries in Senegal:

104. The project will benefit various stakeholders in Senegal who are involved Solid and Hazardous Waste Management including the Ministry of Environment and sustainable Development, National Commission for Chemicals Management, Ministry of Industry, Ministry of Planning, selected municipal authorities and private companies as well as other departments involved. Civil society and NGOs involved in the development and implementation of training, awareness and education and communication programs. Special attention will be given to ensure the participation local communities and vulnerable groups at the site level.

D. Results Chain

105. **The EHPMP will leverage targeted investments to reduce mercury emissions and POPs releases from e-waste burning and other unsound recycling techniques, and open-burning of solid waste, to demonstrate reduced environmental health risks.** This will include strengthening involvement of mining communities and improving institutional capacity of custom and border official involved in regulating illegal trade in mercury. It is based on a theory of change that sees both community involvement through benefit sharing and strengthening of state-led compliance and enforcement efforts as essential in addressing environmental health risks. The program will take into account and utilize existing initiatives and platforms, including collaboration with the countries with best practice experiences in artisanal small-scale mining sector.

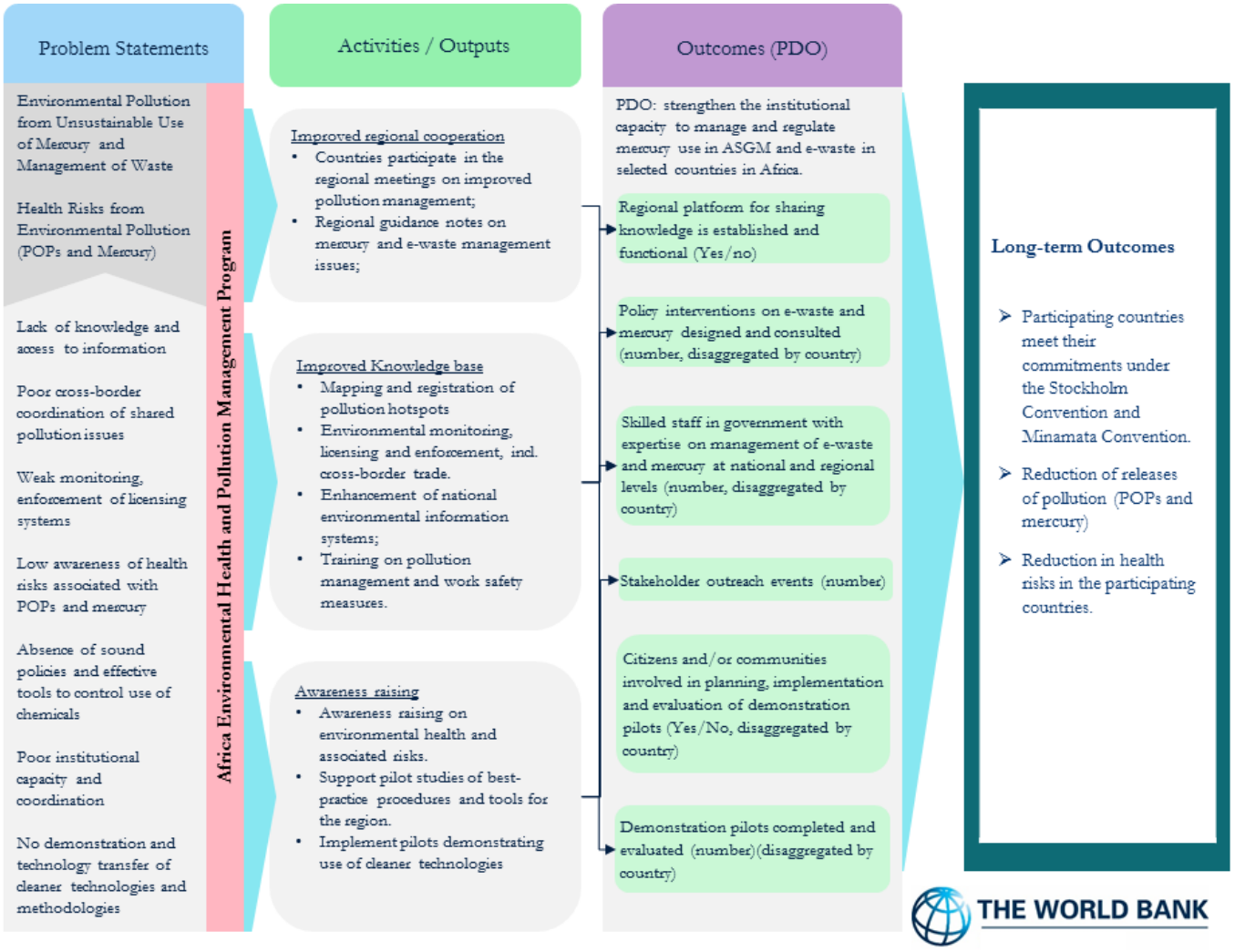

Figure 1. *Theory of Change / Result Chain.*

E. Rationale for Bank Involvement and Role of Partners

106. The Bank will use its leverage to convene the highest levels of national governments, led by Ministries of Finance, to a common platform to help accelerate action toward follow-up investment priorities. Such platform will enable the participating countries to strengthen the policy dialogue and identifying solutions to focus on meeting the Convention obligations and promote increased contributions from the private sector. This will allow GEF interventions to be sustained after the Project is completed.

Incremental cost reasoning and associated co-financing

107. The EHPMP for the Africa region will provide incremental funding across the suite of project interventions financed by IDA in environment, urban and mining sector that focus on supporting improved capacity for

effective pollution management. The GEF funding will be used to improve and consolidate the enabling environment necessary for technical assistance to support institutional strengthening and capacity building as well as knowledge, policy dialogue and regulatory enhancement to generate greater awareness of the impacts, including the health impacts of harmful chemicals and hazardous waste related to the release of POPs and mercury. The co-financing from the WB through IDA and EITI funding, as well as Government from participating countries would focus on investment to demonstrate application of technological tools and economic approaches for reduced environmental health risks due to POPs, mercury and other harmful chemicals and waste.

108. The GEF funding will be used to improve and consolidate the enabling environment necessary for technical assistance to support institutional strengthening and capacity building as well as knowledge, policy dialogue and regulatory enhancement to generate greater awareness of the impacts, including the health impacts of harmful chemicals and hazardous waste related to the release of POPs and mercury. The associated co-financing from the WB through IDA and EITI funding, as well as Government from participating countries would focus on investment to demonstrate application of technological tools and economic approaches for reduced environmental health risks due to POPs, mercury and other harmful chemicals and waste.

109. The proposed project (under components 1 and 2) will generate strengthened communication to policy makers at the national level so that sound management of harmful chemicals and hazardous waste is fully integrated into national budgets and sector level plans. Efforts would be made to target negotiators and policy makers in the selected African countries recognizing the cross-cutting nature of sound management of chemicals and wastes in different sectors and its inherent impact on a sustainable future for all. The EHPMP targets not only the ministries of environment but other sector ministries such as Ministry of Mines, Ministry of Industries and Ministry of Urban Development that are responsible for planning, finance, industry, technology, innovation, health, women, children, and labor. This shift would systematically increase the visibility of these issues using assessments of the social and environmental costs of mismanagement of chemicals and waste including the impact on the productivity and health of impacted communities. The policy dialogue (under component 2) will focus on shifting the allocation of resources from national budgets, and increased participation and contributions from the private sector to allow GEF interventions to be sustained after the projects and programs are completed. The GEF program is expected to become a true catalyst for sustainable and sustained behavioral change.

Global environmental benefits

110. **The proposed program is one of the first integrated attempt to assist African countries** develop strategies and plans to ensure long term sustainability of actions at reducing significantly the risks of exposure to harmful and toxic chemicals and hazardous waste, such as mercury, e-waste and POPs. The project will thus provide appropriate technologies and alternative options for the environmentally sound management of mercury and hazardous waste, leading to their and POPs release reduction.

111. The Program directly contributes to GEF Corporate Result #5 *Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern.* An economic analysis including 1) benefit cost analysis to determine if the project is profitable and 2) cost effectiveness analysis to compare reduction in UPOPs generated by the project.

112. The NPV of the benefits of health improvement in miners in Tanzania is estimated in the range from 0 up to US$8,6 million. ERR is estimated from 7% to 48%. The NPV of the benefits of reduction in methylmercury exposure in Ghana is estimated in the range from US$0.5 million up to US$3.8 million. ERR is estimated from 13% to 20%. Cost-efficiency of project investments in Ghana, Kenya, Senegal and Tanzania is estimated from 0.3 gTEQ to 3.6 gTEQ of UPOPs reduction per US$1 million of the project investment cost. The detailed economic analysis is in Annex 1.

F. Lessons Learned and Reflected in the Project Design

113. The need for a regional approach is predicated not only on the physical transboundary nature of mercury and POPs emissions and impacts, but on regional opportunities for solutions and regional causes for mismanagement. The preparatory studies and assessments carried out through the GEF-funded MSP on "Reducing Environmental Health Impact of Harmful Chemicals in Africa Region" and under the World Bank's Pollution Management and Environmental Health (PMEH) program validate a regional approach to addressing these issues. For example, the recently commissioned Mercury Trade study, under the GEF-MSP, revealed significant gap between the estimated consumption of mercury and official imports, indicating that there is major illegal trade across African countries. Illegal traffic is also prevalent with electronic waste. Unless there is a regionally-harmonized policy on mercury import licensing and its use in the ASGM sector, country-level interventions may not have the desired outcomes.

114. EHPMP draws lessons from the Sustainable Artisanal Mining project implemented by the Swiss Agency for Development and Cooperation (SDC). The SDC project conducted a study on existing ASM knowledge sharing initiatives that concluded that a combination of information and knowledge sharing approaches (i.e. Social media, websites, study tours, training & learning events, conferences, targeted workshops) was key to success.

115. The Program will establish a virtual platform for regional partnerships and policy dialogue, knowledge management and communication, will leverage lessons learned and disseminate information, tools, and techniques to scale up best practices. It aims to bring together environmental regulators and urban municipal councils with jurisdiction over the contaminated land. The investments, institution and information ideas proposed under the Program to tackle the environmental health issues have been discussed in a significant high-level roundtable with various interested countries, namely, the Governments of Ghana, Tanzania, Zambia, Kenya, and Senegal and with the USEPA, NRDC, UNDP, UNIDO, UNEP, industry associations, and Non-Governmental Organizations.

116. The design of the EHPM Program draws lessons from the Community Artisanal and Small-Scale Mining (CASM) initiative specifically to inform the approach to the global ASM support. These inter alia include:

    a. Strengthening of Information and knowledge sharing,
    b. Enhancing regional and global partnerships to share services, capacity building and tools tailored for the specific needs of stakeholders.
    c. Monitoring and Evaluation to follow up on progress of information sharing and improve accountability; and
    d. Collaboration both within and outside the World Bank Group.

117. The EHPMP will work closely with local communities and community-based organizations who are invested in and benefit from current practices in ASGM sector or from solid and electronic waste management, including opportunities for income generation and green jobs.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

118. **The regional coordination project will provide the overall guidance and oversight for the individual projects.** The regional coordination project will establish the coordination framework for the Program and will enable a sustained communication with and among Program stakeholders through stakeholder consultations at the national and regional levels to support all components. A Program Steering Committee (PSC) with representation from key partners and stakeholders will be established as an advisory mechanism to maximize projects' synergies and support the design of activities and implementation of the overall Program. The PSC will have a secretariat with representatives of all participating countries. High-level meeting will be organized on a semi-annual basis for coordination of policies and implementation of program measures towards meeting countries' commitments under MBAs. The main role of the PSC is to provide a coordination forum, serve as a monitoring platform across projects and Program activities. The PSC will ensure technical alignment and synergy between the Program's components to allow cross-fertilization.

119. **The National Focal Point Ministries (NFPMs/Implementing Agencies) will have the overall responsibility for implementation.** The identified NFPMs are: in Ghana: The Environmental Protection Agency and the Accra Metropolitan Assembly; in Tanzania the National Environmental Management Council (NEMC); Division de l' Environnement et des Etablissements Classes (DEEC) in Senegal; Environmental Protection Agency (EPA), in Kenya the Ministry of Environment and Forests and the National Environment Management Agency (NEMA); and in Zambia the Zambia Environmental Protection Agency (ZEMA).

B. Results Monitoring and Evaluation Arrangements

120. **Regional Coordination Support will be provided initially by the World Bank to ensure timely execution of activities at regional and national levels.** The regional coordination unit (PCU), established at the WB will support implementation of country projects and coordinate regional technical activities, facilitate access to high level expertise, promote exchanges of know-how for fiduciary support to the countries. A Program Steering Committee (PSC) with representation from key partners and stakeholders will be established as an advisory mechanism to maximize synergies and support the successful design and implementation of the overall Program. The main role of the PSC is to provide a coordination forum, a monitoring platform and provide an overall, high-level, coordination of the technical alignment and synergy

between the Program's components to allow cross-fertilization. A regional coordination support unit will be identified during implementation and strengthened to meet future needs of the program.

121. **The project Monitoring & Evaluation is designed for track knowledge generation and sharing, communication, learning, and to support project management.** M&E activities will: (i) generate information on progress of the project; (ii) analyze and aggregate data generated at local, national and regional, levels; and (iii) document and disseminate lessons learned to all participating countries and beyond.

122. **M&E will be undertaken at two levels: (i) at regional level guided by the Program Steering Committee (ii) at national level by the five participating countries through the respective PIUs.** The Regional coordination unit will manage the M&E function of the program and will ensure that data and information from all countries are produced on time and disseminated to all participating countries. The PCU will also design and implement data collection efforts which are best done at the regional level. The M&E function of PCU will described in detail in the M&E manual. The PCU will also provide technical backstopping to the countries on M&E, put in place a data quality assurance mechanism as well as to undertake data collection on its own and encourage cross-country learning.

C. Sustainability

123. Building good policies, strong legislation and the capacity to implement strong institutions across the waste management chain will establish the enabling environment for long term sustainability of improved pollution management by all stakeholders. Securing alternative development pathways that rely on enhanced commercial value of reclaimed land and associated community benefit due to reduced environmental health risks. The project will seek to create stable situations on the ground where there is proper enforcement, along with local communities affected by localized pollution, that generate local benefits while generating regional environmental benefits. The Program will catalyze different innovations across its child projects that can be deployed at speed and scaled up across all African countries. A focus on demonstrating institutional models and establishing techno-economically sustainable solutions will allow for causality to be established and will allow for smarter investment going forward, which in turn can tap new streams of finance that are results based. The demonstration pilots in the child projects will focus on stakeholder engagements, with a view to lay ground for support to more interventions with specific community level groups in the follow-up interventions. The appropriate policy and institutional models to be established under the program will crowd-in investment going forward and ensure that future interventions can be more effective, accelerate delivery and results, and avoid mistakes.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis (if applicable)

124. **Environmental health problems are often associated with livelihood challenges and unawareness of long term impacts to health and the surrounding environment.** These challenges arise from inefficient use of materials and resources, where possible solutions are based on identifying and adopting cleaner and more productive ways of working. Volatile Organic Compounds and mercury emissions alone account for 5.7 to 13 percent of the annual US$ 2 trillion to 4.5 trillion (or USD 2000 billion - 4500 billion) in ecosystems and biodiversity losses, while estimates for selected chemicals (including pesticides) involved in unintentional acute and occupational poisonings, a limited number of occupational carcinogens and particulates and lead, in 2004, resulted in a total of 964,000 deaths and 20,986,153 DALYs, corresponding to 1.6% of the total deaths and 1.4% of the total burden of disease world-wide .

125. **Poor waste management practices lead to groundwater contamination, atmospheric and water pollution as well as health problems including occupational safety impacts among those directly and indirectly involved.** Reduced burning of mixed solid waste will reduce the atmospheric deposition of POPs such as dioxins and furans translating into health benefits and reduced costs of pollution management and health care. Alternative treatment technologies for solid waste management can not only eliminate pathogenic agents or failure to immobilize heavy metals, but also benefit the public health and environmental safety, including reduction of greenhouse gas emissions such as carbon dioxide and methane.

126. **The project will promote the replication of alternative processes and techniques to prevent POPs formation due to open burning of different categories of wastes, including municipal, hazardous and medical wastes, following Stockholm Convention Article 5 and related BAT/BEP guidance.** The Project aims to create socio-economic conditions necessary for the long-term reduction of environmental health risks and costs for the affected communities.

127. **For ASGM sector, the Program will promote transparency along the ASGM value chain, offering greater opportunity for miners to have a direct access to the market in order to negotiate with the end buyer a better price for their gold, leading to greater economic and social stability.** Cleaner technologies and providing miners with safe alternatives will have a direct benefit of not only reducing mercury emissions but the reduction in toxic fumes will have beneficial impacts on the health of the miners. Financial benefits can also arise from better management of input, including mercury recycling. Mandating and supporting ASG miners to rehabilitate closed mines will allow revegetation of large tracts of land, support reforestation efforts of the Government and in some cases allow land to be returned for productive agricultural or pastoral use.

128. **Through improved ASGM sector management, reduction in mercury emissions and reduced health risks and economic benefits in the longer term are envisaged.** Longer term interventions focus on promoting sustainability, community benefits and effective environmental governance by communities. These interventions are designed to act collectively to shift the perception of cost-benefit in relation to the participation by a wide range of actors across ASGM. Additionally, the project will promote dialogue on how to best ensure that communities benefit from improved management of mercury use consistent with

national action planning and relevant legislation, in order to create the fundamental socio-economic conditions necessary for the long-term reduction of environmental health risks and costs for the affected community. For the e-Waste sector, the Program envisions a number of economic benefits from to reduction of UPOPs releases (and potentially other POPs present in the waste including PCBs and PBDEs), such as (a) improved management and reduced open and uncontrolled burning of solid waste, and as a result reduced risk of public health diseases; (b) improved recycling systems provides better business opportunities and economic growth along with enhanced local ownership, responsibilities and participation; and (c) reduction of health costs associated with poor waste management practice.

B. Fiduciary

(i) Financial Management

129. **Financial Management: FM assessments are being carried out for all participating countries.** The FM assessments are carried out in accordance with the Financial Management Manual issued by the FM Sector Board on March 1, 2010 and retrofitted on February 4, 2015. The objective of the assessment is to determine whether the implementing entities have acceptable financial management arrangements in place that satisfy the Bank's Operation Policy/Bank Procedure (OP/BP) 10.00. These arrangements would ensure that the implementing entities: (i) use Project funds only for the intended purposes in an efficient and economical way; (ii) prepare accurate and reliable accounts as well as timely periodic financial reports; (iii) safeguard assets of the Project; and (iv) have acceptable auditing arrangements.

130. FM arrangements should meet the following requirements: (i) Entities should have or recruit a qualified and experienced project accountant, who will report to the Finance Manager, for the project as a condition of effectiveness; (2) the newly-recruited project accountant, including existing staff and internal auditors, be trained in World Bank financial management and disbursements procedures continuously throughout the life of the project; and (3) Implementing entities develop a Project Implementation Manual (PIM), including financial procedures before Effectiveness.

131. The financial management arrangements in place should be adequate to meet the World Bank's minimum requirements under OP/BP10.00, and therefore are adequate to provide, with reasonable assurance, accurate and timely information on the status of the Project required by World Bank (IDA).

(ii) Procurement

132. **The Procurement Specialists are updating the respective PPSD for all participating countries.**

133. Procurement under the proposed project will be carried out in accordance with the World Bank New Procurement Framework "*Procurement Regulations for Investment Project Financing (IPF) for Borrowers – Goods, Works, Non-Consulting and Consulting Services'* dated July 2016; ii) "*Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants, (the Anti-Corruption Guidelines*)" dated October 15, 2006 and revised in January 2011; and iv) the provisions stipulated in the legal agreement.

134. The procurement procedure to be followed for National Competitive Bidding ("NCB") shall be the open bidding procedure set forth in the respective Public Procurement Acts and the Public Procurement Regulations provided, however, that such procedure shall be subject to the provisions of Section I and Paragraphs 3.3 and 3.4 of Section III, and Appendix 1 of the Procurement Guidelines, and the additional provisions as provided in Annex 2 Procurement.

135. Procurement capacity assessments of the implementing agencies for the project are presently being carried out as part of project preparation. The assessment will make use of existing procurement management arrangements in place as the respective country projects are anchored on existing Bank-funded projects to ensure compliance with the Procurement Guidelines for economies of scale.

136. **Procurement methods to be used for the Project**

137. Methods of procurement of goods and works are as follows:

a. International Competitive Bidding. Except as otherwise provided, goods and works shall be procured under contracts awarded on the basis of International Competitive Bidding (ICB).

b. Other methods of procurement of goods and works. The following list specifies the methods of procurement, other than International Competitive Bidding which may be used for goods and works. The Procurement Plan specifies the circumstances under which such methods may be used:

(i) National Competitive Bidding

(ii) Procurement from UN agencies

(iii) Force Account

(iv) Shopping

(v) Direct Contracting

(vi) Community Participation in Procurement.

138. Methods of procurement for consulting services are:

a. Quality and Cost-Based Selection (QCBS). Except as otherwise provided in the paragraph below, consultants services shall be procured under contracts awarded on the basis of Quality and Cost-Based Selection.

b. Other methods of procurement of consultants' services. The following list specifies selection methods, other than Quality and Cost-Based Selection, which may be used for consultants' services. The Procurement Plan shall specify the circumstances under which such methods may be used:

(i) Quality-Based Selection (QBS)

(ii) Selection based on the Consultant's Qualifications (CQS)

(iii) Least-Cost Selection (LCS)

(iv) Single-Source Selection for firms (SSS)

(v) Individual Consultants (IC)

(vi) Single-Source Selection for IC (SSS).

D. Environmental and Social

The key potential environmental and social issues, which can be readily managed/mitigated are related to (i) hazardous waste management (including disposal) during preparation of pilot sites, (ii) occupational health and safety of workers, and (iii) negative effects of pollution from hazardous chemicals on workers and communities. The Bank's review considered the Project's capacity to manage its environmental, social, safety and health performance in compliance with ESS1 and other relevant standards. From the preliminary review carried out at this concept stage, it can be concluded that implementing agencies' environmental and social management system and procedures need to be complemented/enhanced to comply with ESF requirements. The Project will address the gaps through the preparation and implementation of an Environmental and Social Commitment Plan (ESCP). The ESCP will be based on the preparation and implementation of the ESIAs and the associated ESMPs. The demonstrative investments (pilots) will introduce cleaner technologies and methodologies to phase-out mercury use in Artisanal and Small scale mining and reduce emissions of unintentional POPs in waste management. The pilots will be selected and designed based on priority environmental health risks and cost effectiveness of interventions. These pilots will be directly connected to ongoing Bank operations in each participating country: - Ghana - Artisanal and Small-scale Mining Formalization (P168002) - Tanzania – Industrial Competitiveness for Jobs Project (P160164) - Kenya - Urban Support Program - (P156777) - Zambia – Mining and Environmental Remediation and Improvement Project (P154683) - Senegal –Municipal Solid Waste Management Project (P161477) Each pilot preparation is going to include review of existing E&S due diligence (ESIA/ESMP/SA), which will be updated and publicly redisclosed to reflect the requirements of relevant ESSs.

V. GRIEVANCE REDRESS SERVICES

Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit

complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit *http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service*. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

VI. KEY RISKS

139. The overall risk of the project is "Substantial" given the significance of political and governance and institutional capacity risks related to participating countries.

140. Political and Governance risk is rated Substantial and will be monitored, and possibly managed by the promotion of transparency and access to information on activities included in the project.

141. Sector Strategies and Policies risk is rated Moderate and mitigated via the coordination on the implementation plans within and among participating countries.

142. Institutional Capacity for Implementation and Sustainability risk is rated Substantial and will be mitigated through capacity building and policy development activities under Components 1 and 2, focused on identification of key environment health risks; establish feasibility and improve monitoring and reporting of environmental quality of the contaminated areas.

VII RESULTS FRAMXEWORK AND MONITORING

ENVIRONMENTAL HEALTH AND POLLUTION MANAGEMENT PROGRAM (EHPMP) IN AFRICA

RESULTS FRAMEWORK

Project Development Objective (PDO): To strengthen the institutional capacity to manage and regulate mercury use in ASGM and e-waste in selected countries in Africa.												
PDO Level Results Indicators	**Core**	**Unit of Measure**	**Baseline**	**Cumulative Target Values**					**Frequency**	**Data Source/ Methodology**	**Responsibility for Data Collection**	**Description**
			Jan-19	**YR 1**	**YR 2**	**YR 3**	**YR 4**	**YR 5**				
Indicator One: Regional platform for sharing knowledge is established and functional	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	World Bank	
Indicator Two: Policy interventions on e-waste and mercury designed and consulted												
Tanzania	☐	**Number**	0	0	0	1	2	2	Annual	Records/Progress Reports	GCLA, NEMC, MC, MoW, MoM	
Ghana	☐	**Number**	0	0	0	1	2	2	Annual	Records/Progress Reports	EPA	
Zambia	☐	**Number**	0	0	1	2	2	2	Annual	Records/Progress Reports	ZEMA	
Kenya	☐	**Number**	0	0	0	1	2	2	Annual	Records/Progress Reports	NEMA	1) finalize the e-waste regulation (currently draft from 2013) 2) county level e-waste guidelines.
Senegal	☐	**Number**	0	0	0	1	2	2	Annual	Records/Progress Reports	DEEC	
Indicator Three: Trained skilled staff in government with expertise on management of e-waste and mercury at national and regional levels												
Tanzania	☐	**Number**	0	0	10	25	50	100	Annual	Records/Progress Reports	GCLA, NEMC,	

											MC, MoW, MoM	
Ghana	☐	**Number**	0	0	10	25	50	100	Annual	Records/Progress Reports	EPA	
Zambia	☐	**Number**	0	0	10	25	50	100	Annual	Records/Progress Reports	ZEMA	
Kenya	☐	**Number**	0	0	50	100	150	200	Annual	Records/Progress Reports	NEMA, MEF	Training of national and county level officials
Senegal	☐	**Number**	0	0	10	25	50	100	Annual	Records/Progress Reports	DEEC	
Indicator Four: Stakeholder outreach events												
Tanzania	☐	**Number**	0	1	2	4	6	8	Annual	Records/Progress Reports	GCLA, NEMC, MC, MoW, MoM	
Ghana	☐	**Number**	0	1	2	4	6	8	Annual	Records/Progress Reports	EPA	
Zambia	☐	**Number**	0	1	2	4	6	8	Annual	Records/Progress Reports	ZEMA	
Kenya	☐	**Number**	0	2	4	5	6	7	Annual	Records/Progress Reports	NEMA, MEF	Initially 2 events to start public awareness program, then a follow up event in Yr 3-5.
Senegal	☐	**Number**	0	1	2	4	6	8	Annual	Records/Progress Reports	DEEC	
Indicator Five: Citizens and/or communities involved in planning, implementation and evaluation of demonstration pilots												
Tanzania	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	GCLA, NEMC, MC, MoW, MoM	
Ghana	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	EPA	
Zambia	☐	**Yes/No**	Yes	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	ZEMA	
Kenya	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	NEMA, MEF	This is done from Yr 1 as part of stakeholder

												engagement process
Senegal	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	DEEC	
Indicator Six: Demonstration pilots completed and evaluated												
Tanzania	☐	**Number**	0	0	0	1	2	2	Annual	Records/Progress Reports	GCLA, NEMC, MC, MoW, MoM	
Ghana	☐	**Number**	0	0	0	1	2	2	Annual	Records/Progress Reports	EPA	
Zambia	☐	**Number**	0	0	0	1	2	2	Annual	Records/Progress Reports	ZEMA	
Kenya	☐	**Number**	0	0	1	1	2	2	Annual	Records/Progress Reports	NEMA, Ministry of Devolution (County Governments)	At least 2 pilots are identified and implemented sequentially (to assess success of each pilot)
Senegal	☐	**Number**	0	0	0	1	2	2	Annual	Records/Progress Reports	DEEC	
Intermediate Result Indicators												
Component 1: Institutional strengthening, knowledge and capacity building												
IRI 1: Developed environmental monitoring protocols												
Tanzania	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	GCLA, NEMC, MC, MoW, MoM	
Ghana	☐	**Yes/No**	No	No	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	EPA	
Zambia	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	ZEMA	
Kenya	☐	**Yes/No**	No	No	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	NEMA	At least one protocol is developed based on preparatory work done during Yr 1

Senegal	☐	**Yes/No**	No	No	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	DEEC	
IRI 2: Trained inspection officers												
Tanzania	☐	**Number (% of female)**	0	0	5 (2)	10 (5)	20 (10)	30 (10)	Annual	Records/Progress Reports	GCLA, NEMC, MC, MoW, MoM	
Ghana	☐	**Number (% of female)**	0	0	5 (2)	10 (5)	20 (10)	30 (10)	Annual	Records/Progress Reports	EPA	
Zambia	☐	**Number (% of female)**	0	5 (2)	10 (5)	20 (10)	30 (10)	50 (20)	Annual	Records/Progress Reports	ZEMA	
Kenya	☐	**Number (% of female)**	0	0	20 (9)	50 (23)	80 (36)	100 (45)	Annual	Records/Progress Reports	NEMA, MEF, Ministry of Devolution, Kenya School of Government	Based on preparatory work in Yr1, curriculum is designed and officers trained at the national and county levels (45% female)
Senegal	☐	**Number (% of female)**	0	0	5 (2)	10 (5)	20 (10)	30 (10)	Annual	Records/Progress Reports	DEEC	
Component 2: Support for policy dialogue and regulatory enhancements												
IRI 3: Developed guidelines and checklists for stakeholders and workers												
Tanzania	☐	**Yes/No**	No	No	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	GCLA, NEMC, MC, MoW, MoM	
Ghana	☐	**Yes/No**	No	No	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	EPA	
Zambia	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	ZEMA	
Kenya	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	NEMA	Based on existing body of work, the guidelines can be developed from Yr 1 of the program.

Senegal	☐	**Yes/No**	No	No	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	DEEC	
IRI 4: Developed stakeholder communication strategy												
Tanzania	☐	**Yes/No**	No	No	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	GCLA, NEMC, MC, MoW, MoM,	
Ghana	☐	**Yes/No**	No	No	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	EPA	
Zambia	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	ZEMA	
Kenya	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	NEMA, MEF	Crucial to develop the stakeholder communication strategy as one of the first steps
Senegal	☐	**Yes/No**	No	No	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	DEEC	
Component 3: Demonstrating application of technological tools and economic approaches												
IRI 5: Training events conducted												
Tanzania	☐	**Number**	0	0	1	1	2	2	Annual	Records/Progress Reports	GCLA, NEMC, MC, MoW, MoM,	
Ghana	☐	**Number**	0	0	1	1	2	2	Annual	Records/Progress Reports	EPA	
Zambia	☐	**Number**	0	0	1	1	2	3	Annual	Records/Progress Reports	ZEMA	
Kenya	☐	**Number**	0	0	1	1	2	2	Annual	Records/Progress Reports	NEMA	At least 2 pilots are identified and implemented sequentially (to assess success of each pilot)
Senegal	☐	**Number**	0	0	1	1	2	2	Annual	Records/Progress Reports	DEEC	
IRI 6: Clean technologies to reduce/phasedown mercury usage deployed OR Mercury use in pilot projects reduced												

Tanzania	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	GCLA, NEMC, MC, MoW, MoM,	
Ghana	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	EPA	
Kenya	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	ZEMA	
Senegal	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	NEMA	
Zambia	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	DEEC	
IRI 7: Private sector in selected e-waste pilot project sites engaged												
Tanzania	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	GCLA, NEMC, MC, MoW, MoM,	
Ghana	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	EPA	
Kenya	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	ZEMA	
Senegal	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	NEMA	
Zambia	☐	**Yes/No**	No	Yes	Yes	Yes	Yes	Yes	Annual	Records/Progress Reports	DEEC	
IRI 8: uPOPs from open burning of solid waste in pilot sites reduced												
Tanzania	☐	**Percentage**	0	0	0	0	0	0	Annual	Records/Progress Reports	GCLA, NEMC, MC, MoW, MoM,	
Ghana	☐	**Percentage**	0	0	5	10	15	20	Annual	Records/Progress Reports	EPA	
Kenya	☐	**Percentage**	0	0	5	10	15	20	Annual	Records/Progress Reports	ZEMA	

Senegal	☐	**Percentage**	0	0	5	10	15	20	Annual	Records/Progress Reports	NEMA	
Zambia	☐	**Percentage**	0	0	5	10	15	20	Annual	Records/Progress Reports	DEEC	

ANNEX 1: Economic Analysis

COUNTRY: Africa
Africa Environmental Health and Pollution Management Program

Toxic waste exposure, specifically mercury pollution and UPOPs pollution, defined as excess amounts of Mercury and UPOPs in the environment, is one of the leading causes of local health problems in Sub-Saharan Africa. Also, these toxic elements are dispersed globally. Air, soils and water quality impairment in Sub-Saharan Africa related to artisan small gold mining, abandoned mines and hazardous E-wastes became a serious concern of the respected Governments. Economic analysis includes 1) benefit cost analysis to determine if project investment is profitable from the economic viewpoint. In this case the analysis comprises project costs (investment costs) with benefits generated by such an operation (a reduction of morbidity among miners and an increase of lifetime income due to IQ increase); 2) cost effectiveness analysis to compare reduction in UPOPs generated by the project with project costs.

The NPV of the benefits of health improvement in miners in Tanzania is estimated in the range from 0 up to US$8,6 million. ERR is estimated from 7% to 48%. The NPV of the benefits of reduction in methylmercury exposure in Ghana is estimated in the range from US$0.5 million up to US$3.8 million. ERR is estimated from 13% to 20%. Cost-efficiency of project investments in Ghana, Kenya, Senegal and Tanzania is estimated from 0.3 gTEQ to 3.6 gTEQ of UPOPs reduction per US$1 million of the project investment cost.

Economic analysis compiles current information regarding the costs of mercury and UPOPs pollution. Such costs may be of two broad types. Some costs are associated with reducing toxic pollution at its sources. Other costs are associated with the impacts of toxic pollution in the environment. The latter category of costs is referred to as “external costs” or “externalities,” because they are “external” to the owners of the farms, businesses, or facilities that generate them. Externalities considered in this project are health cost of the exposed population and cost of ecosystem services lost due to pollution.

Tanzania and Ghana will implement mercury pollution reduction investment. Specifics of the activities planned in these countries are summarized in table 1.

Table 1. Project activities related to ASGM

Country	Target area	Area, ha	Planned activities	Targeted population	Target interim indicators	Cost
Tanzania	Gieta District		Mercury management equipment for ASGM	150,000 miners	• Increased number of ASGM miners using non-mercury methods • Reduction in mercury use (Ton/year)	US$3.79 million

Ghana	2-3 pilot abandoned mines	5 Ha each	Reduction of mercury exposure: cleaning of abandon sites	60,000 local population and population downstream	• Increased number of ASGM miners using non-mercury methods; • Reduction in mercury use (Ton/year)	US$2.24 million

1. Benefit-cost analysis of cleaner technologies dissemination in ASGM in Tanzania

For ASGM sector, cleaner technologies and providing miners with safe alternatives will have a direct benefit of not only reducing mercury emissions but the reduction in toxic fumes will have beneficial impacts on the health of the miners in Tanzania. Artisanal small-scale gold (ASGM) mining typically involves panning gold-containing alluvial soils or crushed ores with elemental mercury (Hg). Mercury poses a significant risk to human health because mercury is a potent neurotoxin and systemic toxin.

Health burden attributed elementary mercury in artisan gold mining workers is summarized in table 2.

Table 2. Disease profiles of the moderate and severe cases of chronic metallic mercury vapor intoxication (CMMVI)

Moderate case: Adults with high mercury body burden caused by chronic inhalation of metallic mercury vapor who show several of the following symptoms:	Severe case: Adults with a very high mercury body burden caused by chronic inhalation of metallic mercury vapor who show several of the following symptoms:
• Slight tremor of fingers, hands, and limbs; coordination problems; dysfunction of movement control; weakness • Reflexes abnormalities; peripheral nerve abnormalities; sensory disturbances • Sleep disorders; irritability; nervousness; fatigue; memory impairment; difficulty in concentration; shyness; depressive mood; loss of confidence; lack of self-control • Renal effects like enzymuria, proteinuria, and glomerular dysfunction, increased urinary excretion of N-acetyl-β-glucosaminidase (NAG) • Loss of appetite; salivation • Immunological changes	• Pronounced tremor in several parts of the body; severe coordination problems; dysfunction of movement control; weakness • Polyneuropathy • Insomnia; hyperirritability; nervousness; fatigue; loss of memory; difficulty in concentration; extreme shyness; depression; loss of confidence; lack of self-control; social avoidance • Abnormal renal function with enzymuria, high proteinuria, glomerular dysfunction, and rising urinary excretion of N-acetyl-β-glucosaminidase (NAG) • Anorexia; excessive salivation; gingivitis; stomatitis • Immunological changes • Difficulty seeing

Source: adopted from Steckling et al. 2015

Steckling et al. (2017) estimates YLD attributed to moderate cases of CMMVI (mortality and severe cases are not included in the analysis) based on the annual prevalence rate of CMMVI (24.2-29.9%) (Steckling et al., 2017), disability weights (DWs) for moderate cases (DW: 0.368, UI: 0.261-0.484) and severe cases (DW: 0.588, UI: 0.193-0.907) (Steckling et al 2015). The DW of moderate CMMVI, which is used in this analysis, is based on the same disease description presented in table 1. Severe cases of CMMVI are excluded because it is assumed that gold miners suffering from such severe health effects are no longer able to work and thus not included in the prevalence numbers. YLDs[14] are presented with Uncertainty Intervals (UIs) basically indicating the impact of the uncertainty of the DW. Lost YLDs are valued at GDP per capita in Tanzania to come up with the annual health burden attributed to the artisan gold mining.

Benefit-cost analysis for ASGM in Tanzania is based on a number of important assumptions:

- Project life is 4 years, investments start in year 1, benefits flow starts in year 2;
- Given the uncertainty of clean technology dissemination, we assume 3% of miners in lower case and 5% of miners in higher case convert to safe alternatives and cleaner technologies;
- Investments are sustainable, and the Government of Tanzania continues cleaner technologies dissemination in Gieta District after the project implementation;
- The growth rate of GDP per capita in Tanzania is in the range 2-4.5% last 10 years.

Results of benefit-cost analysis for ASGM in Tanzania presented in table 3. The NPV of the benefits of health improvement in miners is estimated in the range from 0 for 3% miners that start using cleaner technologies each year, 2% annual GDP per capita growth rate and 10% discount rate up to US$8,6 million for 5% miners that start using cleaner technologies each year, 4.5% annual GDP per capita growth rate and 5% discount rate (25 years of project cycle). ERR is estimated from 7% to 48%.

Table 3. Benefit-cost analysis for ASGM in Tanzania

Discount rate	5%		10%	
Dissemination of clean technologies	3% miners use cleaner technologies	5% miners use cleaner technologies	3% miners use cleaner technologies	5% miners use cleaner technologies
NPV, US$ million	$0.8	$16.6	-$0.4	$8.6
ERR	7%	48%	7%	48%

[14] Years of life with disabilities

2. Benefit-cost analysis of abandoned ASG mines rehabilitation in Ghana

Poulin and Gibbs (2008) provide a practical methodology to estimate health effects of organic mercury pollution. The model provides an estimate of the population shares affected with methylmercury pollution using different mercury levels in mothers' hair using a log-normal distribution of average methylmercury in hair and standard deviations from available studies. Health effects are then estimated by applying the relationships between methylmercury in hair and IQ loss. However, no studies are identified that analyzed the mercury level in women 's hair in Ghana. The studies of mercury in hair in Ghana as (Basu et al., 2015) advises, should be treated with caution, since while mercury in hair is often used as a preferred biomarker of methylmercury exposure, its use needs to be carefully questioned given that a majority of hair mercury may be derived exogenously from adsorbed inorganic mercury.

Two abandoned sites in Eastern region of Gambia from TSIP database are selected for the analysis. Each of these two sites are about 5 hectares, and about 2 thousand people are exposed to methylmercury. Benefit-cost analysis for ASGM in Ghana is based on several important assumptions:

- Project life is 4 years, investments start in year 1, benefits flow starts in year 4;
- This analysis conducted using Hg concentration in maternal hair in Colombia, with similar ASGM activities (5 ug/g);
- Rehabilitation of the abandoned sites reduces exposure to methylmercury down the stream (5-10 times the amount of people located in the vicinity of the abandoned mine);
- 15 Ha of abandoned mines are reclaimed and deforested with native trees.

Given the uncertainty of methylmercury in maternal hair and associated lifetime labor productivity increase, several scenarios are analyzed, including 50%, and 75% methylmercury reduction in maternal hair compare to the baseline level. Then IQ increase in children was estimated in the range 720-1080. The cost of lost IQ-points in Ghana is estimated as the product of income loss per lost IQ-point (mid-point estimate in Schwartz (1994) and Salkever (1995)) and the percentage of children that may be expected to participate in the labor force (77% in Ghana from WDI, 2018). The value of ecosystem services provided by the restoration of wooded area on the reclaimed land is also included in the project benefits. The annual value of ecosystem services generated by one hectare of forest is estimated at US$226-US$422 per Ha/year.

Results of benefit-cost analysis for three abandoned mines in Ghana presented in table 4. The NPV of the benefits of reduction in methylmercury exposure is estimated in the range from US$0.5 million for 35% methylmercury reduction, and 10% discount rate up to US$3.8 million for 75% methylmercury reduction, and 5% discount rate (25 years of project cycle). ERR is estimated from 13% to 20%.

Table 4. Benefit-cost analysis abandoned ASG mines rehabilitation in Ghana

Discount rate	5%		10%	
Reduction in methylmercury exposure	50% methylmercury reduction	75% methylmercury reduction	50% methylmercury reduction	75% methylmercury reduction
NPV, US$ million	$1.87	$3.76	$0.46	$1.55
ERR	13%	20%	13%	20%

3. Cost-effectiveness analysis of UPOPs reduction in Ghana, Kenya, Zambia and Senegal

Dioxins and furans (PCDD/F) and other UPOPs are formed as products of incomplete combustion of chlorinated organic materials, including PVC coated wires, with the reaction being catalyzed by the presence of metals such as copper. This process can disperse fine ashes containing UPOPs to areas surrounding burning sites, leading to contamination of surface soils and dusts. Furthermore, there is the migration of pollutants away from the burning sites into surface waters, probably as a result of heavy rainfall and flooding. Even though dioxins are emitted in relatively low concentrations, they are very persistent and bio-accumulative compounds, and more prevalent in body fat of animals that later can be ingested by humans. The main risk of dioxins for human health is that they can alter the development of many cells and can be the cause of illnesses like cancer, disruption of the endocrine system, or reproductive and development problems. (Dopico and Gómez, 2015). These health effects are confirmed, but not quantified. Thus, cost-efficiency analysis based on estimation of UPOPs reduction over the project time per one million US$ from the project budget is conducted. The project's costs include capital costs associated with the project's investments.

Specifics of the activities planned in the countries are summarized in table 5.

Table 5. Project activities related to UPOPs reduction

Country	Target area	Area, ha	Planned activities	Targeted population	Target interim indicators	Cost
Ghana	Accra, the Agbogbloshie e-waste site	6.5 Ha	E-wastes management: improve collection, transportation, and safe disposal/recycling	6,300 – 9,600 informal workers, dependent population 121,000 – 201,600	• educed open dumping and burning of e-waste • eduction in POPs releases (UPOPs and PBDE)	US$2.24million
Zambia	Kabwe District,	10 Ha	Reduction of UPOPs: improving the management of waste collection;	230,000	• educed open dumping and burning of waste	US$4.24 million

	Municipal dumpsite		transportation; treatment and disposal and improved recycling of waste		• eduction of releases of UPOPs	
Kenya	Mombasa and Nairobi; e-waste sites	One dump site at each city (500-1000 m2)	E-waste management to reduce UPOPS: infrastructural investment - improving source reduction/reuse, collection, transportation, and disposal/recycling	150,000	• eduction of UPOPs releases • educed open dumping and burning of e-waste	US$3.97 million
Senegal	Mariste and Dalifort municipalities	10 Ha	UPOPs reduction: management of waste cycle, improve wastes recycling	125,000	• eduction of infectious diseases • educed open dumping and burning of waste • eduction of releases of UPOPs	US$2.72 million

The estimation of dioxin emissions from e-waste open burning is based on emission factor for open burning of cables. “Standardized Toolkit for Identification and Quantification of Releases of Dioxins, Furans and Other Unintentional POPs under Article 5 of the Stockholm Convention January 2013” is applied. UPOPs Emissions are calculated as:

UPOPs emissions per year = Emission Factor X Activity Rate

Where: Emission Factor to Air for Open burning of cable = 12,000 µg TEQ (Toxic Equivalent) /t of material; and Activity rate per country is defined from e-wastes burned per year.

Also, it is assumed that 81% of all E-wastes are disposed in landfills (World Bank, 2018), and 30% of disposed E-wastes are burned in open fire. The estimated annual UPOPs emissions are presented in table 6. More accurate estimates are expected on the next stage after all investment components are identified in each country.

Table 6. Estimated annual UPOPs emissions

	E-waste/ urban population		Targeted population	E-waste project area		Annual UPOPs emissions, TEQ release	
	Lower	Upper		Lower	Upper	Lower	Upper

	Bound	Bound		Bound	Bound	Bound	Bound
	Kg/Capita	Kg/Capita		t	t	g	g
Ghana	3.6	6.9	160,000	581	1,100	1.7	3.2
Kenya	4.1	17.3	150,000	617	2,592	1.8	7.6
Senegal	2.6	6.0	125,000	319	755	0.9	2.2
Zambia	2.5	6.3	130,000	327	818	1.0	2.4

Source: Estimated based on GEF-6 Program Framework Document (PFD)

In total, the project countries emit 5-15 gTEQ of UPOPs. Assuming 25% or 50% reduction of UPOPs release in the air, cost-efficiency of the project investments is estimated in table 7.

Table 7. Cost-efficiency of project investments (UPOPs reduction per US$1 million)

		25% reduction		50% reduction	
	Annual project investment	Lower Bound	Upper Bound	Lower Bound	Upper Bound
	US$ million	g/US$ million	g/US$ million	g/US$ million	g/US$ million
Ghana	0.6	0.8	1.4	1.5	2.9
Kenya	1.1	0.4	1.8	0.8	3.6
Senegal	0.8	0.3	0.7	0.6	1.3
Zambia	0.7	0.4	0.9	0.7	1.8

Project investments are significant. That is why Stockholm Convention recommended use of economic tools and instruments to ensure sustainability of hazard wastes and UPOPs reduction. Economic instruments should ensure compliance to BAT and BEP guidelines for hazardous wastes utilization, to enhance awareness on social acceptability, cost effectiveness and economic feasibility of the proposed investments.

On the next stage appropriate technologies for mercury and UPOPs reduction will be suggested in each project country. They will be considered using the methodology proposed in this economic analysis. From the outset, the main project activity will be the revision and updating of the current E-waste assessments and UPOPs inventories to analyze the open burning practices with special attention on existing major source categories such as dumpsites, landfills, taking as reference the recently modified emission factors in the

UNEP dioxins toolkit. The core of the project will be based on short- and long-term BAT/BEP actions, with the main goal to introduce the basis to achieve a progressive phasing out of the mercury pollution in ASGM sector, and open burning practices, by setting up demonstrative programs in some selected abandoned mines, and mines in operation, dumpsites, landfills (possibly with different waste streams) and sites where E-wastes are disposed. The demonstration activities will be carried out where the environmental, economic and social benefits could be maximized not only on the national but on the regional level as well. This will lead to cost-efficient use of international financial resources.

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ANNEX 2: PROGRAM CHILD PROJECTS UNDER AFRICA EHPMP

Regional Project (P167788)

Country	**Project Title**	**GEF Amount ($) Project**	
Tanzania	Africa Environmental Health and Pollution Management	7,339,450	Annex 3A
Ghana	Africa Environmental Health and Pollution Management	8,715,596	Annex 3B
Zambia	Africa Environmental Health and Pollution Management	8,256,881	Annex 3C
Kenya	Africa Environmental Health and Pollution Management	8,073,395	Annex 3D
Senegal	Africa Environmental Health and Pollution Management	5,504,587	Annex 3E
	Total Project Cost	**37,889,909**	

BETF for Regional Coordination (P166233)[15]

Regional	Knowledge Exchange and Institutional partnerships to Reduce Environmental Health Risks a from Exposure to Harmful Chemicals and Waste	4,311,927	Refer to separate project document
	Total	**4,311,927**	

This above BETF (P166233) is the supporting glue project for the five-country regional project (P167788) under the EHPMP and is presented in detail in a separate project document following the BETF procedures.

[15] Refer to Project document (P166233) for detailed project description.

ANNEX 3: DETAILED PROJECT DESCRIPTION BY COUNTRY

ANNEX 3 A: PROJECT DESCRIPTION FOR TANZANIA (GEF ID: 9850)

PROPOSED GLOBAL ENVIRONMENT FACILITY GRANTS TO THE REPUBLIC OF TANZANIA

IN THE AMOUNT OF

US$ 7,339,450

STRATEGIC CONTEXT

A – Country Context

1. The mining sector is amongst the fastest growing sectors in several African nations. Tanzania, Africa's fourth largest producer of gold (after South Africa, Ghana, and Mali), is experiencing a boom in its mining industry. The Tanzanian gold mining sector comprises of two subsectors: The Large Scale Mining (LSM) subsector, which is associated with large FDI, infrastructure development, technology transfer, high productivity and high export earnings. The second subsector is the Artisanal and Small-Scale Mining (ASM), and it often involves local miners using basic methods to extract near-surface deposits. ASM is associated with low investment, low productivity, and the use of informal marketing channels, but it accounts for most of the sector's employment and is more accessible to the poor, especially in rural areas. Tanzanians who do not enjoy a share of the LSM-induced urban prosperity are turning to the artisanal mining of small and medium-sized gold, copper, silver and other mineral deposits across the country as means of income generation and livelihood alternative during tough times.

2. Informal, illegal and unregulated use of mercury as an amalgam in such operations has created a legacy of severe adverse (and irreversible) environmental damage and health hazards, which are compounded by economic, and social problems, including child labor, land tenure issues; migration and other social instability and potential conflict. Mercury is a dangerous neurotoxic with significant health and economic consequences, which has broader multi-sectoral risks beyond direct health risks to miners and their families. Many Artisanal and Small-Scale Gold Mining (ASGM) activities are carried out near or upstream of streams and rivers that drain into or are in close proximity to major freshwater impoundments such as lakes and manmade reservoirs created by storage dams for water supply, irrigation and hydropower. These impoundments act as sinks for mercury that accumulates in sediments and bio-accumulates in tissues of fish and other aquatic species. ASGM is carried out near major freshwater lakes such as Victoria, Nyasa, Rukwa and Tanganyika which are thriving sources of fisheries for export and local consumption. These freshwater bodies face real and growing risks of contamination if government plans for managing mercury are not prepared and implemented in the near future.

3. Tanzania signed the Minamata Convention on October 10, 2013 and is considering the ratification in order to become a full party of the Convention. The Minamata Convention on Mercury provides an opportunity to catalyze policy reforms to protect human health and the environment from the adverse effects of a toxic compound. UNEP as GEF implementing agency is supporting Tanzania to prepare its Minamata Convention Initial Assessment (MIA) and National Action Plans (NAP) for Artisanal and Small-Scale Gold Mining.

4. The World Bank's current engagement in Tanzania in the mining sector particularly in the last 5 years has reinforced the need for a program that is focused on environmental health issues in the ASGM sector.

B – Sectoral and Institutional Context

5. It is estimated that just under 600,000 people are officially working in ASM, but an estimated 1 million people are believed to be involved in this activity, including women and children, along the supply chain. ASGM operations range from semi-mechanized and mechanized mining to the extraction of minerals using simple technologies with little or no economic capital and no mechanization. ASGM is a significant contributor to employment generation and poverty alleviation in Tanzania. It can be a traditional livelihood activity, a full-time source of employment, or a season specific part-time job and can include migrant peoples, local communities with a longstanding history of mining, and people from all walks of life.

6. ASGM has generally left a legacy of severe adverse (and irreversible) environmental health, economic and social impacts, often affecting disproportionately the poorest and most vulnerable communities. The ASGM industry is associated with the highest levels of mercury emissions polluting the air, soils and waterways. Mercury used in ASGM is mostly obtained illegally, posing a serious governance challenge. In 2016, it was estimated that 30-50 tons of mercury were used in Tanzania by ASM, although the total amount of mercury imported officially was less than 2 tons, mostly obtained illegally from neighboring nations to extract gold with minimal protection. Approximately 25% of Tanzania's 600,000 artisanal and small-scale miners are women, while women account for almost 50% of the 300,000 ASGM miners.[16]

7. The subsistence nature of ASG and lack of alternatives masks the associated health hazards and environmental damage. Due to mercury's relatively low cost and efficiency, and driven largely by poverty, lacking security of tenure to mineralized sections of land and overly-dependent on middlemen for the information operator struggling to earn a daily wage, there are very few alternatives. Even though there are substitutes along with devices capable of reducing emissions of mercury available, the problem is systemic requiring continuous enforcement, monitoring and training.

8. Mining Act 2010 was passed to replace the Mining Act of 1998. The new Mining Act requires primary mining licenses holders (PML) to prepare Environment Protection Plans which include the need for rehabilitating mines after closure. All PMLs are required by law to address environmental and social due diligence. In an effort to simplify licensing procedures for small scale mining the Ministry of Minerals now processes license applications and issues permits at the Zonal and Resident Mines Offices (ZMMO and RMO).

9. ASGM is spread across ten zones in special areas delineated and set aside by the government for orderly development of the activity. Over the course of the last decade, the government has actively encouraged formalization of artisanal and small-scale mining by simplifying procedures for acquiring PMLs and decentralizing the Ministry of Minerals inspections and extension services functions to zonal and district offices and providing financial assistance to artisanal miners willing to formalize their operations. As a result of these efforts, PMLs have risen dramatically, increasing from about 35 in 1999 nearly 26,000 in at the end of 2013. By the end of 2014, this numbers further increased to 35,000. In 2013, the government established a small-scale mining loan facility of 6.4 billion Tanzania shillings as a financial incentive to Tanzanians nationals operating as informal miners to register their activity and acquire primary mining licenses in areas set aside exclusively for ASM operations.

10. Most owners of PMLs lease the mineral access to pit holders. Formal contractual obligations between the PML owners, pit holders and workers are exceptionally rare, although sub-leasing of pits contradicts the mining legislation.

[16] Lassen C, Warming M, Maag, J, Jønsson JB. 2016. Mercury trade and use for artisanal and small-scale gold mining in Sub-Saharan Africa. COWI and World Bank.

Legalizing transfer of rights and mining titles upgrades to artisanal miners will enhance responsibilities and entitlements for stakeholders. Owners of PMLs do not have to complete environmental impact assessments (EIAs). This has meant poor planning and monitoring of environmental compliance, particularly for the ASGM.

11. Institutional capacity (both technical and administrative) to monitor use of mercury as well as its health and environmental consequences is limited, which constrains the Governments' ability in monitoring and reporting mercury usage as per their commitment under the Minamata Convention. In addition, efforts to raise awareness and reduce consumer demand for illegally traded mercury are inadequate. There is a lack of technical, financial and managerial capacity to demonstrate results on the ground.

C – Relevance to Higher Level Objectives

12. EHPMP is consistent with the World Bank Group's Country Partnership Framework that aims to help the Government of Zambia address the development challenges in its priority areas identified in the Seventh National Development Plan. The project will directly contribute to the CPF's focus area 1 "More even territorial development: Opportunities and Jobs for the poor" and Objective 1.2 "Selected rural communities become more resilient to climate and environmental shocks".

Alignment with national and regional priorities

13. Tanzania is a signatory to the Minamata Convention. Presently, Tanzania is considering the ratification in order to become a full party to the Convention. UNEP as GEF implementing agency is supporting Tanzania to prepare its Minamata Convention Initial Assessment (MIA). This EHPMP will build on and complement the ongoing MIA and National Action Plans (NAP) for Artisanal and Small-Scale Gold Mining (ASGM).

14. NAP activities will provide the opportunity for supporting further policy enhancements in small-scale mining, while building capacity for improving monitoring and enforcement of the regulations. While there is recognition that the use of mercury has serious environmental and health consequences, there are limited resources to demonstrate cleaner alternative technologies and also exhibit clean and feasible practices related to mine closure as mandated in the Mineral Policy.

15. Link with Minamata Convention on mercury: The funded project on Reduced Environmental Health Risks in Artisanal and Small-Scale Mining Projects (REHRAMP) aims at regulating anthropogenic emissions and releases of mercury and its compounds in order to protect human health and the environment in artisanal and small-scale gold mining.

PROJECT DESCRIPTION

A – Project Development Objective

PDO Statement

Strengthen the institutional capacity to manage and regulate mercury use in artisanal and small-scale gold mining sector in Tanzania

PDO Level Indicators

1. Policy interventions on e-waste and mercury designed and consulted
2. Trained skilled staff in government with expertise on management of e-waste and mercury at national and regional levels
3. Stakeholder outreach events
4. Citizens and/or communities involved in planning, implementation and evaluation of demonstration pilots
5. Demonstration pilots completed and evaluated

B – Project Components

16. **Component 1: Institutional strengthening, knowledge and capacity building (US $ 1.5 million GEF, US $ 10.6 IDA).** Since the passage of the Tanzanian Mining Act in 1998, government authorities have emphasized that small-scale mining is a poverty-driven activity and Tanzania's Poverty Reduction Papers have drawn attention to the need for institutional support in artisanal and small-scale mining communities. The Mining Act, 2010 has also underscored transformation and formalization of artisanal and small-scale miners. However, due to budgetary limitations many of the extension services have been restricted in their scope and reach. This component will strengthen environmental monitoring by the Mines Resident Offices (MRO), Resident/Regional Mines Offices (RMO) and the National Environment Management Council (NEMC). The component will assist in: a) strengthening various institutional players involved in regulating mercury trade, such as the Government Chemist Laboratory Authority (GCLA), customs/border control tax officials and business community; b) facilitate procurement of simple equipment for air, water and soil monitoring in order to comply with necessary steps required to implement the Minamata Convention; c) enhance the institutional strengthening and capacity building for agencies that manage artisanal gold mining. The key areas of capacity building will include: monitoring of health and environmental indicators, implementation support of mining and environmental legal frameworks, consultation with local stakeholders and disclosure of relevant information to mining communities and maintaining an inventory consistent with the requirements of the Minamata Convention; d) ensure participation of stakeholders and coordination of stakeholders at national and regional level in the learning and knowledge sharing activities on the harmful chemicals agenda; e) promote transparency along the whole value chain, offering greater opportunity for miners to have a direct access to the market in order to negotiate with the end buyer a better price for their gold, leading to greater economic and social stability.

17. The recently completed Mercury Trade Diagnostic study revealed the lack of transparency in import, use and disposal of mercury in ASGM sector. The following three lessons would be incorporated into Component 1 – (a) The policy and regulatory aspects of mining will be strengthened to include provisions for recognition of legal import of mercury, (b) A country level inventory and tracking of mercury import and use in the ASGM sector would be implemented as part of capacity building plan, and (c) The artisanal miners will be trained to understand the cost-benefit analysis of producing mercury from illegal traders versus associated environmental health costs which does not get addressed due to non-transparent transactions. This supply chain of mercury and gold will include

procurement of cheap and reliable source to mercury, access to credit and technical knowhow licensing, extraction and amalgamation; final gold sales and prices. Artisanal miners are expected to use these benefits to increase their organizational ability to trade responsibly, to respect and improve the lives of those who work with them, the communities in which they work and the environment.

18. The Project will build on the UNEP Integrated Health and Environment Observatories and Legal and Institutional Strengthening for the Sound Management of Chemicals in Africa (African ChemObs) project through specific assistance to strengthen mining policy and regulations focusing on Artisanal Gold Mining sector; strengthen institutional processes and capacity to be able to identify, analyze and address problems associated with environment and health impacts.

19. Expected Outputs of the component:

a. Monitoring protocols developed.
b. Guidance and training materials developed and training delivered to different stakeholder groups on the new/amended legislation, regulations, and bylaws on waste management
c. Support for access to credit and technical knowhow on licensing, extraction and amalgamation
d. Stakeholder Mapping finalized (including private and informal sectors)
e. Targeted study tours organized to share knowledge and expertise and contribute to regional framework of action

20. **Component 2: Support to policy dialogue and regulatory enhancements (US $ 1.5 million GEF, US $ 10.5 IDA).** One of the major changes in The Mining Act, 2010 through miscellaneous amendments of 2017 requires that Environmental Protection Plan (EPP) must be submitted to the Mining Commission before a Primary Mining License is granted. Holders must conduct baseline environmental investigations and propose ways in which possible environmental impacts will be mitigated. NEMC will participate in the approval process of the EPP to ensure that the proposed mitigation measures are adequate and conform with requirements of the EMA (2004). This component will support Government's efforts in strengthening the current environmental policies and regulations and capacity to monitor; screen and evaluate health and environmental risks associated with ASGM.

21. The component will assist development of strategy for promoting the reduction of emissions and releases of, and exposure to, mercury in artisanal and small-scale gold mining and processing, including mercury-free methods; Managing trade and preventing the diversion of mercury and mercury compounds from both foreign and domestic sources to use in artisanal and small-scale gold mining and processing; Working with the ASGM miners at community level, which will be accomplished through stakeholder engagement and mobilization, recognizing that artisanal miners are not homogenous and tend to operate in areas of high informality; Involving stakeholders in the implementation and continuing development of the national action plan; developing a public health strategy on the exposure of artisanal and small-scale gold miners and their communities to mercury; and more localized training of artisanal miners and stakeholders. Such a strategy would include gathering of health data, training for health-care workers and awareness-raising through health facilities. Assistance would be provided to prevent the exposure of vulnerable populations, particularly children and women of child-bearing age, especially pregnant women, from mercury toxicity resulting from artisanal and small-scale gold mining; and dissemination of information to artisanal and small-scale gold miners and affected communities, in support for the implementation of the National Action Plan.

22. *Expected Outputs of the component:*

a. Development of strategy for promoting the reduction of emissions and releases of, and exposure to, mercury in ASGM and processing, including mercury-free methods

b. Developing a public health strategy on the exposure of artisanal and small-scale gold miners and their communities to mercury
c. Data collation of health data, training for health-care workers and awareness-raising through health facilities
d. Guidelines for monitoring, screening and evaluating health and environment risks for artisanal gold miners developed
e. National Steering Committee established and a communication strategy in place

23. **Component 3: Demonstrating application of technological tools and economic approaches (US $ 4 million GEF, US $ 12.7 IDA).** This component will support the drive of the Government of Tanzania to formalize the ASGM sector which will create incentives for artisanal miners to access relevant knowledge, financing and institutional support in line with Government's obligations under the Minamata Convention. Technical assistance under the program will help improve working conditions for local mining community by leveraging planned investment activities under the existing SMMRP-II Project to promote mercury abatement. The objective of this component is to collaborate with Small Enterprise Development Corporation (SEDCO/SIDO) or local manufacturers to manufacture/replicate low cost centralized gold extraction equipment to enable moving away from using mercury instead to adopt alternative technologies such as Vat leaching. This initiative will greatly reduce the amount of mercury to be procured and used, and consequently reduce the amount of mercury emissions in the environment and wastage. This effort will complement the MIA initiative for Tanzania by providing policy makers with tools and guidance needed to design and implement strategies for risk reduction.

24. The demonstrative investments will be selected and designed on the basis of environmental health risks and cost effectiveness of interventions. The project will consider opportunity for climate change adaptation and mitigation, especially use of cleaner technologies, including available non-mercury options, use of reclaimed lands, and mitigating effect of mining sectors on carbon sequestering ecosystems, such as forests. Such environmental improvements will act as demonstration pilots for the PMLs who are mandated to rehabilitate their mines based on the Mine closure policy in the Mining Act and any guidelines that will come into force in relation to the implementation of Minamata Convention. The demonstration investments will be linked with the Industrial Transformation for Growth Project (P160164) and will aim to enhance Government's policy towards appropriate land usage for pastoral and agricultural activities and strengthen community level monitoring, through involvement of communities in land use shits and link to demonstrative investments.

25. *Expected Outputs of the component:*
a. Implementation of pilot to adopt of use of mercury replacement technologies by local manufacturers (e.g. low cost centralized gold extraction equipment).
b. Stakeholder engagement and awareness raising on use of cleaner technologies to phasedown mercury usage.
c. Tools and guidance notes developed for design and implementation of risk reduction strategy.

26. Component 4. Project Management (GEF US$ 0.4 million; 1.8 million Co-Financing including $ 300,000 Counterpart funding). This component focuses on project coordination at national, district and community levels. It will support the implementing entities with day-to-day project implementation and provision of basic project management support including procurement, financial management, environmental management and monitoring and evaluation.

27. Project Beneficiaries: Direct beneficiaries of this project will include artisanal and small-scale gold miners, service providers in mining sites and the surrounding communities in Geita, Mwanza, Shinyanga, Mara, Singida,

Mbeya, and Songwe Regions. These artisanal and small-scale will have improved health conditions, and they will acquire safe and clean technologies. Indirect beneficiaries of this project will include the government, regional and the global community. Sound chemicals management at the national level, as underpinned regional and international agreements, brings many global economic, social and environmental benefits as reflected in GEF strategic objective on Chemicals.

28. **Rationale for Bank Involvement and Role of Partners:** The Bank will use its leverage to convene the highest levels of national governments, led by Ministries of Finance, to a common platform to help accelerate action toward follow-up investment priorities. Such platform will enable the participating countries to strengthen the policy dialogue and identifying solutions to focus on meeting the Convention obligations and promote increased contributions from the private sector. This will allow GEF interventions to be sustained after the Project is completed.

F. Lessons Learned and Reflected in the Project Design

29. This project draws lessons from previous project implemented under GEF/UNIDO that was implemented between 2003 and 2006 regarding mercury abatement in ASGM. This project recognized the risks associated with mercury exposure to artisanal and small-scale gold miners. The project emphasized use of retorts in gold extraction while burning the amalgam. The project scope covered only Lake Victoria zone while ASGM activities are scattered all over the country. This project will build on the success of the previous project and broaden the scope to cover at least seven regions with high concentration of ASGM activities. The project will also compliment the ongoing initiatives through SMMRP-II, Industrial Transformation for Growth Project and development of a National Action Plan (NAP) for ASGM in Tanzania

IMPLEMENTATION ARRANGEMENTS

A – Institutional and Implementation Arrangements

30. The regional coordination project (ASA) will provide the overall guidance and oversight for the individual projects. The regional coordination project will establish the coordination framework for the Program and will enable a sustained communication with and among Program stakeholders through stakeholder consultations at the national and regional levels to support all components. A Program Steering Committee (PSC) with representation from key partners and stakeholders will be established as an advisory mechanism to maximize projects' synergies and support the design of activities and implementation of the overall Program. The PSC will have a secretariat with representatives of all participating countries.

31. The national project will be implemented through collaboration and partnership directly and indirectly with stakeholders in the management of mining industry in Tanzania. Participatory approaches will be prioritized in order to help stakeholders participate in the implementation of the project to reduce environmental and health risks related to use of mercury in ASGM in Tanzania. Consideration will also be on mobilizing and training beneficiaries hence helping to raise awareness, adopt alternative technologies, change perceptions and identify economic approaches that are more profitable and capable of reducing environmental and health risks from exposure to harmful chemicals and wastes.

32. *Steering Committee:* Policy guidance and overall project oversight and supervision will be provided by the Steering Committee. The Steering Committee will comprise of Permanent Secretaries from the Ministries

responsible for Environment; Mines; Finance; Health; Water; Local Government; and Industry and Trade. It will also include Chief Executives from Government Chemist Laboratory Authority (GCLA), Mining Commission, Mineral Resources Institute (MRI), State Mining Corporation (STAMICO) and Small Industry Development Organization (SIDO). The Federation of Miners Association of Tanzania (FEMATA) will represent ASGM. Functions of the Steering Committee are to: (i) Receive progress reports on the implementation of project components, in order to provide overall guidance on policy matters that relate to the Artisanal Gold Mining Sector; and (ii) Ensure that activities of individual sectors are included in the annual work plans in order to facilitate the smooth handing over at the end of the project life; as well as (iii) Coordinate with the Regional Project to facilitate knowledge sharing among the participating countries. The Permanent Secretary (PS) from the ministry responsible for environment will chair the Steering Committee. The Director General for NEMC will be the secretary to the Steering Committee. The committee will meet twice a year to facilitate smooth implementation of the project activities.

33. *Technical Committee (TC):* A Technical Committee (TC) will provide technical guidance for this project. The TC constitutes representatives from key project implementers; including Vice President's Office (VPO-Division of Environment), National Environment Management Council (NEMC), Ministry of Water and Irrigation (MoW), Ministry of Minerals (MoM), Mining Commission (MC), Ministry of Industry and Trade (MIT), Government Chemist Laboratory Authority (GCLA), Ministry of Health, Community Development, Gender, Elderly, and Children (MoHCDEC), Mineral Resources Institute (MRI), STAMICO, SIDO, University of Dar es Salaam (UDSM-Mining and Mineral Processing Department), and offices of Regional Administrative Secretaries for Geita, Mwanza, Mara, Shinyanga, Singida Songwe and Mbeya Regions as well as offices of Regional Miners Associations (REMAs) in the seven regions where the project will be implemented. Members of the TC will also have key project implementation responsibilities and will provide technical advice to support decision-making at Steering Committee level. The Director General NEMC will be the Chairperson of the TC. TC will meet twice a year prior to the steering committee meeting. Functions of TC are to: a) Advise NEMC in conducting its coordination function; b) Provide technical guidance and oversight in implementing project activities; c) Undertake sectoral and cross-sectoral coordination of project activities; d) Ensure that project activities are integrated in sector plans and budgets; e) Assess and recommend technical expertise needed to implement various project activities; f) Make a close follow up of activities to ensure compliance to the Minamata Convention; and g) Oversee the adoption and adaptation of alternative gold recovery technologies in ASGM.

34. *Project coordination:* Project coordination will be under the Vice President's Office (VPO). At implementation level, the National Environment Management Council (NEMC) will serve as the lead coordinating institution which has demonstrated experience in the coordination of multi-sectoral projects. A senior officer from its core staff will be appointed as Project Coordinator, who will report to the Director General of NEMC. The Project Coordinating Unit (PCU) will be responsible for overall coordination and facilitation of the work programme of the participating countries and provide communication channels between participating countries and relevant regions with active artisanal mining. Within each implementing institution, a focal person will be appointed to coordinate project activities.

35. Details and implementation schematics are presented in Annex 1. At the component level, implementation of key activities is summarized in Table 2.

36. Table 2. Implementation of key activities by responsible institutions

37.

COMPONENT ACTIONS	LEAD and (SUPPORTING) IMPLEMENTERS
Component 1: Institutional strengthening, knowledge and capacity building	
1.1 Support development of guidelines and monitoring systems for management of mercury usage and hazardous waste in ASGM	NEMC/MoM/MC/REMA/VPO
1.2 Development of inspection protocols (manuals, checklists) and purchase of equipment to guide inspection, monitoring and enforcement	GCLA, NEMC, MC, MoW, MoM, MoHCDGEC
1.3 Awareness raising among targeted mining communities (ASGM) about environmental health risks	GCLA, NEMC, MC, MoW, MoM, MoHCDGEC/FEMATA/REMA
1.4 Training of ASGM and key players in mercury trade, handling use and their environmental health risks	GCLA, NEMC, MC, MoW, MoM, MoHCDGEC/FEMATA/REMA
1.5 Support Participation and collaboration in national and regional forums for learning and knowledge sharing on issues related to mercury and chemical agenda.	VPO/GCLA, NEMC, MC, MoW, MoM, MoHCDGEC
Component 2: Support to policy dialogue and regulatory enhancements	
2.1 Formulation and review of Policies, Regulation, plan and strategies targeting mercury reduction in artisanal and small-scale gold mining sector	VPO/GCLA, NEMC, MC, MoW, MoM, MoHCDGEC
2.2 Preparation or review of the existing strategies on formalization of ASGM	GCLA, NEMC, MC, MoM,
2.3 Participating on regional meeting on common ASGM and other chemicals management	NEMC/MoM/MoHCDGEC/GCL/MC
Component 3: Demonstrating application of technological tools and economic approaches	
3.1 Deployment of clean technologies promoting phasing out of mercury usage – increased number of ASGM using non-mercury methods	GCLA, NEMC, MC, SIDO, MoM, MRI
3.2 Identification, assessment and mapping of the sites with high concentration of ASGM	NEMC/MoM/GCLA/MRI
3.3 Communication Strategy, Training programs and introduction of alternative technologies	NEMC/MoM/GCLA/SIDO/MRI/

COMPONENT ACTIONS	LEAD and (SUPPORTING) IMPLEMENTERS
4.4 Monitoring and evaluation	NEMC
Component 4: Project Management and Coordination	**NEMC**

B – Results Monitoring and Evaluation Arrangements

38. The lead coordinating institution (NEMC), under the Project Coordinator will be responsible for monitoring and evaluation (M&E) and will report on project performance to the Technical Committee (TC). A detailed results framework for individual components shown in section VII includes outcomes, indicators, and institutional arrangements for the data collection, analyses and dissemination. The project will establish an appropriate M&E system to track progress against the set indicators to provide an overall assessment of project performance. The overall monitoring of project progress will be achieved through quarterly and annual reporting.

C – Sustainability

39. The VPO-Division of Environment is responsible for coordination of environmental issues whereas NEMC is both a regulatory and advisory body that deals with the compliance and enforcement as well as coordinating research on environmental issues. The Ministry of Minerals is responsible for formulation and overseeing all policy issues in the mineral sector. The Mining Commission is also a regulatory body responsible for supervision the proper and effective implementation of the Mining Act, issuing licenses as well regulating and monitoring the mining industry and mining operations in Tanzania.

40. To support this multi-sectoral project, a TC will be established to ensure oversight and involvement of implementing institutions at various stages of the project execution. The project will enhance institutional capacity (humans, finance, equipment and tools) for sectors involved in managing and regulating artisanal and small-scale gold mining. The project will facilitate and ensure stakeholders coordination and participation in the regional learning and knowledge sharing on the management of harmful chemicals used in ASGM. This will contribute to strengthening the regional partnerships and collaboration.

41. The project will address barriers and constrains at all levels to ensure transparency in import, handling, usage and disposal of mercury waste in ASGM sector. The policy and regulatory aspects of mining will be strengthened to include provisions for recognition of legal importation, trading and acquisition of mercury. An inventory and tracking of mercury import and use in the ASGM sector would be implemented as part of capacity building plan. The project will also work in collaboration with Mining Commission and GCLA to put in place systems for regulating the mercury trade through steps required to implement the Minamata Convention.

42. The project will enhance institutional and human capacity as well as compliance with regulatory requirements related to formalization and better management of ASGM. The project will promote the introduction of cleaner technologies by promoting research on alternative technologies and systematically implement plans for phasing down and phasing out of mercury usage in ASGM

PROJECT APPRAISAL SUMMARY

43. **Overall risk and explanation.** In Tanzania, the overall risk of the project is "Moderate" even though regionally it can be "Substantial" given the significance of political, governance and institutional capacity risks related to participating countries.

a. Political and Governance risk is rated Moderate and will be mitigated by implementing activities of Components 1, 2, and 3 particularly on the regulation on the importation, handling and usage of mercury. The political will show on the development of policies, laws and regulations as well as amendments made on some laws and regulations will help in mitigating this risk. The Mining Act, 2010 and its Amendments of 2017 together with Mining Regulations of 2018 have addressed issues of transforming and formalizing artisanal and small-scale miners and need for them to prepare Environmental Protection Plan (EPP) in addressing environmental issues. Furthermore, the Environmental Management Act, 2004 has emphasized the need for undertaking environmental assessment in all mining projects.

b. Sector Strategies and Policies risk is rated Moderate and will be mitigated via the coordination among sectors, and the implementation of activities based on the developed MoUs between regulatory agencies. In addition, this risk will be mitigated by implementing Component 2 activities such as developed strategies to comply with Minamata Convention on Mercury.

c. Institutional Capacity for Implementation and Sustainability Risk is rated Substantial and will be mitigated through capacity building and policy development activities under Components 1, 2 and 3 focused on identification of key environment and health risks; establish feasibility and improve monitoring and reporting of environmental quality of the contaminated areas. Furthermore, the enhanced institutional capacity to monitor, enforce and provisional of extension services will help in mitigating this risk.

d. Environment and Social risk is rated Moderate and will be mitigated by Component 1 capacity building activities and Component 2 enhanced legal framework and Component 3 through screening mechanism for selection of investments in pilot activities including research on alternative gold extraction technologies to be financed under the project. This risk will also be mitigated by the implementation of the mitigation measures recommended in the environmental assessment report.

e. Stakeholders risk is rated Moderate, as the proposal recognizes that there is already established collaboration mechanisms among key stakeholders on dealing with environmental matters related to ASGM. The Environmental Management Act, 2004, for instance provides for the involvement of key stakeholders in the review and monitoring of mining projects. The established level of achievement might not be reached due to limited resources and some of the stakeholders might not be reached for consultation all the time. The developed MoUs among regulatory institutions will help to mitigate this risk.

B – Fiduciary

44. **Financial Management:** NEMC will be the overall implementing agency responsible for the financial management of the project. NEMC has Standard Accounting Procedures Manual that forms a critical part of the effective framework within which all financial and accounting transactions are managed. NEMC has long experience in implementing other IDA projects namely; Lower Kihansi Environmental Management Project (LKEMP I &II), Kihansi Catchment Conservation and Management Project (KCCMP), African Stockpile Project (ASP) and other projects funded by SIDA, UNDP, DANIDA, UNEP and UNESCO. Unqualified (Clean) audit reports have been issued for the above projects throughout their life cycle. This project will mostly use advances and will replenish funds and document expenses by means of monthly statements of expenditure (SOEs). The disbursement letter will specify more details of disbursement arrangements including designated accounts. The project will be required to prepare and submit unaudited interim financial reports (IFRs) within forty-five days after end of each calendar quarter. The National Audit Office will audit the project accounts based on terms of reference to be agreed with the Bank. The project's audited financial statements will be prepared using International Public Sector Accounting Standards (IPSASs) and audits will be conducted in accordance with International Standards on Audits (ISAs) The audited financial statements will be required to be submitted to the Bank within six months from end of fiscal year.

45. *Internal Audit functions:* NEMC Internal Audit Unit will carry out internal Audit functions with the purpose of adding value by improving operations of the audited project. It will also assist project management unit and other implementing partners to achieve their objectives through effective discharge of their responsibilities. The audit assurance will be performed objectively and analytically in accordance with International Professional Practice Framework and engage in consultancy and furnishing management with analyses, appraisals, recommendations and commentaries aimed at identifying avenues for improvement in risk management, control and governance processes. The project management should ensure that the internal auditing of the project is included in the work plans of the NEMC Internal Audit Unit.

46. **Procurement:** Procurement will be carried out in accordance with the Public Procurement Act of 2011 and its Public Procurement Regulations of 2013 as amended in 2016. NEMC has in place a Procurement Manual that details all procurement processes. The manual also provides comprehensive procedures for maintenance of records and files of the procurement cycle. All procurement under the project will follow stages and procedures outlined in the procurement manual. Details of procurement issues are indicated in Annex I. Procurement functions will be mainstreamed within NEMC's management structure. NEMC has experience in carrying out procurement under World Bank Procurement Regulations. NEMC has a Procurement Management Unit in place with three procurement officers and all of them have experience in implementing World Bank funded projects and have received training on the Bank's procurement procedures. NEMC will be responsible for the procurement of goods, works, consulting and non-consulting services under all components implemented by the project.

D – Environmental and Social

47. Specific Environmental and Social Standards activities and responsibilities are being defined in the Environmental and Social Management Framework (ESMF), NEMC will be responsible complying with the Environmental and Social Standards and for overseeing compliance with the ESMF. The project is expected to enhance positive impacts. The main implementing agency, NEMC has adequate in-house capacity to supervise, monitor, and guide the implementation of Environmental and Social Standards. NEMC has conducted numerous reviews of Environmental Impact Statement (EIS) of similar nature, the experience that can guide assessment of this project. In addition, NEMC has worked collaboratively with other agencies in assessing the performance of mining projects. NEMC will continue to oversee environmental management issues in ASGM as per requirement of the

Environmental Management Act (2004). The following are the Environmental and Social Standards anticipated to be triggered by this project.

Environmental and Social Standards	Yes	No	TBD
Assessment and management of environmental and social risks and impacts	X		
Labor and working conditions		X	
Resource Efficiency and Pollution Prevention and Management	X		
Community Health and Safety	X		
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement			**X**
Biodiversity Conservation and Sustainable Management of Living Natural Resources	X		
Indigenous People/Sub-Saharan African Historically Underserved Traditional Local Communities		X	
Cultural Heritage		X	
Financial Intermediaries		X	
Stakeholders Engagement and Information Disclosure	X		

48. Assessment and management of environmental and social risks and impacts would apply as the project is envisioned to identify and assess environmental and social risks and impacts associated with project implementation. An Environmental and Social Assessment (ESIA) will be carried out to address potential impacts associated with proposed activities under Component 3 which will require formulation of mitigation measures. This will help to ensure that the project activities are environmentally and socially sound and sustainable.

49. Resource Efficiency and Pollution Prevention and Management: This project will promote sustainable use of resources such as water and soil. Different activities under three project components aim at avoiding or minimizing adverse impacts on human health and the environment by managing use of mercury and other chemicals in ASGM.

50. Land Acquisition, Restrictions on Land Use and Involuntary Resettlement: Proposed activities associated with demonstrating application of technological tool may require land acquisition.

51. Community Health and Safety: Implementation of the project will have both direct and indirect benefits to the people's health and safety. The main objective of the project is to reduce health and environmental risks caused by mercury handling. The use of alternative technologies as described in Component 3 activities aims at reducing exposure to mercury and other chemicals used in mining activities. The project will also put in place a framework for

ensuring safe use of chemicals used in ASGM. In addition, the environmental impact assessment will ensure that mitigation measures for improved health and safety of workers and people living in mining areas are implemented.

52. Furthermore, the capacity building programs in components 1, 2 and 3 will provide necessary knowledge and skills on safety measures to be incorporated in ASGM activities particularly in safe handling and use of hazardous chemicals. While having long-term benefits on climate change, restoration programs such as remediation and reforestation activities will have direct health benefits particularly on the creation of aesthetic appeal of areas used for mining activities.

53. Biodiversity Conservation and Sustainable Management of Living Natural Resources: This project will consider opportunities for climate change adaptation and mitigation, specifically the use of cleaner technologies including non-mercury in the ASGM sector. The use of reclaimed land, and mitigation effect of mining sector or carbon sequestering ecosystem such as forest will enhance the conservation of biodiversity and habitats. Access to capital, business knowledge and technical skills, access to market with appropriate mineral prices will support livelihood and economic development of local communities and enable them to adopt practices that integrate conservation needs and development priorities.

54. Stakeholders Engagement and Information Disclosure: A wide range of stakeholders have been consulted and their roles and responsibilities have been clearly defined in the project document and implementation manual. Their involvement extends to implementation of activities and capacity building. A Communication Strategy will be prepared to keep stakeholders informed on the project progress. This will ensure appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner format. Stakeholders will be actively involved in decision making and project implementation processes through established project implementation framework.

IMPLEMENTATION ARRANGEMENTS AND SUPPORT PLAN

55. <u>Project Management:</u>

56. Comp*osition and Functions of the Steering Committee:* The Steering Committee is comprised of the Permanent Secretaries from the Ministries responsible for: Environment, Mines, Finance, Health, Water, Industry and Trade, Local Government, Chief Executive Officer of Mining Commission and Chief Government Chemist, Principal of Mineral Research Institute (MRI) and Managing Director of Industry Development Organization (SIDO).

57. Functions of the Steering Committee are to: (i) Receive progress reports on the implementation of project components, in order to provide overall guidance on policy matters that relate to the Artisanal Gold Mining Sector; and (ii) Ensure that activities of individual sectors are included in the annual work plans in order to facilitate the smooth handing over at the end of the project life ; as well as (iii) Coordinate with the Regional Project to facilitate knowledge sharing among the participating countries. The Permanent Secretary (PS) from the ministry responsible for environment will chair the Steering Committee. NEMC will be a secretariat to the SC committee. The committee will meet twice a year to facilitate smooth implementation of the project activities.

58. *Composition and Functions of the Technical Committee:* The TC constitutes representatives from key implementers, including VPO (Division of Environment), NEMC, MOWI, MoM, Mining Commission (MC), Ministry of Industry and Trade, Local Government, Government Chemist Laboratory Authority, Mineral Research Institute, STAMICO, SIDO and Regional Administrative Secretaries of Geita, Mwanza, Mara, Shinyanga, Singida, Songwe and Mbeya Regions. Members of the TAC will also have key project implementation responsibilities, and the project will provide support for efficient communication. The Director General NEMC will be the Chairperson

of the TC. TC will meet twice a year. Functions of TAC are to: (i) Advise NEMC in conducting its coordination function; (ii) Provide technical guidance and oversight in implementing project activities; (iii) Undertake sectoral and cross-sectoral coordination of project activities; (iv) Ensure that project activities are integrated in sector plans and budgets; (v) Assess and recommend technical expertise needed to implement various project activities; (vi) Make a close follow up of activities to ensure compliance to the Minamata Convention; and (vii) Oversee the adaptation of alternative gold recovery technologies in ASGM.

59. The responsibilities of NEMC will include the following: (a) the management of the designated account; (b) financial management and reporting on the overall project; (c) ensuring the execution of the audit of the project; (d) preparation of quarterly Interim financial reports.

60. NEMC will oversee the project financial affairs of the project. More specifically it will be fully responsible for overall project financial management, disbursement, reporting, and auditing under the supervision of the Director of the Finance and Administration. This directory has adequate qualified and experienced accountants with long experience in managing other IDA and other donor funded projects. In addition, NEMC has a well manned and experienced Internal Audit Unit. This unit will review project financial affairs as part of their regular internal audit reviews.

61. Project reporting - All implementers of activities are required to submit quarterly reports to the Project Focal Person at NEMC outlining the following in their reports: Type of activity undertaken, Expected outputs, Timeline of activities, Allocated budget, and Actual expenditure. The Focal Person shall prepare a report at the end of each quarter to highlight achievements and challenges faced and future activities required to achieve the stated objectives. These reports shall be presented and discussed at bi-annual review meetings.

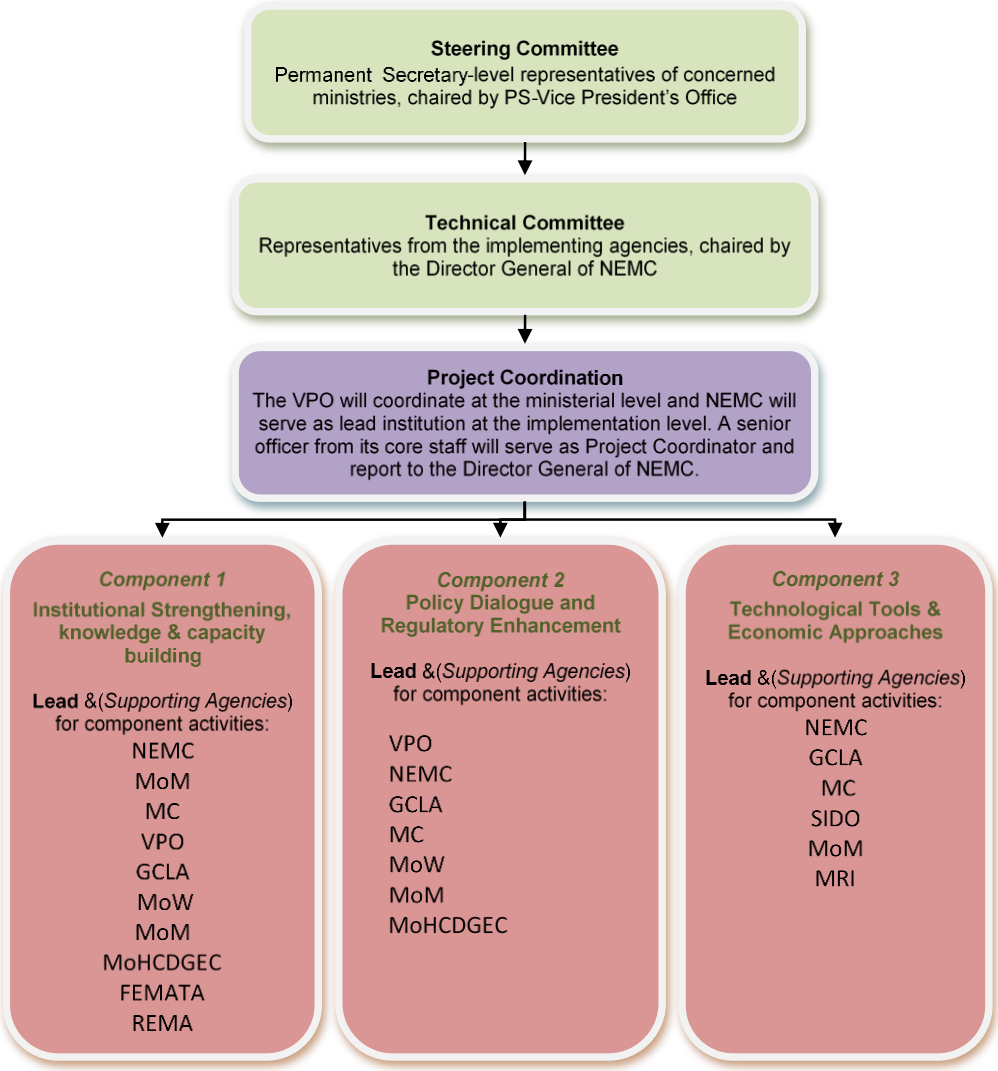

Figure 1. *Project implementation arrangements*

62. Financial Management

63. **Budgeting Arrangements:** Preparation of the Annual Work Plans and Budgets (AWPB) will be participatory and based on the Medium-Term Expenditure Framework (MTEF). Budgets will be approved before the new financial year begins and monitored during project implementation using unaudited interim financial reports –IFRs. NEMC is

staffed with competent persons to carry out the preparation, review and consolidation of the annual work program and budget.

64. *Accounting Arrangements:* The project shall maintain adequate financial records in accordance with accepted international accounting standards and practices and in accordance to NEMC Financial Management Manual, which documents the accounting policies and procedures. This manual was reviewed and found satisfactory. It will use Microsoft Dynamics Navision 2016 Version W1 computerized accounting systems to maintain projects books and accounts. The books of accounts to be maintained specifically for the project will include: a Cash Book, ledgers, journals, fixed asset register and a contracts register. A list of accounts codes (Chart of Accounts) for the project will be drawn and maintained. This will match with the classification of expenditures and sources and application of funds as indicated in the Grant Agreement.

65. *Staffing:* The accounting department is headed by the Director of Finance and Administration who will be overall in charge of the project financial affairs. The directorate has adequate qualified and experienced accountants who have long experience in managing other IDA projects namely; Lower Kihansi Environmental Management Project (LKEMP) and GEF grant for Africa Stockpiles Project (ASP) and the ongoing Kihansi Catchment Conservation and Management Project (KCCMP) and other projects funded by UNDP, DANIDA, UNEP and UNESCO. Several staff members who are Certified Public Accountants (CPA) holders and master's in business administration (MBA). Overall the accounting arrangements including staffing are adequate to handle this project.

66. *Internal Control Arrangements:* Internal control systems of NEMC indicated satisfactory levels of segregation of duties and controls. The internal control systems are documented in the Finance Policies and Procedures Manual and they are adequate for use by this project in order to ensure funds are utilized for purposes intended. The manual describes the accounting system i.e. major transaction cycles of the project; funds flow processes; the accounting records, supporting documents, computer files, chart of accounts; the accounting processes from the initiation of a transaction to its inclusion in the financial statements; authorization procedures for transactions; the financial reporting process used to prepare the financial statements.

67. *Internal Audit Function:* Chief Internal Auditor functionally reports to the Audit Committee and administratively to the Director General. The unit is comprised of two staff, of which all have graduate accounting degree holders, and Internal Audit certification. The unit issues reports on a quarterly basis that are based on their review of the internal control systems of the organization. The Audit Committee is in place and functioning; its main function is to review internal audit reports and provide directives to the management on the internal audit recommendations and follow up of external audit recommendations. Internal audit uses the risk-based audit approach to carry out its work. The audit function uses an International Professional Practices Framework (IPPF) and internal auditing standards as issued by Institute of Internal Auditors (IIA).

68. Funds Flow Arrangements. The project will maintain two sets of bank accounts: (a) a US dollar Designated Account; and (b) a Tanzania Shilling (TZS) project bank account for the purposes of implementing the project. Transfers from IDA credit will be made into the Designated Account from where US dollars payments will be made. Transfers will also be made from the Designated Account to the TZS project account primarily to meet transactions in TZS. The diagram below shows the funds flow arrangement. The project will initially submit a cash flow forecast projection for six months to receive the initial deposit in the US dollar designated bank account.

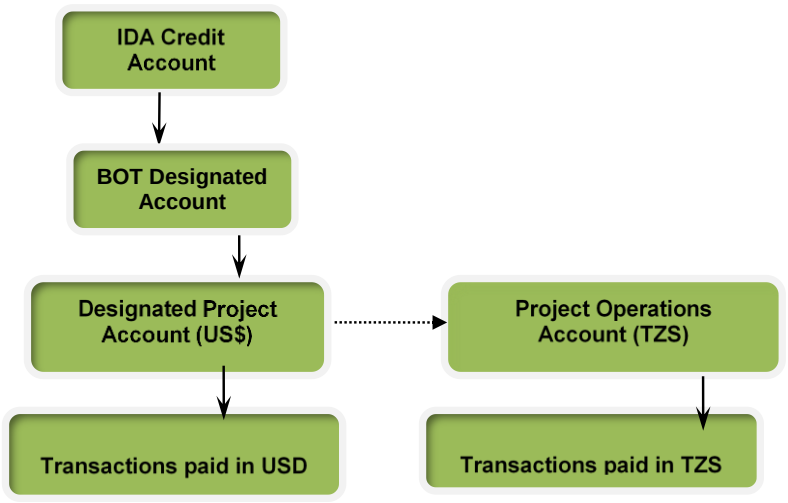

Figure 2. *Diagram showing Funds flow arrangements*

69. **Disbursement Arrangements:** The project will use the SOE disbursement method. It will initially submit a cash flow forecast projection for 6 months to receive the initial advance/deposit in the designated bank account. Subsequently, withdrawal requests will be made according to project need on monthly basis. Apart from the Advance method of payment described above, reimbursements can be requested from the Bank for eligible costs incurred by NEMC. The third method is the direct payment that may be used for payments to contractors or service providers upon recommendations of their satisfactory performance by the project authorized officials. Payments may also be made to the commercial bank for expenditures against IDA special commitments covering the commercial bank's Letter of Credit. Details in relation to these disbursement methods will be documented in the disbursement letter. If ineligible expenditures are found to have been made from the designated and/or operating bank accounts, NEMC will be obligated to refund the same. If the designated account remains inactive for more than six months, the project may be requested to refund to IDA amounts advanced to the designated account.

70. *Financial Reporting Arrangements.* NEMC will submit quarterly unaudited interim financial reports (IFRs) to the Bank within 45 days after the end of the calendar reporting period. Reports will therefore be expected for the periods ending in March, June, September and December of every year of the project's life. The IFRs should provide quality and timely information to the World Bank, project management and other stakeholders on the project's financial performance. The format of the IFRs will be agreed with NEMC team during appraisal and before negotiation. The IFRs will include Sources and Uses of Funds Statement, Uses of Funds by Project Activity/Component, and category and Designated Account Activity Statement.

71. *Annual Project Financial Statements.* The financial statements should be prepared in accordance with International Public-Sector Accounting Standards. The Financing Agreement will require the submission of audited financial statements to the Bank within six months after the financial year end. These Financial Statements will comprise of: (i) A Statement of Sources and Uses of Funds / Cash Receipts and Payments that recognizes all cash

receipts, cash payments and cash balances controlled by the entity; and separately identify payments by third parties on behalf of the entity; (ii) A Statement of Affairs/ Balance Sheet as at the end of the financial year showing all the assets and liabilities of the project; (iii) The Accounting Policies Adopted and Explanatory Notes. The explanatory notes should be presented in a systematic manner with items on the Statement of Cash Receipts and Payments being cross referenced to any related information in the notes. Examples of this information include a summary of fixed assets by category of assets, and a summary of SOE Withdrawal Schedule, listing individual withdrawal applications; and (iv) A Management Assertion that Bank funds have been expended in accordance with the intended purposes as specified in the relevant World Bank legal agreement.

72. *External Audit Arrangements.* The Controller and Auditor General (CAG) is primarily responsible for auditing of all government projects. In some cases, at the discretion of the CAG, the audit may be subcontracted to a firm of private auditors, with the final report being issued by the Auditor General, based on the tests carried out by the subcontracted firm. The private firms to be sub-contracted should be among those that are acceptable to IDA. In case the audit is subcontracted to a firm of private auditors, IDA funding may be used to pay the cost of the audit. The audits will have to be done in accordance with International Standards on Auditing. The external audit terms of reference will be discussed during appraisal mission and subsequently be agreed upon during negotiations. The audit report together with the management letter will be submitted to the Bank not later than six months after the end of the financial year. NEMC is required to disclose the audited financial statements in a manner acceptable to the Bank. Following the Bank's formal receipt of the audit report from NEMC, the World Bank will make them available to the public in accordance with The World Bank Policy on Access to Information.

73. **Supervision Arrangements.** A financial management implementation support mission will be conducted at least once every year based on the current residual risk rating of the project. This will also include regular review of IFRs and annual audit reports. The mission objective will be to ensure that strong financial management systems are maintained throughout the duration of the project. The Implementation Status Report (ISR) will include a financial management rating, provided by the Country Financial Management Specialist after an appropriate review.

74. The Financial Management (FM) assessment for the project was conducted in accordance with the financial management manual for World Bank financed investment operations and revealed that the implementing agency (NEMC) has adequate accounting capacity to manage the project. NEMC has in place FM arrangements (budgeting, accounting, internal control, financial reporting and auditing systems), which meet the Bank's minimum requirements for project FM arrangement as per OP/BP 10.02. NEMC has previous experience managing World Bank supported projects including the previous IDA Credit for LKEMP GEF grant for Africa Stockpiles Project (ASP) and ongoing the Kihansi Catchment Conservation and Management Project (KCCMP) and other projects funded by UNDP, DANIDA, UNEP and UNESCO. The Controller and Auditor General (CAG) will audit the project financial statements. The audits will be conducted in accordance with International Standards on auditing. The audit reports will be submitted to IDA within six months after the end of the fiscal year.

75. <u>Procurement:</u>

76. Procurement for the proposed project will be carried out in accordance with the World Bank's "Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants" by World Bank Borrowers dated January 2011, revised July 2014; "Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers", dated January 2011, revised

July, 2014; "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credit and Grants", dated October 15, 2006, revised January 2011 and July 2014; and provisions stipulated in the Legal Agreement. The general description of various items under different expenditure categories is described below. For each contract to be financed by the Grant, the different procurement methods or consultant selection methods, the need for prequalification, estimated costs, prior review requirements, and time frame are agreed between the Borrower and the Bank project team in the Procurement Plan. The Procurement Plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity. The Borrower, as well as contractors, suppliers, and consultants, will observe the highest standards of ethics during procurement and execution of contracts financed under this project.

77. The Bank's Standard Bidding Documents will be used for procurement of works and goods under International Competitive Bidding (ICB); and the Standard Request for Proposals (SRFP) will be used for consultants' contracts estimated to cost US$500,000 and above equivalent per contract. In addition, the implementing agency will use Standard Bid Evaluation Forms for procurement of goods and works for ICB contracts, and the Sample Form of Evaluation Report for Selection of Consultants selected using the Bank's SRFP for consultants' contracts estimated to cost US$300,000 and above equivalent. It is foreseen that such high value contracts will be limited. However, National Bidding Documents acceptable to the Bank may be used for (i) procurement of works and goods under National Competitive Bidding (NCB) procedures, however there will be no preference accorded to domestic contractors and suppliers and (ii) consultants contracts estimated to cost less than US$300,000 equivalent per contract. Furthermore, in accordance with para.1.16 (e) of the Procurement Guidelines, each bidding document and contract financed out of the proceeds of the Financing shall provide that: (i) the bidders, suppliers, contractors and subcontractors shall permit the Association, at its request, to inspect their accounts and records relating to the bid submission and performance of the contract, and to have said accounts and records audited by auditors appointed by the Association; and (ii) the deliberate and material violation by the bidder, supplier, contractor or subcontractor, of such provision may amount to an obstructive practice as defined in paragraphs 1.16(a) (v) of the Procurement Guidelines.

78. *Risk Assessment:* The procurement functions will be mainstreamed within NEMC's management structure therefore the procurement activities will be carried out by Procurement Management Unit (PMU). According to the PPA 2011 and its Public regulation 2013 as amended 2016, every Procuring Entity is required to establish a Procurement Management Unit to manage all procurement and disposal activities except adjudication and award of contracts that are handled by Tender Board. The PMU has been established in accordance with the PPA 2011 as Amended 2016, has three procurement officers. NEMC has experience in carrying out procurement under World Bank financing through the completed Lower Kihansi Environmental Management Project (LKEMP), Africa Stockpiles Project (ASP) and the ongoing Kihansi Catchment Conservation and Management Project (KCCMP) other projects funded by UNDP, DANIDA, UNEP and UNESCO.

79. Procurement capacity assessment of the capacity of the NEMC to implement procurement actions for the proposed project was carried out in 20… and to be updated during appraisal. The assessment reviewed the organizational structure, functions, staff skills and experiences, and adequacy for implementing the project. All the three procurement officers have procurement experience in implementing World Bank funded projects.

80. *Goods and works and non-consulting services* will be procured by using the Bank's Standard Bidding Document (SBD) for all International Competitive Bidding (ICB). National Bidding Documents acceptable to the Bank may be

used for (i) procurement of works and goods under National Competitive Bidding (NCB) procedures, however there will be no preference accorded to domestic contractors and suppliers. Goods procured under this project would be: Field vehicles, office equipment's, office furniture and monitoring equipment for air, soil, water and other related aspects. Contracts for goods and non-consulting services estimated to cost US$ 613,000 equivalent and above there is no contracts for works. Contracts estimated to cost US$ 50,000 and below will use the Shopping method. However, a specified number of NCB contracts may be specified in the Procurement Plan. Goods will comprise motor vehicles, Monitoring equipment for air, soil, water and other related aspects, office furniture and office equipment. Procurement of stationaries and non-consulting services cover maintenance of office equipment's, motor vehicles, fuel and lubricant will be under operating cost.

81. *Selection of Consultants.* Consulting contracts will as far as possible be awarded under Cost Quality Selection (CQS) procedures. Other methods of selection will be determined for each assignment depending on the type of assignment and the provisions of the Consultant Guidelines and will be indicated in the procurement plan. Main consulting services to be financed by the project include :(i) Preparations of Guidelines for management of mercury, (ii) Development of systems for regulating trade of mercury, (iii) Establishment of database showing the amount of mercury imported, distributed and used, (iv) Preparation of Regulations, governing importation, handling and use of mercury, (v) Development of a strategy for reduction of mercury emissions, (vi) Development of implementation plan for NAP-Minamata convention, (vii) Development of public health strategy on mercury exposure, (viii) Establishment of a database on the existing technologies used by ASGM, (ix) Identification, assessment and mapping of the sites and detection of mercury migration, (x) Preparation of communication strategy. Individual Consultants will be selected on the basis of their qualifications in accordance with Section V of the Consultant's Guidelines. Single Source may be used where it can be justified and after consultation with the Bank. Short lists of Consultants estimated to cost less than US$ 300,000 may be composed entirely of National Consultants in accordance with the provisions of paragraph 2.7 of the Consultants Guidelines.

Thresholds for Procurement Methods and Prior Review

Expenditure Category	Contract Value Threshold (US$)	Procurement/ Selection Method	Contracts Subject to Prior Review
Works	>5,000,000	ICB	All
	<5,000,000	NCB	None (Post review) unless specified in the PP
	<50,000	Shopping	None (Post review)
	All values	Direct Contracting	All
Goods and Non-Consulting Services	>500,000	ICB	All
	<500,000	NCB	None (Post review) unless specified in the PP
	<50,000	Shopping	None (Post review)
	All values	Direct Contracting	All
Consulting Services -	> 300,000	QCBS/ Other	All

Firms		(QBS/FBS/ LCS)	
	≤ 300,000 ≥200,000	CQS/ Other (QCBS/QBS/ FBS/LCS)	All
	< 200,000	CQS/ Other (QCBS/QBS/ FBS/LCS)	None (Post Review)
	All values	SSS	All
Consulting Services – Individuals (IC)	>100,000	IC – Qualification	All
	<100,000	IC – Qualification	None (Post review)
	All Values	IC – SSS	All

82. Consultancy services estimated to cost above US$ 200,000 equivalent per contract and single source selection of consultants (firms) will be subject to prior review by the Bank. Consultancy services estimated to cost above US$ 100,000 equivalent per contract for individual consultants will be subject to prior review by the Bank. Short lists composed entirely of national consultants for services estimated to cost less than US$ 200,000 equivalent per contract, may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

83. *Training and Workshops.* Detailed training plans and workshop activities will be developed during project implementation and included in the project annual work plan and budget for Bank's review and approval

84. *Operating Costs.* Incremental operating costs will include expenditures for maintenance of goods equipment such as vehicles and computers; fuel; office supplies; consumables, communication costs; workshop venues and materials; authorized travel costs of officials of the Government including per diems, travel costs, and accommodation for staff when travelling on duty during implementation of this project but excluding salaries of civil/public servants. These will be procured using the Government's administrative procedures, acceptable to the Bank and the administrative procedures in accordance with the Public Procurement Act 2011 and its Public Regulation 2013 as amended 2016.

85. *Record Keeping.* The implementing agency will be responsible for record keeping and filing of procurement records for ease of retrieval of procurement information. In this respect, each contract shall have its own file and should contain all documents on the procurement process.

86. *Monitoring.* Monitoring and evaluation of procurement performance will be carried out through Bank supervision and post procurement review missions.

87. *Procurement Plan.* The Borrower has developed a procurement plan for project implementation which provides the basis for specifying the required procurement methods. The final plan will be submitted to the Bank and made available at NEMC offices before negotiations. The procurement plan will also be available in the project's database

and in the Bank's external website. The procurement plan will be updated in agreement with the project team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

88. Details of Contract Packages to be procured under the project will be finalized and submitted to the Bank before negotiations.

Goods and Non-consulting Services

	Item Description	Est. Cost US $ "000"	Proc. Method	P-Q	Domestic Preference (yes/no)	Review by Bank Prior/ Post	Expected Bid Opening Date
1	Field Motor vehicles	400.00	S	NO	NO	Post	
2	Monitoring equipment for air, soil and water and other related aspects	168.00	S	NO	NO	Post	
3	Office Equipment	33.00	S	NO	NO	Post	
4	Office furniture	12.00	S	NO	NO	Post	
	Total	613.00					

Consulting Services

	Description of Assignment	Est. Cost	Selection	Review by Bank	Expected Proposal

		US $ "000"	Method	(Prior/ Post)	Submission Date
1	Preparations of Guidelines for management of mercury	120.00	IC	Post	
2	Development of systems for regulating trade of mercury	70.00	IC	Post	
3	Establishment of database showing the amount of mercury imported, distributed and used	105.00	IC	Post	
4	Preparation of Regulations, governing importation, handling and use of mercury	160.00	CQS	Post	
5	Development of a strategy for reduction of mercury emissions	120.00	CQS	Post	
6	Development of implementation plan for NAP-Minamata Convention	120.00	IC	Post	
7	Development of public health strategy on mercury exposure	160.00	CQS	Post	
8	Establishment of a database on the existing technologies used by ASGM	70.00	IC	Post	
	Identification, assessment and mapping of the sites and detection of mercury migration	120.00	IC	Post	
	Preparation of communication strategy	120.00	CQS	Post	
	Total	**1165.00**		**Post**	

ANNEX 3 B: PROJECT DESCRIPTION FOR GHANA (GEF ID: 9851)

PROPOSED GLOBAL ENVIRONMENT FACILITY GRANTS TO THE REPUBLIC OF GHANA IN THE AMOUNT OF US$ 8,715,596

STRATEGIC CONTEXT

A – Country Context

1. In the last two decades, Ghana's economy experienced a strong growth spurred by an increase of oil production and favorable export prices. However, recent external and domestic shocks resulted in a slowdown of Ghana's economy. By last year economic growth has doubled from 3.7 percent in 2016 and is expected to stay at that elevated level in 2018. Despite significant progress towards most of the MDGs, the country continues to be challenged by MDG 4, reduce child mortality; MDG 5, improve maternal health; and the sanitation component of MDG 7. One in six children age 6–14 are engaged in labor activities in Ghana, with child employment being the leading alternative to schooling, and child labor can also have adverse effects on children's cognitive development by interfering with schooling and on their physiological and psychological development by increasing exposure to health hazards, particularly for those children involved in mining and agriculture.

2. **Artisanal and Small-scale Mining (ASGM):** Ghana is Africa's second largest gold producer. The mining industry accounts for 5% of the country's GDP and minerals make up 37% of total exports, of which gold contributes over 90% of the total mineral exports. In Ghana, Artisanal and Small-Scale Mining (ASM) it is estimated that, at least 3 people are depending on ASM for every person directly involved in ASM (the multiplier effect). Thus, ASM has the potential to contribute to employment generation and poverty alleviation, especially in rural areas. It can be a traditional livelihood activity, a full-time source of employment, or a season specific part-time job and can include migrant people, local communities with a longstanding history of mining, school children in between breaks (or drop-outs) and people from all walks of life. However, unplanned and unregulated ASGM has generally left a legacy of severe adverse (and irreversible) environmental, health, economic, and social impacts, often affecting disproportionately the poorest[17]. and most vulnerable communities. This undoubtedly keeps these ASGM workers trapped in a vicious cycle of increasing poverty, worsening quality of life, degrading and threatening natural resources, and vulnerability.

3. **Electronic Waste (e-Waste):** The Agbogbloshie e-waste site (15 acres), located on the west side of the Odaw River in the city of Accra, is the largest center for e-waste recycling and disposal in Ghana. It has an estimated 6,300 – 9,600 people working in the informal sector, with a dependent population of between 121,000 – 201,600. The refurbishing and repair sector has been found to be partially formalized. It is estimated that about 20% of all refurbishing / repair businesses might be registered with the formal bodies. Collection, disassembly, material recovery and final disposal take place entirely in the informal sector. It is estimated that about 20,000 to 42,500 people[18] are employed in the refurbishing and e-waste recycling sector in Ghana, constituting about 0.2% to 0.4% of the total labor force in Ghana. This implies that about 182,520 to 258,180 people in Ghana are partially or fully dependent on

[17] Most small-scale miners are poor, who do not use any protective safety measures, therefore are exposed directly to contamination, such as from inhaling mercury.
[18] Ghana Statistical Service, 2010 Population and Housing Census

refurbishing and e-waste recycling operations, representing about 0.72% to 1.02% of the total Ghanaian population (25.37 million).

4. The site is a heavily industrialized area that consists of scattered recyclers working out of small sheds and in the open. Car parts, heavy machinery, refrigerators, and other industrial and residential equipment are brought in and disassembled for economic value. Remnants of disassembled machinery litter the area and the soil is heavily stained with industrial oils. A large residential community primarily housing Agbogbloshie workers and their families consisting of small informal settlements with little electricity and running water. Work at Agbogbloshie is done on a large scale by manual disassembly of e-waste parts and by burning other items such as computer wires and refrigerator coils to recover profitable metals such as copper and aluminum that are covered with plastic encasements. Dismantling and burning are performed by young adults using handmade tools and without protection[19]. These activities expose them to toxic fumes and to chemical hazards that may lead to respiratory diseases.

5. When the e-waste is burnt, toxic substances controlled under the Stockholm convention such as Unintentional Persistent Organic Pollutants (UPOPs) are generated and Polybromodiphenyl Ethers (PBDEs) are released. Soil and ash samples from burning sites in Agbogbloshie showed copper, lead, tin and zinc concentrations over one hundred times higher than typical background levels. Concentrations of antimony and cadmium exceeded typical background soil levels by around fifty times for antimony and five times for cadmium[20]. Burning of plastic covering and shielding from wires and coils creates substantial airborne emissions. Since most of recycling sites include extensive support facilities such as housing, fresh food markets and food preparation, chemical exposure goes beyond workers. Potential impacts of contaminants on soil could result from release of heavy metals such as Zn, Pb, Fe, Cu into the soil and its effect on soil organisms and nutrients. Run-off from contaminated sites into nearby Odaw stream and Korle Lagoon could impact the quality of surface water and may impact the aquatic ecosystems and associated food chains. Leaching of heavy metals into the ground water could lead to severe health effects.

6. According to the study conducted by Caravanos, Jack, et al. (2011), collected soil samples indicate that the e-waste recycling and disposal process in Ghana has caused lead contamination in both ambient air and topsoil that may have detrimental health. The rudimentary recycling has caused substantial damage to the health of scavengers and local environment. Atmospheric pollution due to burning and dismantling of electrical/electronic waste is one of the significant causes for occupational exposure and contamination of neighboring communities. Combustion typically generates smaller particles and consequently, fine particulate matter (PM2.5; strongly implicated in pulmonary and cardiovascular disease), and scrap yard workers are also exposed to PBDEs and dioxins associated with these fine particles.

7. Leaching and evaporation of these toxic substances occurs at the e-waste sites and results in the contamination of surrounding natural resources including the river Odaw, soils, crops, drinking water, livestock and fish[21]. Public awareness of the hazardous nature of e-waste is low and along with economic factors, results in the use of low end or crude waste management techniques, which are highly polluting. Enforcement of regulations is also challenging due to the diversity and variety of e-waste streams, scattered sources, unregulated imports and the large informal workforce. Additionally, lack of reliable data (i.e. inventory information on toxic substances like PBDEs production,

[19] Jack Caravanos, Edith Clark, Richard Fuller, and Calah Lambertson. Assessing Worker and Environmental Chemical Exposure Risks at an e-Waste Recycling and Disposal Site in Accra, Ghana (2011). Journal of Health and Pollution, Vol. 1, No. 1, pp. 16-25.
[20] Ghana e-Waste Country Assessment: SBC e-Waste Africa Project; March 2011
[21] Caravanos, Jack, Edith Clark, Richard Fuller, and Calah Lambertson. "Assessing worker and environmental chemical exposure risks at an e-waste recycling and disposal site in Accra, Ghana." *Journal of health and pollution* 1, no. 1 (2011): 16-25.

importation and usage, difficulty in incentivization) poses a challenge to design an e-waste management strategy and to an industry wishing to make rational investment decisions.

B – Sectoral and Institutional Context

8. **Chemicals Use and Management:** In Ghana, the single most important mercury emission source is from the ASGM sector. In 2011, 19.26MT of mercury was imported into Ghana. In 2012, it dropped to 9.6 MT, dropping even further to 2.5 MT in 201322. However, these figures do not necessarily equate to a drop-in usage of mercury, as gold export from the ASGM sector has only been increasing year after year (1.4 million ounces in 2012, 1.0 million ounces in 2011 and 767,696 ounces in 2010). As no new technologies have really been introduced to replace mercury in the extraction of gold, there must be other avenues (i.e. black market) available. Veiga and Baker (2004) estimated that for every gram of gold produced, in ASGM, at least two grams of mercury (Hg) are emitted into the atmosphere. However, various authors also point out that this ratio is very variable dependent upon practice, and there are cases where it has been as much as 100:1. When this ratio is compared to the quantity of gold exported by the Ghanaian ASGM sector in 2012 (1.4 million ounces) approximately 30-60MT of Hg may have been lost to air, if the entire ASGM sector were using mercury for gold extraction. According to the results of a survey conducted by Amegbey and Eshun (2003) on mercury use in ASGM in Ghana: 1) 70% is most often stored on site; 2) 90% is nearly always handled without gloves; and 3) 98% is typically heated in open air.

9. Literature available on the toxicity of mercury to people involved with ASGM has been well studied in Ghana and some evidence does indicate that ASGM related mercury contamination is contributing to serious health, ecological, and economic impacts in the country. Studies have shown that the health of the miners and other people living within the area affected by mercury contamination may be negatively affected through inhalation of mercury vapor or contaminated dusts, direct contact with mercury, through eating fish and other food, and through the ingestion of waters and soils affected by the mercury contamination. In Ghana, as mandated by the 1989 Mercury Law, mercury is officially sold through registered ASGM operators and licensed traders who are allowed to purchase the mercury to process or refine gold from the Precious Minerals Marketing Company (PMMC). The Mercury Law directly stipulates good mining practices in the use of mercury; however, it does not include any specific guidelines in terms of handling and disposing of mercury (Amegbey and Eshun, 2003). The law allows for the use of mercury by ASGM but it lacks any clear oversight responsibility to ensure compliance, for purchase or ultimate use and disposal and is obscure. This makes compliance and monitoring very difficult. In 2013, data from the EPA indicate up to 5,000 ASGM sites, across the country, have been approved by the agency. But there is a lack of institutional technical capacity to provide adequate assistance to assess impacts or enforce compliance, especially at the local and regional levels due to sheer numbers of ASGM miners and locations.

10. Ghana became signatory to the Minamata Convention on September 24, 2014 and ratified the convention on 23 March 2017 becoming a full party of the Convention. The fifty-ratification milestone was reached on 18 May 2017, hence the Convention entered into force on 16 August 2017. While there is recognition that the use of mercury has serious environmental and health consequences, there are limited resources to demonstrate cleaner alternative technologies and also exhibit clean and feasible practices related to mine closure as mandated in the Mining policy.

11. This proposed project will build on, and complement the ongoing Minamata Initial Assessment (MIA) ((1) establishing a national mercury management governance structure; (2) reviewing existing mercury related national

[22] EPA, 2014

policy and institutional arrangements; (3) disseminating environmental and health risk information to national target groups; and (4) developing a national mercury profile and setting priority area of intervention) and National Action Plan (NAP) activities and will provide the opportunity for supporting further policy enhancements in small-scale mining, while building capacity for improving monitoring and enforcement of the regulations.

Box 1: Mercury and E-Waste – Environment and Human Health Impacts

Mercury is a dangerous neurotoxin with significant health and environmental consequences. The use of mercury in ASGM has created a legacy of severe and often irreversible hazards, compounded by economic and social problems including child labor, land tenure issues, migration, social instability, and potential conflicts. The socio-economic effects of the use of mercury goes beyond direct health risks to miners and their families. Mercury is toxic even at low concentrations[23], particularly the organic form of mercury called methylmercury, which accumulates in food chains. It is estimated that 90 to 95% of mercury used in many African countries is obtained illegally and/or smuggled from neighboring nations. ASGM is the largest mercury user and demand sector in the region and globally, however there is limited data and knowledge about the amount of mercury used or the severity and extent of mercury contamination and its health, environmental, and social impacts. The toxic effects of mercury are more profound in children, causing developmental and neurological disorders and women working in the gold mines.

E-waste is expensive to treat in an environmentally sound manner. Many developing countries lack specific regulation and enforcement for this type of toxic waste, adequate infrastructure, and technologies to implement 'win-win' solutions of this growing challenge. Recycling of e-waste provides business opportunities due to waste's economic value although e-waste recycling often operates as a 'grey-sector' of the economy. Arguably, recycling of e-waste can generate positive environmental impacts by reducing carbon emissions and reducing the demand for metals from mining. For instance, it is estimated that for every 1 ton of gold or platinum produced, over 10,000 tons of CO_2 is emitted. If the same metals are recovered from recycled e-waste and equal amount of GHG emissions will not be released in the atmosphere. However, the environmental benefits are overshadowed by the huge health and socio-economic risks especially in the developing countries where labor costs are low, regulations are absent, and enforcement is weak. In Ghana, for example, recovery of valuable metals is done manually (mainly copper and aluminum) which includes open burning of plastic-coated components to isolate copper. Burning activates copper as a catalyst for dioxin release, including from polyvinyl chloride (PVC) from plastic (Sepúlveda et al., 2010)

Source: *The World Bank: Green ICT: Sustainable E-waste Management in Sub-Saharan Africa (2014) and The World Bank Report on Mercury Trade and Use in Artisanal and Small-scale Mining in Sub-Saharan Africa (2016).*

Electronic Waste

12. The global e-waste trade is growing exponentially. A study commissioned by the World Bank[24]indicates that Ghana, Kenya and Nigeria have the highest levels of e-waste in the region due to their growing involvement in ICT imports, recycling and refurbishing. A key characteristic about the advancements in ICT in Ghana is the increased dependence on used or refurbished products, due mainly due to financial considerations. Countries such as Senegal and Uganda can expect e-waste flows from computers alone to increase four- to eightfold by 2020[25]

[23] Zahir F, Rizwi SJ, Haq SK, Khan RH. Low dose mercury toxicity human health. Environ Toxicol Phar 2005; 30: 351-360.
[24] The World Bank: Green ICT: Sustainable E-waste Management in Sub-Saharan Africa (2014)
[25] Lindgren K. The global impact of e-waste: addressing the challenge / Karin Lundgren; International Labour Office, Programme on Safety and Health at Work and the Environment (SafeWork), Sectoral Activities Department (SECTOR). – Geneva: ILO, 2012

13. **Policies and Institutions:** In Ghana, The Ministry of Environment, Science, Technology, and Innovation has the overall sector responsibility for policy development. EPA is the regulatory and enforcement body. The Environmental Assessment Regulations of 1999 refer to the issue of mining "undertakings" stating that those involving metal and nonmetal mines must be registered and issued with an environmental permit. The environmental impact assessment (EIA) is mandatory for the mining and processing of minerals in areas where the mining lease covers a total area of more than 10 hectares. The current laws guiding the management of hazardous, solid and radioactive waste including the local Government Act (1994), Act 462 and Environmental Sanitation Policy of Ghana (1999) were passed before the e-waste problems emerged. The use of mercury is regulated by the Mercury law (1989) which recognizes that the use of mercury has serious health and environmental consequences. However, institutional capacity, for monitoring and enforcement for compliance remains very weak. Ghana has established the Mineral Development Fund as a mechanism both to finance mining agencies and transfer a share of the royalties back to the mining communities, but it failed to reinvest in rehabilitation activities in communities most affected by the mining activities. In summary, the principle shortcomings in the institutional arena concerning chemicals management and prevention of human health risks are as follows.

14. Public policies are missing the economic 'translation'[26] of health effects of the use chemicals that allows these effects to be better integrated into political and financial decision-making. There are no specific policies on chemicals management to ensure recognition of chemicals management as a national priority, and for mainstreaming into national development plans and development strategies. The functional organization and institutional capacity and staff capabilities are incompatible with the needs for robust reporting on chemical incidences and managing a comprehensive inventory of chemicals and chemical wastes, and to ultimately reduce their environmental and health effects across sectors and users. Private sector has little incentives to engage and participate along with civil society and governments in discussions and decisions regarding chemicals management. There is no comprehensive national data on chemicals or adequate monitoring of chemical residues, nor on environment and human impacts. Lack of up-to-date information systems has made informed decision making difficult. Often there are overlaps and incompatibility in the existing national legislation, conflicting institutional functions, and interests, competing sector priorities and low level of public awareness on issues related to chemical management which impairs a policy shift.

C – Relevance to Higher Level Objectives

15. The proposed project is well aligned with the FY13-18 Country Partnership Framework. More specifically, the proposed operation will contribute to (1) **improving economic institutions** by improving artisanal practices of small-scale miners and venue collection practices that have lagged as the mining sector, and thereby enhancing management of natural resources. Additionally, the project will contribute to (2) **improving competitiveness** through increased adoption of new mining technologies, improved land and water management, improved access to education/knowledge about more efficient, safer, and environmentally friendly techniques, improved mobility of goods; and (3) **protecting the poor and vulnerable** through social protection, improved maternal and child health, labor practice, and access to improved water supply and sanitation.

PROJECT DESCRIPTION

[26]UNEP Environment for Development Perspective. Mercury Use in ASGM (draft). 2012.

A – Project Development Objective

PDO Statement

To strengthen the institutional capacity to manage and regulate mercury use in ASGM and e-waste in Ghana.

PDO Level Indicators

a. Policy interventions on e-waste and mercury designed and consulted
b. Trained skilled staff in government with expertise on management of e-waste and mercury at national and regional levels
c. Stakeholder outreach events
d. Citizens and/or communities involved in planning, implementation and evaluation of demonstration pilots
e. Demonstration pilots completed and evaluated

B – Project Components

Component 1: Institutional strengthening, capacity building and knowledge sharing (US$ 1.9 million GEF, US$ 20 million co-financing)

16. ASGM: The component will support activities for strengthening of institutional systems and capacity building for the Environmental Protection Agency (EPA) and the Minerals Commission (MC) for managing the ASGM sector, through training at the national and local levels. It will support the development of guidelines and monitoring systems for the management of mercury usage and waste in ASGM. In addition, the component will engage national level stakeholders for coordination and participation in the regional learning and knowledge sharing activities on the management of hazardous chemicals and waste. This component will also include assistance to facilitate the formalization of artisanal and small-scale gold mining sector; studies for baseline assessment of the quantities of mercury used and the practices employed in artisanal and small-scale gold mining and processing within the country. The component will assist in the development of a strategy promoting reduction of emissions and exposure to mercury in artisanal and small-scale gold mining and processing, including application of mercury-free methods. The strategy will propose measures for managing trade and preventing diversion of mercury and mercury compounds from both foreign and domestic sources to use in artisanal and small-scale gold mining and processing. Preparation of the strategy will involve stakeholders in the implementation of a national action plan through continued dialogue and engagement. The component will support preparation of a public health strategy to prevent exposure of artisanal and small-scale gold miners and their communities to mercury.

17. E-Waste: This component will support capacity building activities which include (a) benchmarking of key EPA staff to acquire best practices on waste management and ensure appropriate skills transfer; (b) Awareness raising/sensitization workshops on e-waste management along with stakeholders in the value chain country-wide; (c) support to waste management unit in EPA; and (d) streamlining Customs coding with appropriate training of the Customs Officers and borders inspectorate to curtail entry of illicit e-waste in the first place. It will support strengthening of E-waste Management Regulations and Guidelines and development of systems for monitoring and enforcement, relevant to waste management with a focus on e-waste. The component will also review existing

documentation and undertake a country-wise situation analysis on waste, including an inventory of major toxic pollutants; assessment of environmental health implications of harmful chemicals and waste and options for risk management; and an economic sector analysis.

18. The component will ensure both national level stakeholders' coordination and participation in the regional learning and knowledge sharing activities on the harmful chemicals agenda.

19. *Expected outputs:*
   a. Guidelines and monitoring protocols for the management of mercury usage and waste in ASGM developed.
   b. Training materials developed, and training delivered to different stakeholder groups on the new/amended legislation, regulations, and bylaws on waste management
   c. Stakeholder Mapping finalized (including private and informal sectors)
   d. A public health strategy to prevent exposure of artisanal and small-scale gold miners and their communities to mercury
   e. Support to strengthening of E-waste Management Regulations and Guidelines.
   f. Targeted study tours organized and participation in the regional platform events.

Component 2: Support to policy dialogue and regulatory enhancements (US$ 1.9 million GEF, US$ 10 million co-financing)

20. ASGM: The component will support the EPA in strengthening the policy requirements targeted at the ASGM sector. This will include support for amending the Mining Act to include provisions for small-scale miners to prepare Environment Plans for rehabilitating mines after closure with prior environmental and social due diligence. The component will also enhance Government's policy towards shifting to appropriate land use for agricultural activities.

21. e-Waste: This component will support Government's efforts in strengthening the current environmental policies and regulations and capacity to monitor; screen and evaluate health and environmental risks associated with e-waste. The component will assist the development of strategy for promoting the reduction of emissions and releases of, and exposure to, harmful chemicals and hazardous waste. The strategy will be backed by studies and gathering of health data, training for health-care workers and awareness-raising through health facilities.

22. *Expected outputs:*
   a. Development of strategy for promoting the reduction of emissions and releases of, and exposure to, mercury in ASGM and processing, including mercury-free methods
   b. A methodology for screening and evaluating health and environment risks associated with POPs releases and other hazardous chemicals developed
   c. Guidelines for screening and evaluating health and environment risks for artisanal gold miners developed (for Mercury).
   d. National Steering Committee established.
   e. Trainings for health-care workers and awareness-raising through health facilities

Component 3: Demonstrating application of technological tools and economic approaches (US$ 4.5 million GEF, US$ 19.2 million co-financing)

23. ASGM: Support under this component is linked to Component 1. It aims to demonstrate the environmental improvement of 2-3 pilot abandoned mines, based on cost-effective and environmentally sound technologies. This component will also support the improvement of environmental and social work conditions to promote mercury abatement techniques.

- Subcomponent 3A (estimated 1.5 million) - Supporting professionalization of ASGM practice: this component focuses on: (i) supporting a multi-stakeholder partnership (Minerals Commission, LSM companies, and District authorities) for a pilot program to develop environmentally responsible community mining, including a minimum quota for female entrepreneurs' participation; in areas already identified and assessed; (ii) demonstrating best practice ASM processes through the establishment of five centers of excellence for training and demonstration of environmentally and economically efficient processing and value addition for gold; and (iii) identifying, assessing, and promoting investment opportunities for medium mining and value addition industries with a requirement that they develop responsible supply chains around ASM hot spots.

- Subcomponent 3B (estimated 2.2million) : Supporting sustainable community-based ASM: this component prioritizes the development of sustainable community ASM practices through: (i) capacity building of District Committees to manage ASM in their localities; (ii) pilot programs to demonstrate reclamation of land degraded by ASM; (iii) alternative livelihoods: mining to agriculture through support of community agroforestry, and mining to infrastructure through improvement of access roads, schools, day cares, health clinics and community centers.

24. e-Waste: This component will support the initiation of a pilot project related to Agbobloshie on implementation of integrated and environmentally sound management approach to improve collection, transportation, and safe disposal/recycling of e-waste, following Article 6 of the Stockholm Convention on wastes, and relevant guidance. This will include investment in infrastructure and technologies by looking at the entire e-waste management cycle from collection, transportation, setting up of collection centres or transfer stations and sorting stations and treatment (recycling) facility. It includes formalizing recycling systems, providing protective equipment for the collectors and recyclers, training and capacity building and developing protocols and methodologies for assessment of environmental health risks associated with e-waste.

25. Expected outputs:

a. Supporting a multi-stakeholder partnership (Minerals Commission, LSM companies, and District authorities) for a pilot program to develop environmentally responsible community mining, including a minimum quota for female entrepreneurs' participation
b. Implementation of pilot to adopt of use of mercury replacement technologies by local manufacturers.
c. Adoption of use of cleaner technologies for e-waste recycling in selected county-level pilots.
d. improved treatment of POPs and hazardous waste.
e. Stakeholder engagement and awareness raising on use of cleaner technologies for e-waste recycling.

Component 4: Project management (US$ 415,028 GEF, US$ 1.8 million co-financing)

26. This component will cover the cost for project management, implementation and supervision of project activities, administration of procurement and financial management, monitoring and evaluation, and monitoring of safeguards compliance. The component will cover the cost of the Project Implementation Unit (PIU) set up under the Ministry of Lands and Natural Resources and hosted by the PMMC (Precious Minerals Marketing Company).

C – Project Beneficiaries

27. The main beneficiaries of the project will be an estimated number of one million people who are engaged in and depending on ASM industry for living, and an estimated population of 182,520 to 258,180 people in Ghana who are partially or fully dependent on refurbishing and e-waste recycling operations, as well as public entities responsible for regulating and monitoring e-waste management and mercury use in ASGM in accordance with the country's mining laws. Poor households in Accra city, Agbobloshie, and along the Odaw River will indirectly benefit from the project. The main benefits for the population will be improved environmental and social work conditions to promote mercury abatement techniques, improved infrastructure, technologies, and overall e-waste management cycle. The Government will benefit from support for the enhancement of Government's policy towards shifting to appropriate land-use for agricultural activities and development of guidelines and monitoring systems for the management of mercury usage and waste in ASGM.

D – Results Chain

Activities	Outputs	Project Outcomes	Higher-level Objectives
Component 1: Institutional Strengthening, capacity building and knowledge sharing			• World Bank Africa Strategy – Pillars 1 & 2: competitiveness and employment, vulnerability and resilience, and governance and public-sector capacity. • Regional Integration Assistance Strategy FY18-23 – Priority 4: promote collective action to address regional economic contagion, fragility, epidemic and climate 'hot spots' • FY13-18 Ghana Country Partnership
ASGM	Develop guidelines and monitoring systems for the management of mercury usage and waste in ASGM; Learning and knowledge-sharing on chemicals management; Develop a mercury-free ASGM processing methods	The capacity of national agencies/authorities responsible for identifying and addressing environmental health risks associated with chemicals and waste (including POPs and mercury) improved	
E-waste	Acquire best practices on waste management; Training on e-waste management		
Component 2: Support to policy dialogue and regulatory enhancements			
ASGM	Small-scale miners prepare Environmental Plans for rehabilitating mines after closure	National environmental policies and regulations of participating countries strengthened	

E-waste	Evaluate health and environmental risks associated with e-waste		Framework: (1) improving economic institutions, (2) improving competitiveness, and (3) protecting the poor and vulnerable through social protection.
Component 3: Demonstrating the application of technological tools and economic approaches			
3a Supporting professionalization of ASGM practices	Deploy clean technologies promoting phasing out of mercury usage	Demonstration pilots for reducing environmental-health risks (from POPs and mercury) and introducing models that engage affected communities, carried out	
3b Supporting sustainable community-based ASGM	Demonstrate reclamation of land, District Committees to manage ASGM, Better livelihoods		
E-waste	Demonstrate reduction of POPs from open burning of solid waste		
Component 4: Project management			
ASGM & E-waste	Assist in project management, supervision of project activities, administration of procurement and financial management, monitoring and evaluation	Project activities are well managed, well-compliant and national government's monitoring and evaluation are strengthened	

E – Rationale for Bank Involvement and Role of Partners

28. Proposed activities are aimed at contributing to the individual Government's efforts in minimizing emissions from uncontrolled waste burning and strengthening the current environmental policies and regulations and capacity to monitor, screen and evaluate health and environmental risks associated with ASGM; promoting sustainable waste management practices; strengthening the current environmental policies and regulations and capacity to monitor; screen and evaluate health and environmental risks associated with POPs and hazardous chemicals.

Building capacity for development of strategy and regulation to reduce the POP emissions, reducing the exposure of artisanal and small-scale gold miners and their communities to mercury and e-waste would require public sector financing because the primary beneficiaries are the poor and vulnerable populations. Years of ineffective public policies have led to massive human health consequences in ASGM and waste sectors. If left unattended, the socio-economic cost associated with public health hazards will grow and pile up as contingent public liability that may turn into a major source of fiscal distress. It is therefore anticipated that project initiatives will remain in the public domain.

29. The Bank will use its leverage to engage and convene the highest levels of national governments, led by Ministries of Finance, to a common platform to help accelerate actions toward investment priorities driven by policy shift on chemicals management. Such platform will enable the participating countries to strengthen the policy dialogue and identifying solutions to focus on meeting the international conventions' obligations and promote increased contributions from the private sector. This will allow GEF interventions to be sustained after the program is completed.

F – Lessons Learned and Reflected in the Project Design

30. The proposed *Environmental Health and Pollution Management Program in Africa* (EHPMP) draws lessons from the Sustainable Artisanal Mining project implemented by the Swiss Agency for Development and Cooperation (SDC). The SDC project conducted a study on existing ASM knowledge sharing initiatives that concluded that a combination of information and knowledge sharing approaches (i.e. Social media, websites, study tours, training & learning events, conferences, targeted workshops) was key to success.

31. The design of the EHPM Program draws lessons from the Community Artisanal and Small-Scale Mining (CASM) initiative specifically to inform the approach to the global ASM support. These inter alia include:

(a) Strengthening of Information and knowledge sharing,

(b) Enhancing regional and global partnerships to share services, capacity building and tools tailored for the specific needs of stakeholders.

(c) Monitoring and Evaluation to follow up on progress of information sharing and improve accountability; and

(d) Collaboration both within and outside the World Bank Group.

32. The EHPMP will work closely with local communities and community-based organizations who are invested in and benefit from current practices in ASGM sector or from solid and electronic waste management, including opportunities for income generation and green jobs.

IMPLEMENTATION ARRANGEMENTS

A – Institutional and Implementation Arrangements

33. The regional coordination project (ASA) will provide the overall guidance and oversight for the individual projects. The regional coordination project will establish the coordination framework for the Program and will enable a sustained communication with and among Program stakeholders through stakeholder consultations at the national and regional levels to support all components. A Program Steering Committee (PSC) with representation from key partners and stakeholders will be established as an advisory mechanism to maximize projects' synergies and support the design of activities and implementation of the overall Program. The PSC will have a secretariat with representatives of all participating countries.

34. In Ghana, the proposed implementing entities are the Environmental Protection Agency (EPA) under the Ghana Ministry of Environment Science, Technology, and Innovation (MESTI) and the Minerals Commission (MC) under the Ministry of Lands and Natural Resources (MLNR), both entities responsible for regulating and monitoring

mercury use in ASGM in accordance with the country's mining laws. EPA will also be responsible for regulating and monitoring e-waste management, following Article 6 of the Stockholm Convention on wastes and relevant guidance and will lead the pilot project in Agbogbloshie in collaboration with the Accra Metropolitan Assembly.

35. The proposed implementing entities in Ghana will be responsible for implementing the various components of the project. They will be responsible for preparing the work plans and budget for the implementation, draft ToRs, track project expenditures, implanting their respective work programs, coordinate the availability of information regarding the project to the public, and monitor the results obtained by the projects.

36. ASGM: Two entities, the **Environmental Protection Agency (EPA)** under the Ghana Ministry of Environment Science, Technology, and Innovation (MESTI) and the **Minerals Commission (MC)** under the Ministry of Lands and Natural Resources (MLNR), will be responsible for regulating and monitoring mercury use in ASGM in accordance with the country's mining laws. Both entities will be implanting:

(a) Development of new policies or modification of existing ones addressing current ASGM and phase-out mercury use, including health and safety standards;

(b) Remediation and reclamation of hazardous waste contaminated sites;

(c) Introduction of cost-effective and environmentally sound technologies; and

(d) Facilitate training for ASGM operatives on the use of new technology and mercury abatement techniques.

37. E-waste: The **EPA** and the local authority **Accra Metropolitan Assembly (AMA)** under the Ghana Ministry of Local Government and Rural Development (MoLGRD) will be responsible for regulating and monitoring the country's e-waste management, following Article 6 of the Stockholm Convention on wastes and relevant guidance and will lead the pilot project in Agbogbloshie. Both EPA and AMA will be implementing:

(a) Development of new policies or modification of existing ones addressing current urban and e-waste management issues, including health and safety standards;

(b) Remediation and reclamation of Agbogbloshie;

(c) Introduction of alternative, environmentally-friendly and safe recycling technologies for recycling e-waste,

(d) Facilitate training for e-waste workers on the use of new technology;

(e) Enforce the ban on the operations of informal e-waste collectors; and

(f) Management of hazardous waste fractions from recycled waste.

38.

PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis (if applicable)

39. **Environmental health problems are often associated with livelihood challenges and unawareness of long term impacts to health and the surrounding environment.** These challenges arise from inefficient use of materials

and resources, where possible solutions are based on identifying and adopting cleaner and more productive ways of working. Volatile Organic Compounds and mercury emissions alone account for 5.7 to 13 percent of the annual US$ 2 trillion to 4.5 trillion (or US$ 2000 billion - 4500 billion) in ecosystems and biodiversity losses, while estimates for selected chemicals (including pesticides) involved in unintentional acute and occupational poisonings, a limited number of occupational carcinogens and particulates and lead, in 2004, resulted in a total of 964,000 deaths and 20,986,153 DALYs, corresponding to 1.6% of the total deaths and 1.4% of the total burden of disease world-wide[27]. Poor waste management practices lead to groundwater contamination, atmospheric and water pollution as well as health problems including occupational safety impacts among those directly and indirectly involved. Reduced burning of mixed solid waste will reduce the atmospheric deposition of POPs such as dioxins and furans translating into health benefits and reduced costs of pollution management and health care. Alternative treatment technologies for solid waste management can not only eliminate pathogenic agents or failure to immobilize heavy metals, but also benefit the public health and environmental safety, including reduction of greenhouse gas emissions such as carbon dioxide and methane.

40. The project will promote the replication of alternative processes and techniques to prevent POPs formation due to open burning of different categories of wastes, including municipal, hazardous and medical wastes, following Stockholm Convention Article 5 and related BAT/BEP guidance. The Project aims to create socio-economic conditions necessary for the long-term reduction of environmental health risks and costs for the affected communities.

41. **For ASGM sector,** the Program will promote transparency along the ASGM value chain, offering greater opportunity for miners to have a direct access to the market in order to negotiate with the end buyer a better price for their gold, leading to greater economic and social stability. Cleaner technologies and providing miners with safe alternatives will have a direct benefit of not only reducing mercury emissions but the reduction in toxic fumes will have beneficial impacts on the health of the miners. Financial benefits can also arise from better management of input, including mercury recycling. Mandating and supporting ASG miners to rehabilitate closed mines will allow revegetation of large tracts of land, support reforestation efforts of the Government and in some cases allow land to be returned for productive agricultural or pastoral use.

42. Through improved ASGM sector management, reduction in mercury emissions and reduced health risks and economic benefits in the longer term are envisaged. Longer term interventions focus on promoting sustainability, community benefits and effective environmental governance by communities. These interventions are designed to act collectively to shift the perception of cost-benefit in relation to the participation by a wide range of actors across ASGM. Additionally, the project will promote dialogue on how to best ensure that communities' benefit from improved management of mercury use consistent with national action planning and relevant legislation, in order to create the fundamental socio-economic conditions necessary for the long-term reduction of environmental health risks and costs for the affected community.

43. **For the e-Waste sector**, the Program envisions a number of economic benefits from to reduction of UPOPs releases (and potentially other POPs present in the waste including PCBs and PBDEs), such as (a) improved management and reduced open and uncontrolled burning of solid waste, and as a result reduced risk of public health diseases; (b) improved recycling systems provides better business opportunities and economic growth along with

[27] Cost of Inaction on the Sound Management of Chemicals: UNEP 2013

enhanced local ownership, responsibilities and participation; and (c) reduction of health costs associated with poor waste management practice.

B – Fiduciary

(i) Financial Management
(ii) Procurement

D – Environmental and Social

44. **Climate and Disaster Risk**: The target project locations in the future will be moderately exposed to natural hazards like drought, extreme precipitation, and sea-level rise. Severe and recurring droughts have devastating impacts on the countries' economy, agricultural productivity, food security, outbreaks of diseases, and the dislocation of human populations. High variability in climate and hydrological flows will increase flooding in low and coastal areas, which will severely impact the sustainability of coastal livelihoods, coastal infrastructure, and also lead to a negative impact on energy, groundwater resources, and other socioeconomic effects, such as tourism.

45. Given Ghana's vulnerabilities to climate change, the number and scale of natural disasters are predicted to increase, and these risks create vulnerabilities in the mining, energy, and urban development sectors. Under the EHPMP Program, Components 1 and 3 will support Ghana's Intended Nationally Determined Contributions (INDC) pledge to reduce the emissions and develop a comprehensive solid waste management by (1) strengthening the capacity of municipalities for sustainable and low-carbon solid waste and chemicals collection, transportation, disposal, and recycling methods; and (2) implementing waste-to-energy practice. Furthermore, these components will mitigate emissions and adapt climate change by (3) financing the manufacture of low-cost and low-carbon centralized mercury management equipment; (4) improving the waste value chain and measures that will reduce UPOPs releases from solid waste by limiting the quantities of waste subject to uncontrolled burning, which means reducing emissions; and, (5) financing awareness-raising training on growing climate change issues and train mining workers to carry out evacuations at natural disaster emergencies. Component 2 will support climate mitigation and adaptation through (6) assisting in the development of a strategy for promoting the reduction of emissions and strengthening the current environmental and waste management policies and regulations.

46. **Social (including Safeguards):** The socio-economic dimensions of the project, particularly on populations affected by exposure to chemical related contamination and other hazards include: (a) need for inclusion of communities in the planning (and implementation) process; (b) citizen engagement and awareness building about environmental quality in their neighborhood; (c) building social capital at community level through localized interventions, with a special focus on vulnerable community members; and (d) adherence to World Bank policy on land acquisition and resettlement.

47. **Inclusion:** CEP provided several important lessons, one of which was the importance of inclusion of the local population into decision making for such pollution management projects to increase sustainability of investments and promote understanding of the purpose of project investments. The project is designed with a participatory approach in mind and aims to promote community-driven activities dedicated to the improvement of environmental health of the communities most affected by chemical pollution.

48. **Gender:** Women have the potential to play an important role in behavioral change that could significantly reduce exposure of children to hazardous environment. Women in Kabwe can therefore play an important role in changing

health seeking behavior, including mitigation of health impacts due to lead poisoning. Thus, the project has a strong emphasis on inclusion of women in the sensitization and communication campaign, participation in the health interventions that target affected children, and local level nutritional support, livelihood support activities.

49. **Vulnerable groups:** The selected municipalities have already implemented a number of initiatives targeting groups such as women headed households, the elderly, the disabled and youth. The project will provide special attention to these groups with dedicated grant opportunities under subcomponent 3.2 and targeted sensitization and education campaigns.

50. **Environmental Safeguards:** Component 3 (Demonstrating application of technological tools and economic approaches) will finance specific demonstration projects for cleaner technology in areas contaminated by chemical waste. These investments will be based on a standard set of (social, environment and economic) criteria, tailored to country specific implementation conditions and selected to avoid or minimize impacts on livelihoods and employment opportunities. The demonstrative investments (pilots) will introduce cleaner technologies and methodologies to reduce emissions of unintentional POPs in waste management. The pilots will be selected and designed based on priority environmental health risks and cost effectiveness of interventions. The screening will consider the location, sensitivity, and scale of the pilot; the nature and magnitude of the potential environmental and social risks and impacts, and the capacity and commitment of the implementing agency to manage the environmental and social risks and impacts in a manner consistent with the World Bank Group's Environmental and Social Standards.

51. The environmental risk classification for the Project is Substantial under the World Bank ESF, based on the nature and scale of the demonstration project activities, which include potential impacts from managing hazardous waste, however, majority of the impacts likely to be generated from the project activities are site-specific, limited in number, and can be mitigated with measures that are readily identifiable. These pilot activities will be designed to demonstrate a use of new technologies to reduce uPOP emissions associated with waste management. The implementing agency has knowledge and capacity to manage the environmental risks under the proposed pilot interventions. However, the implementing agency will need to build additional capacity for contract management during pilot implementation and for managing social and environmental risks and impacts beyond aspects that are generally included in the ESSs.

52. However, most interventions under the project are not likely to result in significant environmental, health or social impacts as they will be designed to reduce environmental health impacts and address the source of the impact.

53. Since the exact locations and site-specific details of the activities and scope of works are not yet identified, the relevant safeguards instrument at appraisal stage is an Environmental and Social Management Framework (ESMF). The ESMF provides detailed step-by-step processes for identification and screening of critical environment and social risks; procedures for evaluating the significance of environmental risks and impacts; development of site specific mitigation and monitoring plans when subproject details are identified; and institutional arrangements for safeguards implementation and capacity building measures. The ESMF provides guidelines for the development of ESIAs and ESMPs that will present mitigation measures to address the potential environmental and social impacts at the subproject level, once the activities location and scope have been identified.

54. **KEY RISKS**

55. **The overall risk of the project is "Substantial" given the significance of political and governance, and institutional capacity risks related to participating countries.** The complexity of the problem and the fact that they differ in the individual countries makes cumulative risk 'substantial' to the overall program. The team has taken efforts to lower this risk by ensuring that the program is well consulted during project design. The success of these mitigation measures will be ensured through regular incorporation of expert opinions as well as drawing on the political commitment by national governments. The areas where the risks are rated 'substantial' are: political and governance, institutional capacity for implementation and sustainability and stakeholders.

56. **Political and Governance risk (rated Substantial)** will be monitored, and possibly managed by the promotion of transparency and access to information on activities included in the project.

57. To mitigate the political and governance risks, the Bank has developed close relationship with the main stakeholders from the mining, urban, finance and environmental sector and steered up the convergence of the main political parties towards a common commitment to sustainable mineral and urban sector development.

58. **Sector Strategies and Policies risk (rated Moderate)** will be mitigated via close and regular coordination of the implementation plans within and among participating countries.

59. **Institutional Capacity for Implementation and Sustainability risk (rated Substantial)** will be mitigated through capacity building and policy development activities under Components 1 and 2 focused on identification of key environment health risks; establish monitoring and reporting of environmental quality of the contaminated areas. Institutional capacity building efforts are planned in all participating countries. The projects will help to update regulatory framework, to increase deterrent effect on polluters, as well as to provide sources of revenue to regulatory bodies. The projects will also help establish a mechanism for cooperation between environmental regulators and the sector ministries such as mining and urban. More specifically, compliance requirements would not be limited to mining and urban entities, but would also include other concerns when relevant, such as water, energy, transport or local government.

60. **Environment and Social risk (rated Moderate)** will be managed by multiple capacity building activities under Component 2 and Component 3, including through screening mechanisms for selection of investments in pilot activities financed under the program.

61. **Stakeholders risk (rated Substantial)** reflects the team's assessment that there is a risk that consensus might not be reached always among project stakeholders, and that due to limited resources all the stakeholders might not be able to be consulted at all time. To mitigate this risk, additional consultation processes will be built in within the national projects, supported by the ASA activities of the Knowledge Management Program (P166233) that aims to develop a regional platform to support EHPMP objectives. There are also several financing partners, including NGOs, bilateral and UN agencies, working towards minimizing the environmental health implications of chemicals and waste in Africa, with uneven understanding of risks, impacts, linkages and approaches to address the problems mentioned in this proposal

ANNEX 3 C: PROJECT DESCRIPTION FOR ZAMBIA (GEF ID: 9852)

PROPOSED GLOBAL ENVIRONMENT FACILITY GRANTS TO THE REPUBLIC OF ZAMBIA IN THE AMOUNT OF US$ 8,256,881

STRATEGIC CONTEXT

A – Country Context

1. Zambia has signed the Stockholm Convention (SC) on Persistent Organic Pollutants (POPs) on May 23, 2001 and ratified it on July 7, 2006. UNIDO, as GEF implementing agency assisted Zambia in developing its National Implementation Plan (NIP) (2009) and to further update it in line with its commitment under the Stockholm Convention (NIP, 2017). POPs are a group of chemical substances that persist in the natural environment, can be transported far from their sources and bioaccumulated through the food web, and can "lead to serious health effects including certain cancers, birth defects, dysfunctional immune and reproductive systems, greater susceptibility to disease and even diminished intelligence." Under the SC, a total of 26 chemical substances are listed as POPs, including pesticides (such as DDT), industrial chemicals (such as polychlorinated biphenyls, PCBs) and unintentional by-products of industrial and combustion processes (such as dioxins and furans). The last group of chemicals is often called unintentionally produced POPs (UPOPs).

2. Kabwe is considered as Africa's most polluted city and has the dubious distinction of being ranked as the world's fourth most polluted site. The area is a significantly large source of dioxins and furans emissions in Zambia through uncontrolled combustion from urban waste dumps. Many years of unregulated lead mining and indiscriminate disposal has resulted also in release of heavy metals in dust particles, which settled on the ground in the surrounding areas of the mines. There are a large number of informal settlements given the low supply of formal low-cost housing as well as serviced land. Unemployment rates are steadily climbing due to the closure of the lead mines and little opportunities for alternative livelihoods.

3. Over 70% of all households in all the zones dispose of their waste in pits dug in their backyard. The rest use open public spaces, bins or burned their waste (and create again contaminated airborne particles). There is no special facility for hazardous waste – all the contaminated waste of Kabwe end up in the solid waste dumpsite. There is a presence of waste pickers or scavengers on solid waste sites, with open burning also practiced and there is no awareness of hazardous waste handling. This results in public health risks associated with such as plagues of flies, and mosquitoes and the spread of infectious diseases. Open burning of non-segregated urban wastes and other toxic wastes (including e-waste, plastics containers, tires, heavy metal such as lead and mercury), constitutes an undesirable option for waste management results in incomplete combustion and release of unintentionally produced POPs.

4. The Zambia project components will be anchored to the ongoing "Zambia Mining and Environmental Remediation Project (ZMERIP)" and implemented as an integral part of this project. The project will build on the lessons learned from previously implemented projects on waste management and reduction of POPs such as the regional project entitled "Reducing UPOPs and Mercury Releases from the Health Sector in Africa".

5. The project will promote best practices and techniques for hazardous and solid waste management to minimize releases of Persistent Organic Pollutants (POPs) and reduce exposure to contaminated materials. This project will complement the ZMERIP which plans to upgrade into an integrated scientific hazardous and solid waste management facility to provide a location for safe disposal of contaminated material from the residential areas.

B – Sectoral and Institutional Context

6. Zambia faces challenges because as most wastes are disposed of in open burning landfills. Waste treatment technologies that would meet the requirements under the Stockholm Convention's guidelines are often inadequate and too expensive to install and operate for local municipalities. This often leads to open burning of mixed wastes.

7. Exposure to dioxins, furans and other toxic air pollutants resulting from the incineration of wastes may lead to adverse health effects. Dioxins can cause developmental problems in children and infertility problems in adults as well as interfering with endocrine systems and impairment of the nervous system. Short-term, high-level exposure may result in skin lesions and altered liver function. Exposure of animals to dioxins has resulted in several types of cancer (WHO, 2011).

8. Because dioxins and furans are persistent substances that do not readily break down in the environment, they tend to bioaccumulate in the food chain and constitute a serious health risk to humans and animals on the top of the food chain. They are considered a global threat as they travel long distances from the source of emissions.

9. The proposed project therefore aims to reduce the reliance on heavily polluting open incineration of wastes. The project will promote the use of non-incineration technologies favoring recycling of wastes that will generate local jobs and income for local communities.

C – Relevance to Higher Level Objectives

10. The proposed EHPMP is aligned with the WBG's twin goals of ending extreme poverty and promoting shared prosperity. This program follows the Regional Integration Assistance Strategy FY18-FY23, specifically Strategic Priority 4 "Promote Collective Action to Address Regional Economic Contagion, Fragility, Epidemic and Climate 'Hot Spots'" aiming to build regional collaboration and knowledge sharing to address common problems such as waste management and pollution and to share good practices and support capacity building and strengthen civic engagement. The EHPMP is aligned with and will support to the objectives of Pillars 1 and 2 of the Bank's Africa Strategy -- competitiveness and employment, and vulnerability and resilience, and the foundations of the strategy — governance and public-sector capacity. Most African countries have already experienced multiple challenges related to inadequate capacity to effectively monitor the use of chemicals, and management of chemical waste. They lack regulations and effective enforcement, access to clean production and waste management technologies, and up to date information on environmental-health risks. The EHPMP will complement other regional initiatives and individual projects that the Bank supports; focusing on competitiveness, sustainability and governance.

11. EHPMP is consistent with the World Bank Group's Country Partnership Framework that aims to help the Government of Zambia address the development challenges in its priority areas identified in the Seventh National Development Plan. The project will directly contribute to the CPF's focus area 1 "More even territorial development: Opportunities and Jobs for the poor" and Objective 1.2 "Selected rural communities become more resilient to climate and environmental shocks".

Alignment with national and regional priorities

12. Zambia recognizes that the challenges in pollution management facing the country require increasing efforts to reach a sustainable future growth scenario. 'Enhance provision of adequate solid waste management services' in Zambia is also highlighted in the national development strategy of Zambia, which identify improper solid waste management as a health risk to the affected communities. The objective of EHPMP follows closely the National Solid Waste Management Strategy (NSWMS) for Zambia (2004) which sets out the integrated approach to addressing the problem of poor solid waste management, especially focusing on 'contributing to strengthening the legal and regulatory framework to deal with producer responsibilities' and 'promotion of cost effectiveness in waste management as well as public awareness, education and communication'. Furthermore, EHPMP will contribute to the objectives of the NSWMS, especially by 'developing and adopt environmentally sound treatment and disposal methods/practices'. Specifically, EHPMP will align with the second National Implementation Plan (NIP) for Zambia (2017), which sets out the roadmap and methodology for implementing the Stockholm Convention in the country. In the newly updated form additional POPs were identified compared to the initial NIP (2004). The second NIP identified that there is a need to strengthen environmental monitoring capacity, institutional mechanisms and enforcement capacity of responsible institutions, as well as increase the level of awareness to the dangers of POPs issues and pesticides among the public and stakeholders.

13. The project will contribute to the capacity of Zambia to better understand the management aspects of chemical waste in relation to their aspiration to meet SDGs. Chemicals play an important role in development, and so the Sound Management of Chemicals and Wastes (SMCW) is an important component of the global effort to achieve sustainable, inclusive and resilient human development and the SDGs Widespread contamination from chemical waste and lack of policies to address human health risks may jeopardize the efforts of African countries the achieve SGDs. Management of hazardous chemicals is closely linked to Goal 3 (Good health and Well-being), Goal 6 (Clean water and Sanitation), Goal 11 (Sustainable Cities and Communities), Goal 12 (Responsible Consumption and Production), Goal 14 (Life Below Water), and Goal 8 (Decent Work and Economic Growth). There are specific targets for each of the goals related to chemical pollution and health. For instance, target 3.9 refers to reduction of deaths and illnesses caused by hazardous chemicals and air, water, and soil pollution. Target 6.3 aims to reduce pollution, eliminate dumping, and minimize release of hazardous chemicals and materials. Target 12.4. specifically aims to achieve environmentally sound management of chemicals and all waste throughout management impacts through entire product life cycle and minimize the adverse impacts on human health and the environment. Target 12.5 aims to substantially reduce waste generation through prevention, reduction, repair, recycling, and reuse

14. Several projects and initiatives support environmental-health agenda in Zambia and the EHPMP will coordinate with these for greater synergy of development outcomes. Principal among these projects are: (i) The Global Center of Excellence in Artisanal and Small-Scale Mining led by the Energy and Extractives GP in close collaboration with the Environment and Natural Resources GP and the Organization of Economic Cooperation and Development (OECD) and (ii) the Zambia Mining and Environmental Remediation and Improvement Project.

PROJECT DESCRIPTION

A – Project Development Objective

PDO Statement

To strengthen the institutional capacity to manage and regulate hazardous wastes in Zambia.

PDO Level Indicators

- Policy interventions on e-waste and mercury designed and consulted
- Trained skilled staff in government with expertise on management of e-waste and mercury at national and regional levels
- Stakeholder outreach events
- Citizens and/or communities involved in planning, implementation and evaluation of demonstration pilots
- Demonstration pilots completed and evaluated

B – Project Components

The project comprises four components, as described in the following paragraphs.

15. **Component 1: Institutional strengthening, knowledge and capacity building (US$ 1,8 million GEF, 15,9 million IDA).** The component aims to strengthen the institutional, legislative, monitoring and enforcement capabilities of Zambia, as well as support the participation in regional activities for improved management of environmental health risks related to POPs and hazardous waste management. The component will coordinate activities in collaboration with SADEC, UNITAR and other regional and national actors contributing to the improvement of waste management. It will strengthen the capacity for municipalities to manage the collection, transportation and disposal of waste and build partnerships with private sector for improved recovery and recycling, leading to reduced UPOPs releases, as well as ensuring that POPs containing mining waste, e.g. PCBs, is treated separately. Additionally, the municipality will establish linkages for improved livelihoods opportunities in collaboration with the private sector. This component will build capacity of these institutions and support development of guidelines and monitoring systems in place and building awareness on sound management of waste and its impact on human health and the environment. In addition, the component will ensure both national level stakeholders coordination and participation in the regional learning and knowledge sharing activities on the harmful chemicals agenda. This will contribute to strengthening the regional partnerships and collaboration. This component will support initiatives taken by Government of Zambia to formalize the waste sector, specifically to manage environmental health implications of poor management of waste and emissions of POPs associated with the solid waste management. This will include actions such as providing recommendations for improving collection and recycling systems and training recyclers and rag pickers on occupational health and safer practices.

1.1 Strengthen the capacity for municipalities to manage the collection, transportation and disposal waste of and ensure that POPs waste in the mining sector, e.g. PCBs, is treated separately. This subcomponent will finance the following activities:

- Provide training and capacity building on the new/amended legislation, regulations, and bylaws on waste management to different stakeholder groups
- Provide training and capacity building on BAT/BEP for national and municipal waste management facilities (generation, collection, transportation, sorting, treatment, recycling, and disposal)
- Provide training and capacity building to appropriate stakeholders on various aspects of the value chain, such as recycling, compositing, business planning, marketing, and private-public partnerships (PPP)
- Design and implement an accreditation course for waste management practitioners for the different aspects of the value chain

1.2 Develop guidelines and monitoring systems and build awareness on sound management of waste and its impact on human health and the environment. This subcomponent will finance the following activities:

- Develop guidelines for different target groups (Inspection officers, technical specialists, health specialists, enforcement officers, etc..)
- Provide training and capacity building to inspection officers and other relevant stakeholders on monitoring procedures, indicators, and end points
- Provide training and capacity building on methodologies for screening and evaluating health and environment risks associated with POPs releases and hazardous chemicals, covering problem formulation, hazard identification, hazard characterization, exposure assessment, and risk characterization
- Provide training and capacity building for implementing the strategy and guidelines for screening and evaluating health and environment risks
- Reinforce the prosecutors course to strengthen the implementation and compliance to the new legislation

1.3 Build partnerships with private sector for improved recovery and recycling; formalize the waste sector; and in cooperation with the municipality establish linkages for improved livelihoods opportunities in collaboration with the private sector. This subcomponent will finance the following activities:

- Undertake stakeholder mapping to identify relevant public and private partners (including waste management companies, waste pickers, vulnerable stakeholders, and other informal actors)
- Conduct a socio-economic assessment to assess barriers to entry for private sector engagement in waste management and propose the inclusion of incentives necessary (such as tax rebates, investment return assurances) to attract private sector participation in waste management related issues in the national legislation and regulations
- Conduct a feasibility study to assess formalizing informal actors in the waste management sector, identify potential livelihood opportunities for local communities, especially women and the youth, and address potential negative impacts on informal actors
- Hold consultations with key public and private stakeholders to discuss required enabling conditions/actions to PPPs
- Develop a national and municipal level strategy for PPP in the waste management sector (including improved 3Rs as well as ensuring that POPs, Hg, and other hazardous waste is treated separately), and with the aim to leverage additional financing resources and expertise, which otherwise might not be available in the public sector; Different types of PPPs will be explored, which may include partnerships for delivery of public services, capacity building partnerships, and waste management infrastructure partnerships. These could take the form of Agreement Frameworks; Joint Ventures; Build, Operate, and Transfer; Passive Private Investment (government bonds); Passive Public Investment (equity, debt guarantees, grants); Service Contracts; Operate, Maintain, Lease; and others.
- Explore the establishment of a micro-credit financing mechanism at local level to administer seed funding to qualified participants in the delivery of waste management services within the new framework and value chain to improve the livelihoods of local communities
- Explore the establishment of cooperatives for formalized waste management actors in support of SDG8

1.4 Participation in the regional learning and knowledge sharing activities, and regional partnerships and collaboration. This subcomponent will finance the following activities:

- Participation in regional learning and knowledge sharing activities.
- Study tours to countries and companies with appropriate waste management systems and PPPs that could be replicated in Zambia
- Promote national GHS policies in the SADC and COMESA Region.
- Promote the sharing of BAT/BEP, standard operating procedures, policy, legislation, and bylaw models, awareness raising materials, and lessons learned developed at the national and municipal level with sub-regional and regional level fora, e.g. SADC, AMCEN, ECOWAS, COMESA, regional centers, MEA Secretariats
- Develop a framework for identifying national and regional commonalities among participating countries, and for harmonizing and supporting the mainstreaming of best approaches into the regional strategies and policies, with a focus on South-South cooperation and coordination

16. *Expected component outputs:*
    - *a.* Guidelines and monitoring protocols developed.
    - *b.* Support to awareness on sound management of waste and its impact on human health and the environment
    - *c.* Monitoring protocols developed (training materials developed)
    - *d.* Training delivered on: 1) new/amended legislation, regulations, and bylaws on waste management 2) BAT/BEP for national and municipal waste management (generation, collection, transportation, sorting, treatment, recycling, and disposal).
    - *e.* Stakeholder Mapping finalized (including private and informal sectors)
    - *f.* Partnerships with private sector for improved recovery and recycling developed
    - *g.* Participation in regional platform events

17. Component 2: Support for policy dialogue and regulatory enhancements (US$ 1,8 million GEF, 12.5 million IDA). This component will support Government's efforts in strengthening the current environmental policies and regulations and capacity to monitor; screen and evaluate health and environmental risks associated with POPs and hazardous chemicals. The component will assist development of strategy for promoting the reduction of emissions and releases of, and exposure to, POPs and priority chemicals. Such a strategy would include gathering of health data, training for health-care workers and awareness-raising through health facilities. Attention will be taken to prevent the exposure of vulnerable populations, particularly children and women of child-bearing age, especially pregnant women, to POPs and hazardous chemicals; and dissemination of information to different actors and affected communities.

2.1 Strengthen national and municipal coordination. This subcomponent will finance the following activities:

- Strengthen coordination at the national and regional level
- Establish national project steering committee (including key stakeholders such as government, local authorities, health authorities, private sector, and NGOs), develop TOR, workplan, and hold regular meetings
- Review national coordination mechanisms and update, where appropriate, including establishment of a municipal coordination committee in Kabwe including TOR
- Endorse the coordination mechanisms at the national and municipal level

- Hold coordination mechanism meetings
- Develop a project website
- Develop a website for information dissemination and exchange on the project outputs, national waste management, and relevant initiatives and activities among the different ministries and stakeholders
- Ensure regular input and use of the information exchange website
- Develop a national training platform for solid waste management to be hosted by the project website

2.2 Develop strategy for promoting the reduction of emissions and releases of, and exposure to, POPs and priority chemicals. This subcomponent will finance the following activities:

- Develop a strategy and implementation plan for promoting the reduction of emissions and releases of, and exposure to, POPs and priority chemicals (including addressing gathering of health data, training for health-care workers, and awareness-raising)
- Undertake a comprehensive assessment of the national and municipal institutional and technical framework for waste management (generation, collection, transportation, sorting, treatment, recycling, and disposal) including existing national and municipal studies and initiatives, practices, systems, stakeholders, and mandates
    - Conduct a Value Chain Analysis (VCA) covering recycling, compositing, and the commercialization of the recycled and composted materials (including market analysis of greener products such as compost, plastic pellets, and others)
    - Identify the various steps of the value chain from waste collection to commercialization of secondary products, and the actors in the value chain
    - Undertake an identification and analysis of appropriate BAT/BEP for strengthened waste management
    - Develop and endorse a strategy and implementation plan for promoting the reduction of emissions and releases of, and exposure to, POPs and priority chemicals at the national and municipal level
- Assess national and municipal learning needs
    - Conduct a national and municipal level learning needs assessment regarding waste management and develop a learning strategy
    - Identify national and municipal institutions and other stakeholders to be trained
    - Identify national and municipal institutions (such as tertiary and vocational training institutions) to conduct the training to ensure sustainability and replicability

2.3 Strengthen the current environmental policies and regulations and monitoring capacity

This subcomponent will finance the following activities:

- Conduct a comprehensive gap assessment of the national policy and legislative framework and relevant municipal bylaws regarding municipal, POPs, and Hg waste and e-waste
- Develop new/amended national legislation and regulations and municipal bylaws, where appropriate, that contain provisions that address POPs, Hg, e-waste and other releases from solid waste in accordance with the obligations of the Stockholm Convention
- Identify indicators and end points for inspection officers to monitor the effectiveness of emission and release reductions and assess capacity gaps

2.4 Screen and evaluate health and environmental risks associated with POPs and other hazardous chemicals (e.g. PBDEs, Hg).

This subcomponent will finance the following activities:

- Develop methodology for screening and evaluating health and environment risks associated with POPs releases and other hazardous chemicals, covering problem formulation, hazard identification, hazard characterization, exposure assessment, and risk characterization
- Develop strategy and guidelines for screening and evaluating health and environment risks

2.5 Disseminate information to different actors and affected communities

- Develop an awareness strategy both at national and municipal level with a focus on promoting the sound management of waste and its impact on human health and the environment, including identification of the target audiences (e.g. policymakers, technicians, private sector, women and children, and the general public) and tailored approaches for transmitting information
- Develop awareness raising materials such as brochures, project cards, meeting banners, posters, videos, and local plays, for different target groups (including communities, media personnel, technicians, and policymakers)
- Hold press briefings and media events to promote project visibility and key outputs
- Hold awareness raising events for high-level stakeholders (members of parliament and Chief Executives) to facilitate the development and enforcement of legislation/regulations on waste management as well as project implementation

18. *Expected component outputs:*
    a. *A national strategy and implementation plan for promoting the reduction of emissions and releases of, and exposure to, POPs and priority chemicals developed*
    b. *A methodology for screening and evaluating health and environment risks associated with POPs releases and other hazardous chemicals developed*
    c. *Comprehensive assessment of the national and municipal institutional and technical framework for waste management (generation, collection, transportation, sorting, treatment, recycling, and disposal)*
    d. *Training for health-care workers and awareness-raising through health facilities*
    e. *National Steering Committee established and a communication strategy in place*

19. Component 3: Demonstrating application of technological tools and economic approaches for improving recycling of waste and reducing environmental health risks (US$ 4,2 million GEF, 30 million IDA). The project will focus on improving the waste value chain and reducing environmental health risks to workers and surrounding communities. Several measures will reduce UPOPs releases from solid waste by strongly limiting the quantities of waste subject to uncontrolled burning. Key outcomes include: (i) improved management of waste collection and transportation; (ii) improved treatment of POPs and hazardous waste; and (iii) improved recycling of wastes. The current dumpsite will be upgraded into a sanitary landfill (through IDA financing), and a feasibility study of short- and long-term BAT/BEP actions will be supported to determine the volumes and types of waste and the economic viability for private sector collaboration. Following the waste characterization study, the component will support the upgrading of an operating landfill to a recycling facility allowing for additional waste streams and value generation for sustainable growth of the sector. The component will ensure the segregation between hazardous contaminated wastes from the other non-hazardous waste streams. This component will also explore ways to reduce the impact of chemical pollution emanating from unregulated landfills in economic and socially acceptable manner and support the

development of communication tools to raise awareness about the health costs and benefits of pollution management, including community outreach to increase public understanding and visibility of the scale and environmental health impacts. The component will support training and community awareness promotion, especially training the existing rag-pickers and providing them with occupational health and safety training and equipment.

3.1. This subcomponent will provide support to undertake an economic viability and waste value chain study. Several institutions in Zambia have been involved in such studies and have expressed interest in such work (e.g. University of Zambia- school of Economics, Copperbelt University -school of Business, National Policy Research Institute).

3.2. This subcomponent will support demonstration pilot projects in identified facilities which are already involved in e-waste and waste recycling business (e.g. Metalco, Wonderful Ceiling, Zambezi Paper Mills, Zesco-Elsayeld) as well as in the development of prototype demonstration plants.

3.3 This subcomponent will finance the development of selection criteria and evaluation of the pilot projects and technologies, as well as the assessment of their economic viability in the Zambian context.

3.4. This subcomponent will finance the evaluation of the pilot projects and technologies and assessment of their economic viability in the Zambian context.

3.5 This subcomponent will promote two successful pilot projects and demonstrated technologies

20. *Expected component outputs:*
    a. An economic viability and waste value chain study conducted.
    b. Hazardous waste management is piloted at existing landfill sites (investment in infrastructure).
    c. Upgrading an operational landfill to a recycling facility
    d. Trainings conducted for ragpickers on occupational health and safety

21. Component 4: Project coordination and management (US$ 0.4m GEF, 0.3 million Counterpart contribution). This component will provide the resources necessary for effective project coordination and management; monitoring and evaluation at the regional, national, and local levels. This component will cover the cost for project management, implementation and supervision of project activities, administration of procurement and financial management, monitoring and evaluation, and monitoring of safeguards compliance. The component will cover the cost of the Project Implementation Unit (PIU) set up under ZEMA. The project will strengthen the existing PIU under the Zambia Mining and Environmental Remediation and Improvement Project (ZMERIP - P154683) with additional staff to cover activities specific to this project and assist in preparing, implementing and monitoring approved activities.

22. Project Beneficiaries: The development of this project involved significant consultations with stakeholders in Zambia. The EHPMP will also work closely with community-based organizations, private sectors, NGOs and local communities, who are invested in pollution management issues, including opportunities for income generation and green job opportunities. This engagement will go beyond consultation to actively involve communities in the design and implementation of project activities and in the learning across the Program. Special attention will be given to ensure the participation of indigenous people and local communities at the site level. It has been obvious that indigenous and local communities play a crucial role in environmental governance as traditional knowledge and practices can be used to manage and preserve natural areas as well as restore polluted or contaminated areas**.**

23. **Rationale for Bank Involvement and Role of Partners:** The Bank will use its leverage to convene the highest levels of national governments, led by Ministries of Finance, to a common platform to help accelerate action toward follow-up investment priorities. Such platform will enable the participating countries to strengthen the policy dialogue and identifying solutions to focus on meeting the Convention obligations and promote increased contributions from the private sector. This will allow GEF interventions to be sustained after the Project is completed.

24. **Incremental/additional cost reasoning and co-financing:** The World Bank is supporting the Government of Zambia on a Mining and Environmental Remediation and Improvement Project. Its objective is to reduce environmental health risks and lead exposure to the local population associated with the mining sector in critically polluted areas in Kabwe and Copperbelt provinces through improved capacity of the key institutions at the national, subnational and local levels. Its main objectives include strengthening environmental management, improving job opportunities for affected people and optimizing existing financial mechanisms to identify, finance, implement and monitor feasible environmental and social measures for prioritized contaminated areas. Kabwe is one of the primary focus areas of the project, and investments will include remediation and rehabilitation of old mining tailing dumps and indiscriminate contaminated sites; strengthening of capacity of the Kabwe Municipal council for improved environmental monitoring of different categories of waste and health interventions. The activities under the proposed GEF project have been designed to be complementary to the Bank supported ZMERIP.

F. Lessons Learned and Reflected in the Project Design

25. In Kabwe hazardous waste streams are mixed with municipal solid wastes and then either dumped or burned in the open air. This raises issues of environmental and social justice, as the people most affected by such precarious practices are usually the poor who live and work adjacent to dump sites. The unsound management of waste can lead to mutually reinforcing undesirable effects. It can pollute and contaminate the environment, pose a threat to human health and represent a loss of resources in the form of both materials and energy. The management of waste in Kabwe is further complicated by the range and diversity of waste generators, from mining and a wide variety of manufacturers through agricultural and medical waste to household rubbish. In addition, the sound management of municipal waste constitutes a sizable and continuous part of a municipality's budget. The poor of Kabwe face increased risks of exposure to toxic and hazardous chemicals and wastes, who routinely face such risks because of their occupation, poor living standards and lack of knowledge about the detrimental impacts of exposure to these chemicals and wastes. It has been documented that high capital investment in the solid waste management sector does not necessarily lead to improvements in the quality of service. On the other hand, substantial improvements can be achieved in many cases by making low-cost modifications in the existing system, with the focus being on increasing system efficiencies. Examples of such improvements are the efficient design of collection routes, modifications in the collection vehicles, reductions in equipment downtime, and public education, (e.g., education and communication leading to the production of less waste and the reduction of litter).

26. Kabwe does not have the infrastructure to deal with ever increasing complex waste streams and nor does it have the regulatory and physical infrastructure to derive some rebate from the recyclable materials that are inevitably part of municipal waste. The municipality has insufficient capacity for the recovery and recycling of various types of waste streams such as plastics and lack of equipment to deal with the collection, transportation and disposal of waste. Awareness of the impact of hazardous waste on human health and the environment is also very poor.

27. The project will also build on the lessons learned from previously implemented projects on waste management and reduction of POPs such as the regional project entitled "Reducing UPOPs and Mercury Releases from the Health Sector in Africa" as Zambia took part in this project.

28. **Proposed alternative scenario**

29. Under the proposed program this project will deliver at the national level and engage at the regional level through the regional coordination project. The need for a regional approach is predicated not only on the physical transboundary nature of mercury and POPs emissions and impacts, but on regional opportunities for solutions and regional causes for mismanagement. The preparatory studies and assessments carried out through the GEF-funded MSP[28] on "Reducing Environmental Health Impact of Harmful Chemicals in Africa Region" and under the World Bank's Pollution Management and Environmental Health (PMEH[29]) program validate a regional approach to addressing these issues. For example, the recently commissioned Mercury Trade study, under the GEF-MSP, revealed significant gap between the estimated consumption of mercury and official imports, indicating that there is major illegal trade across African countries. Illegal traffic is also prevalent with electronic waste. Unless there is a regionally-harmonized policy on mercury import licensing and its use in the ASGM sector, country-level interventions may not have the desired outcomes.

30. EHPMP draws lessons from the Sustainable Artisanal Mining project implemented by the Swiss Agency for Development and Cooperation (SDC). The SDC project conducted a study on existing ASM knowledge sharing initiatives that concluded that a combination of information and knowledge sharing approaches (i.e. Social media, websites, study tours, training & learning events, conferences, targeted workshops) was key to success.

31. The Program will establish a virtual platform for regional partnerships and policy dialogue, knowledge management and communication, will leverage lessons learned and disseminate information, tools, and techniques to scale up best practices. It aims to bring together environmental regulators and urban municipal councils with jurisdiction over the contaminated land. The investments, institution and information ideas proposed under the Program to tackle the environmental health issues have been discussed in a significant high-level roundtable with various interested countries, namely, the Governments of Ghana, Tanzania, Zambia, Kenya, and Senegal and with the USEPA, NRDC, UNDP, UNIDO, UNEP, industry associations, and Non-Governmental Organizations.

32. The design of the EHPM Program draws lessons from the Community Artisanal and Small-Scale Mining (CASM) initiative specifically to inform the approach to the global ASM support. These inter alia include:

- Strengthening of Information and knowledge sharing,
- Enhancing regional and global partnerships to share services, capacity building and tools tailored for the specific needs of stakeholders.
- Monitoring and Evaluation to follow up on progress of information sharing and improve accountability; and
- Collaboration both within and outside the World Bank Group.

33. The EHPMP will work closely with local communities and community-based organizations who are invested in and benefit from current practices in ASGM sector or from solid and electronic waste management, including opportunities for income generation and green jobs.

[28] Reducing Environmental Health Impact of Harmful Chemicals in Africa Region (https://www.thegef.org/gef/project_detail?projID=5583)

[29] World Bank's multi-donor Trust funds under the Pollution Management and Environmental Health (PMEH) program aims to address environmental health related risks at the country and regional levels and constraints faced by the national and international community to tackle these.

IMPLEMENTATION ARRANGEMENTS

A – Institutional and Implementation Arrangements

34. The regional coordination project (ASA) will provide the overall guidance and oversight for the individual projects. The regional coordination project will establish the coordination framework for the Program and will enable a sustained communication with and among Program stakeholders through stakeholder consultations at the national and regional levels to support all components. A Program Steering Committee (PSC) with representation from key partners and stakeholders will be established as an advisory mechanism to maximize projects' synergies and support the design of activities and implementation of the overall Program. The PSC will have a secretariat with representatives of all participating countries.

35. The National PSC in Zambia will be mainly responsible for approval of Annual Work Plans submitted by the ZEMA and will provide guidance and oversight during implementation. Zambia Environmental Management Agency (ZEMA), a regulatory agency under the Ministry of Lands, Natural Resources and Environmental Protection (MLNREP) will implementing this project in collaboration with the Ministry of Mines and Mineral Development (MMMD) and with the Ministry of Local Government and Housing (MLGH) through the targeted Municipal Councils. ZEMA's mandate include the prevention and management of environmental pollution, conservation and sustainable management of natural resources, environmental audits and monitoring, and implementation of international environmental agreements and conventions to which Zambia is a party. ZEMA will be responsible for: (a) preparation of procurement plans and the management of the designated accounts; (b) accounting, financial management and reporting on the overall project subcomponents; (c) ensuring the project audits; (d) preparation of quarterly financial and technical progress reports; (e) the management of the environmental and social safeguards aspects; and (f) undertaking all procurement and contract management activities for all components. The project will use the Project Steering Committee (PSC) established under the ZMERIP. The PSC is chaired by the Permanent Secretary (MMMD) and comprises the Permanent Secretaries of MOF, MLNREP, MOH, MLGH, Central Province, and Director General of ZEMA and Chief Executive Officer of ZCCM-IH. For the purposes of implementation, the same Project Implementation Unit (PIU) set up at ZEMA for ZMERIP, will be responsible for planning, procurement, implementation and monitoring of various activities.

PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis (if applicable)

36. Environmental health problems are often associated with livelihood challenges and unawareness of long term impacts to health and the surrounding environment. These challenges arise from inefficient use of materials and resources, where possible solutions are based on identifying and adopting cleaner and more productive ways of working. Volatile Organic Compounds and mercury emissions alone account for 5.7 to 13 percent of the annual US$ 2 trillion to 4.5 trillion (or USD 2000 billion - 4500 billion) in ecosystems and biodiversity losses, while estimates for selected chemicals (including pesticides) involved in unintentional acute and occupational poisonings, a limited number of occupational carcinogens and particulates and lead, in 2004, resulted in a total of 964,000 deaths and 20,986,153 DALYs, corresponding to 1.6% of the total deaths and 1.4% of the total burden of disease world-wide .

37. Poor waste management practices lead to groundwater contamination, atmospheric and water pollution as well as health problems including occupational safety impacts among those directly and indirectly involved. Reduced burning of mixed solid waste will reduce the atmospheric deposition of POPs such as dioxins and furans translating

into health benefits and reduced costs of pollution management and health care. Alternative treatment technologies for solid waste management can not only eliminate pathogenic agents or failure to immobilize heavy metals, but also benefit the public health and environmental safety, including reduction of greenhouse gas emissions such as carbon dioxide and methane.

38. The project will promote the replication of alternative processes and techniques to prevent POPs formation due to open burning of different categories of wastes, including municipal, hazardous and medical wastes, following Stockholm Convention Article 5 and related BAT/BEP guidance. The Project aims to create socio-economic conditions necessary for the long-term reduction of environmental health risks and costs for the affected communities.

39. For ASGM sector, the Program will promote transparency along the ASGM value chain, offering greater opportunity for miners to have a direct access to the market in order to negotiate with the end buyer a better price for their gold, leading to greater economic and social stability. Cleaner technologies and providing miners with safe alternatives will have a direct benefit of not only reducing mercury emissions but the reduction in toxic fumes will have beneficial impacts on the health of the miners. Financial benefits can also arise from better management of input, including mercury recycling. Mandating and supporting ASG miners to rehabilitate closed mines will allow revegetation of large tracts of land, support reforestation efforts of the Government and in some cases allow land to be returned for productive agricultural or pastoral use.

40. Through improved ASGM sector management, reduction in mercury emissions and reduced health risks and economic benefits in the longer term are envisaged. Longer term interventions focus on promoting sustainability, community benefits and effective environmental governance by communities. These interventions are designed to act collectively to shift the perception of cost-benefit in relation to the participation by a wide range of actors across ASGM. Additionally, the project will promote dialogue on how to best ensure that communities benefit from improved management of mercury use consistent with national action planning and relevant legislation, in order to create the fundamental socio-economic conditions necessary for the long-term reduction of environmental health risks and costs for the affected community. For the e-Waste sector, the Program envisions a number of economic benefits from to reduction of UPOPs releases (and potentially other POPs present in the waste including PCBs and PBDEs), such as (a) improved management and reduced open and uncontrolled burning of solid waste, and as a result reduced risk of public health diseases; (b) improved recycling systems provides better business opportunities and economic growth along with enhanced local ownership, responsibilities and participation; and (c) reduction of health costs associated with poor waste management practice.

B – Fiduciary

(iii) **Financial Management:** An FM assessment was carried out for Zambia Environmental Agency (ZEMA). The FM assessment was carried out in accordance with the Financial Management Manual issued by the FM Sector Board on March 1, 2010 and retrofitted on February 4, 2015. The objective of the assessment was to determine whether the implementing entity has acceptable financial management arrangements in place that satisfy the Bank's Operation Policy/Bank Procedure (OP/BP) 10.00. These arrangements would ensure that ZEMA: (i) use Project funds only for the intended purposes in an efficient and economical way; (ii) prepare accurate and reliable accounts as well as timely periodic financial reports; (iii) safeguard assets of the Project; and (iv) have acceptable auditing arrangements. FM arrangements were found to be adequate subject to meeting the following requirements: (i) ZEMA recruits a qualified and experienced project accountant, who will report to the Finance Manager, for the project as a condition of effectiveness; (2) the newly-recruited project accountant, including existing staff and internal auditors, be trained in World Bank financial

management and disbursements procedures continuously throughout the life of the project; and (3) ZEMA develops a Project Implementation Manual (PIM), including financial procedures before Effectiveness. The conclusion of the assessment is that the financial management arrangements in place meet the World Bank's minimum requirements under OP/BP10.00, and therefore are adequate to provide, with reasonable assurance, accurate and timely information on the status of the Project required by World Bank (IDA). The overall Financial Management residual risk rating for ZEMA is moderate.

(iv) Procurement: The Procurement Specialists is updating the PPSD (will send by the end of the week). This will be based on the PPSD used for the restructuring of the ZMERIP project considering only the ZEMA PIU and its procurement plan. Procurement under the proposed project will be carried out in accordance with the World Bank New Procurement Framework "*Procurement Regulations for Investment Project Financing (IPF) for Borrowers – Goods, Works, Non-Consulting and Consulting Services'* dated July 2016; ii) "*Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants, (the Anti-Corruption Guidelines*)" dated October 15, 2006 and revised in January 2011; and iv) the provisions stipulated in the legal agreement. The procurement procedure to be followed for National Competitive Bidding ("NCB") shall be the open bidding procedure set forth in the Public Procurement Act, 2008, Act. No.12 of 2008, as amended by the Public Procurement (Amendment) Act, 2011, Act No. 15 of 2011 (the "PPA"), and the Public Procurement Regulations, 2011, Statutory Instrument No. 63 of 2011 (the "Regulations"); provided, however, that such procedure shall be subject to the provisions of Section I and Paragraphs 3.3 and 3.4 of Section III, and Appendix 1 of the Procurement Guidelines, and the additional provisions as provided in Annex 2 Procurement. Procurement capacity assessments of the implementing agency (ZEMA) for the project was carried out as part of project preparation. The assessment concluded that procurement management arrangements in place are adequate and compliant with the Procurement Guidelines. The project will make use of existing arrangements under the ZMERIP project.

Methods of procurement of goods and works are as follows:

(a) International Competitive Bidding. Except as otherwise provided, goods and works shall be procured under contracts awarded on the basis of International Competitive Bidding (ICB).
(b) Other methods of procurement of goods and works. The following list specifies the methods of procurement, other than International Competitive Bidding which may be used for goods and works. The Procurement Plan specifies the circumstances under which such methods may be used: (i) National Competitive Bidding; (ii) Procurement from UN agencies; (iii) Force Account; (iv) Shopping; (v) Direct Contracting; (vi) Community Participation in Procurement.

Methods of procurement for consulting services are:
(c) Quality and Cost-Based Selection (QCBS). Except as otherwise provided in the paragraph below, consultants services shall be procured under contracts awarded on the basis of Quality and Cost-Based Selection.
(d) Other methods of procurement of consultants' services. The following list specifies selection methods, other than Quality and Cost-Based Selection, which may be used for consultants' services. The Procurement Plan shall specify the circumstances under which such methods may be used: (i) Quality-Based Selection (QBS); (ii) Selection based on the Consultant's Qualifications (CQS); (iii) Least-Cost

Selection (LCS); (iv) Single-Source Selection for firms (SSS); (v) Individual Consultants (IC); and (vi) Single-Source Selection for IC (SSS).

D – Environmental and Social

41. **Social (including Safeguards)**: The socio-economic dimensions of the project, particularly on populations affected by exposure to chemical related contamination and other hazards include: (a) need for inclusion of communities in the planning (and implementation) process; (b) citizen engagement and awareness building about environmental quality in their neighborhood; (c) building social capital at community level through localized interventions, with a special focus on vulnerable community members; and (d) adherence to World Bank policy on land acquisition and resettlement.

42. Inclusion: CEP provided several important lessons, one of which was the importance of inclusion of the local population into decision making for such pollution management projects to increase sustainability of investments and promote understanding of the purpose of project investments. The project is designed with a participatory approach in mind and aims to promote community-driven activities dedicated to the improvement of environmental health of the communities most affected by chemical pollution.

43. **Gender:** Women have the potential to play an important role in behavioral change that could significantly reduce exposure of children to hazardous environment. Women in Kabwe can therefore play an important role in changing health seeking behavior, including mitigation of health impacts due to lead poisoning. Thus, the project has a strong emphasis on inclusion of women in the sensitization and communication campaign, participation in the health interventions that target affected children, and local level nutritional support, livelihood support activities.

44. **Vulnerable groups:** The selected municipalities have already implemented a number of initiatives targeting groups such as women headed households, the elderly, the disabled and youth. The project will provide special attention to these groups with dedicated grant opportunities under subcomponent 3.2 and targeted sensitization and education campaigns.

45. Environment (including Safeguards)

46. **Climate Change Screening:** The Climate and Disaster Risk Screening Report identified that the target project locations in the future will be moderately exposed to the natural hazards like drought, extreme precipitation and flooding and strong winds. Therefore, the preparation of the proposed subproject activities will incorporate monitoring of the level of climate and geophysical risks identified as relevant to the project. Where necessary, additional studies and consultations will be organized. Adaptation covers a wide range of activities that will enhance the ability to respond to climate change-related issues such as floods, drought, threats to water resources and strong winds. The project's physical investments will cover activities that (a) are relatively small-scale investments; (b) have scope for easily reacting to climatic hazards (for example, to improve management of solid waste in Kabwe or improving agricultural productivity of contaminated soil in Mufulira and Chingola, etc.); and (c) possess an inherent flexibility to react to changing climatic condition, should this become necessary (for example, when a community decides and plans the income generating activities, resilience can be built with minor additional efforts). Adaptation will thus be promoted as one of the key design principles for the scope of planned activities. Mitigation efforts are targeted at reducing greenhouse gas (GHG) emissions by measures such as improved management of solid waste in Kabwe; and afforestation and greening initiatives in four municipal councils. While resource efficiency will be an important design criterion in all components, especially those dealing with physical investments and livelihood generation, the project will not target specific measures to reduce, and possibly market, GHG emissions. The

investment on solid waste management in Kabwe will be designed to reduce methane generation of organic waste currently being disposed into an open dump. The social development aspects, such as capacity building and training, may significantly raise awareness of the impact of climate hazards, both current and future.

47. Component 3 - Demonstrating application of technological tools and economic approaches - will finance specific demonstration projects for cleaner technology in areas contaminated by chemical waste. These investments will be based on a standard set of (social, environment and economic) criteria, tailored to country specific implementation conditions and selected to avoid or minimize impacts on livelihoods and employment opportunities. The demonstrative investments (pilots) will introduce cleaner technologies and methodologies to reduce emissions of unintentional POPs in waste management. The pilots will be selected and designed based on priority environmental health risks and cost effectiveness of interventions. These pilots will be directly connected to the ongoing Bank operation "Zambia – Mining and Environmental Remediation and Improvement Project (P154683)". The selection process will be guided by the environmental and social screening to determine the level of risk and the nature and extent of the environmental assessment needed for the project. The screening will consider the location, sensitivity, and scale of the pilot; the nature and magnitude of the potential environmental and social risks and impacts, and the capacity and commitment of the implementing agency to manage the environmental and social risks and impacts in a manner consistent with the World Bank Group's Environmental and Social Standards. The proposed pilots with the following characteristics will not be considered for support under this Program: - Proposals with high level of environmental and social risk; and - Proposals requiring land acquisition or involuntary resettlement.

48. The environmental risk classification for the Project is Substantial under the World Bank ESF, based on the nature and scale of the demonstration project activities, which include potential impacts from managing hazardous waste, however, majority of the impacts likely to be generated from the project activities are site-specific, limited in number, and can be mitigated with measures that are readily identifiable. These pilot activities will be designed to demonstrate a use of new technologies to reduce uPOP emissions associated with waste management. The implementing agency has knowledge and capacity to manage the environmental risks under the proposed pilot interventions. However, the implementing agency will need to build additional capacity for contract management during pilot implementation and for managing social and environmental risks and impacts beyond aspects that are generally included in the ESSs.

49. However, most interventions under the project are not likely to result in significant environmental, health or social impacts as they will be designed to reduce environmental health impacts and address the source of the impact.

50. Since the exact locations and site-specific details of the activities and scope of works are not yet identified, the relevant safeguards instrument at appraisal stage is an Environmental and Social Management Framework (ESMF). The ESMF provides detailed step-by-step processes for identification and screening of critical environment and social risks; procedures for evaluating the significance of environmental risks and impacts; development of site specific mitigation and monitoring plans when subproject details are identified; and institutional arrangements for safeguards implementation and capacity building measures. The ESMF provides guidelines for the development of ESIAs and ESMPs that will present mitigation measures to address the potential environmental and social impacts at the subproject level, once the activities location and scope have been identified.

51. Based on ESMF screening criteria, the following activities have been identified that might cause significant adverse impacts, proposed for funding in the second year of the project: (a) the closure or rehabilitation of TDs and

remediation of contaminated hotspots; (b) development of a solid and hazardous waste disposal facility in Kabwe; and (c) improving the drainage and flow of Kabwe canal to reduce the risks of flooding in the neighboring community. Based on the application of the procedures outlined in the ESMF, site specific ESIA and/or ESMP will be prepared for all subprojects based on the screening, and publicly disclosed, prior to finalization of the design and commencement of construction. During subproject preparation, the project implementing teams will use the ESIA/ESMP findings to further improve project designs and minimize adverse impacts while maximizing positive impact on people and environment.

IMPLEMENTATION ARRANGEMENTS AND SUPPORT PLAN

52. **Procurement:**

53. The Procurement Specialists Is updating the PPSD (will send by the end of the week). This will be based on the PPSD used for the restructuring of the ZMERIP project considering only the ZEMA PIU. Procurement under the proposed project will be carried out in accordance with the World Bank New Procurement Framework "Procurement Regulations for Investment Project Financing (IPF) for Borrowers – Goods, Works, Non-Consulting and Consulting Services' dated July 2016; ii) "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants, (the Anti-Corruption Guidelines)" dated October 15, 2006 and revised in January 2011; and iv) the provisions stipulated in the legal agreement. The procurement procedure to be followed for National Competitive Bidding ("NCB") shall be the open bidding procedure set forth in the Public Procurement Act, 2008, Act. No.12 of 2008, as amended by the Public Procurement (Amendment) Act, 2011, Act No. 15 of 2011 (the "PPA"), and the Public Procurement Regulations, 2011, Statutory Instrument No. 63 of 2011 (the "Regulations"); provided, however, that such procedure shall be subject to the provisions of Section I and Paragraphs 3.3 and 3.4 of Section III, and Appendix 1 of the Procurement Guidelines, and the additional provisions as provided in Annex 2 Procurement.

Procurement capacity assessments of the implementing agency (ZEMA) for the project was carried out as part of project preparation. The assessment concluded that procurement management arrangements in place are adequate and compliant with the Procurement Guidelines. The project will make use of existing arrangements under the ZMERIP project.

Methods of procurement of goods and works are as follows:

(e) International Competitive Bidding. Except as otherwise provided, goods and works shall be procured under contracts awarded on the basis of International Competitive Bidding (ICB).

(f) Other methods of procurement of goods and works. The following list specifies the methods of procurement, other than International Competitive Bidding which may be used for goods and works. The Procurement Plan specifies the circumstances under which such methods may be used: (i) National Competitive Bidding; (ii) Procurement from UN agencies; (iii) Force Account; (iv) Shopping; (v) Direct Contracting; (vi) Community Participation in Procurement.

Methods of procurement for consulting services are:

(g) Quality and Cost-Based Selection (QCBS). Except as otherwise provided in the paragraph below, consultants services shall be procured under contracts awarded on the basis of Quality and Cost-Based Selection.

(h) Other methods of procurement of consultants' services. The following list specifies selection methods, other than Quality and Cost-Based Selection, which may be used for consultants' services. The

Procurement Plan shall specify the circumstances under which such methods may be used: (i) Quality-Based Selection (QBS); (ii) Selection based on the Consultant's Qualifications (CQS); (iii) Least-Cost Selection (LCS); (iv) Single-Source Selection for firms (SSS); (v) Individual Consultants (IC); and (vi) Single-Source Selection for IC (SSS).

54. **Financial Management:**

55. A Financial Management (FM) assessment was conducted on the FM arrangements for ZEMA under the Africa Environmental Health and Pollution Management Program Project. ZEMA will implement parts of Components 1.2, 2.2, and 3.2. The objective of the assessment was to determine whether ZEMA (the implementing entity) has acceptable financial management arrangements in place that satisfy the Bank's Operation Policy/Bank Procedure (OP/BP) 10.00. These arrangements would ensure that the implementing entity: (i) use Project funds only for the intended purposes in an efficient and economical way; (ii) prepare accurate and reliable accounts as well as timely periodic financial reports; (iii) safeguard assets of the Project; and (iv) have acceptable auditing arrangements. The FM assessment was carried out in accordance with the Financial Management Manual issued by the FM Sector Board on March 1, 2010 and retrofitted on February 4, 2015.

56. *Strengths and Weaknesses:* The main strength identified is that the project will use the existing financial management arrangements at ZEMA including staff, financial regulations and procedures. The accounting system is computerized through the use of SAGE Revolution. ZEMA Finance Manager will have overall responsibility for the project's financial management. The weaknesses identified is that (i) accounting staff are not adequate; (ii) only one accounting staff is trained in the Bank's financial management and disbursement procedures; (iii) intermittent delays in receiving government funding. Internal control weaknesses from management letters for year ended December 2016 and 2017 included (i) failure to remit statutory obligations on time; and (ii) late retirement of imprest. Therefore, it is recommended that: (i) ZEMA recruits a qualified and experienced project accountant, who will report to the Finance Manager, for the project as a condition of effectiveness; (2) the newly-recruited project accountant, including existing staff and internal auditors, be trained in World Bank financial management and disbursements procedures continuously throughout the life of the project; and (3) ZEMA develops a Project Implementation Manual (PIM), including financial procedures before Effectiveness.

57. **Budgeting Arrangements:** ZEMA will prepare its annual budget based on the procurement and work plans and to be submitted to the Bank at least two months before the beginning of the project's fiscal year. The budget will follow ZEMA's budgeting guidelines in the FM Manual. The budget should be approved before the beginning of financial year. During the financial year, the budget will be monitored on a quarterly basis using interim financial reports (IFRs). The IFRs will compare the budget and actual expenditure and significant variances will need to be explained. These IFRs will be expected to be submitted to the Bank within 45 days after the end of the calendar quarterly period.

58. *Accounting Arrangements:* ZEMA will prepare a Project Implementation Manual (PIM), including financial procedures.

59. *Accounting Staff:* ZEMA has a finance department headed by a Finance Director who is deputized by a Finance Manager. The Finance Manger is also assisted by an Accountant and 3 Assistant Accountants. This arrangement is

not adequate; therefore, the project will recruit a Project Accountant, who will report to the Finance Manager. All accounting staff and internal auditors of ZEMA will be trained in the Bank's financial management and disbursement procedures during project implementation. Accounting Information Systems and Standards: ZEMA will use the existing Sage Revolution Accounting System to record and report on the project transactions. The Sage Revolution System is a tested accounting software as to its reliability. ZEMA uses International Financial Reporting Standards (IFRs) and these will apply to the project.

60. **Internal Control and Internal Audit Arrangements:** The internal control procedures will be documented in the FM manuals and Project Implementation Manuals to ensure an effective internal control system. ZEMA has also an internal audit department that is staffed with two qualified staff but will need to be trained in World Bank financial management and disbursement procedures. Internal auditors should ensure that the project's audit is included in their plans and audits conducted to prevent and detect fraud and corruption. In addition, there are the World Bank Anti-Corruption Guidelines with which the project should comply.

61. **Funds Flow Arrangements:**

62. *Designated and Project Accounts:* Funds will flow from IDA account to a Designated Account (DA) to be opened at a commercial bank acceptable to the Bank, to be managed by the ZEMA's Project Accountant. The DA will hold the initial advance(s) and subsequent replenishments. Funds in the DA will only be used to finance eligible expenditures of the component.

63. *Banking Arrangements.* ZEMA will open a Designated Account (DA) denominated in United States Dollars and a Project Account denominated in local currency. These will be maintained in a commercial bank acceptable to the Bank. The signatories to these accounts should be in line with the FM Manual and they should be submitted to the Bank between the signing of the project and its effectiveness.

64. **Disbursement Arrangements:** ZEMA will access funding from the Bank using the report-based disbursement method. Withdrawal applications should be prepared within one month after Project effectiveness. Other methods of disbursement that can be used by ZEMA include direct payments, reimbursements and special commitments. If ineligible expenditures are found to have been made from the Designated and/or Project Accounts, the borrower will be obligated to refund the same. If the Designated Account remains inactive for more than six months, the Bank may reduce the amount advanced. The Bank will have the right, as reflected in the terms of the Financing Agreement, to suspend disbursement of the funds if significant conditions, including reporting requirements, are not complied with. Additional details regarding disbursement will be provided in the disbursement letters.

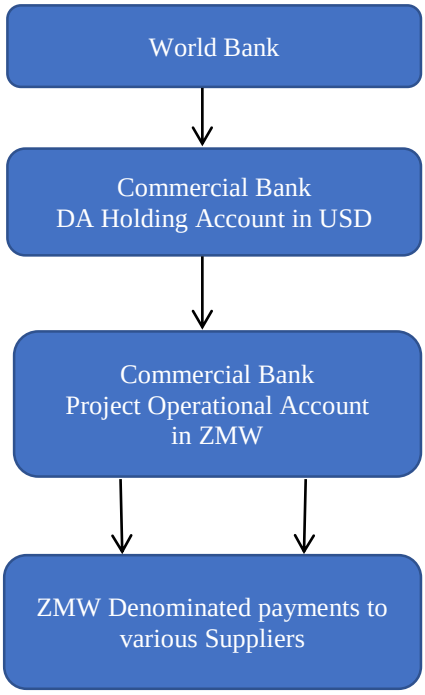

Figure x: *ZEMA: Flow of Funds*

65. *Financial Reporting Arrangements:* The project will use Report-based disbursement procedures. This procedure is very flexible and allows the project to move away from time-consuming transaction-based method to quarterly advances to the DA on IFRs. The initial advance to the DA will be made based on a 6-month cash flow forecast. Withdrawal Applications (WAs) will be completed by ZEMA to request replenishment of DA on a quarterly basis using IFRs. The replenishment amount will be based on a 6-month forecast of expenditure less actual cash at hand. The following will be the documentation to accompany the IFRs justifying expenditures for subsequent disbursements to the DA: (i) DA activity statement supported by copy/copies of bank statements; (ii) Summary statement of expenditure for contracts above the prior review threshold; (iii) Summary statement of expenditure for contracts below the prior review threshold. Other disbursement methods will include Direct Payments; Reimbursement and Special Commitments. Details of withdrawal conditions and requirements will be advised in the Disbursement Letter.

66. ZEMA will also prepare the Project's annual accounts/financial statements within three months after the end of the accounting year in accordance with accounting standards acceptable to the Bank. The financial statements will be required to be submitted to the Bank within six months after the end of the fiscal year.

67. *External Audit Arrangements:* The external audit of the Project's funds will be done by the Office of the Auditor General (OAG), the Supreme Audit Institution in Zambia. The OAG can contract private audit firms acceptable to the Bank to conduct the audit of the project on its behalf. The cost of hiring a private audit firm will be met by the Project. The audit should be carried out in accordance with International Standards on Auditing or International Standards for Supreme Audit Institutions issued by the International Organization for Supreme Audit Institutions.

The Terms of Reference (TORs) for the audit will be agreed with the Bank before negotiations. The external auditors should be appointed within six months after effectiveness. Audit reports together with management letters should be submitted to the World Bank within six months after the end of the government's fiscal year. Audit reports will be publicly disclosed by the World Bank Group in accordance with the Bank's disclosure policy.

Table #. *Financial Management Action Plan*

S/N	Action	Responsibility	Due Date
1.	Prepare a Project Implementation Manual, including FM arrangements, that is acceptable to the Bank.	ZEMA	By Effectiveness
2.	Recruit a qualified and experienced Project Accountant for the project	ZEMA	By Effectiveness
3.	Train accounting and internal audit staff in Bank's financial management and disbursement guidelines	IDA	Continuously

68. **Implementation Support Plan:** Financial Management implementation support missions will be carried out twice a year based on the moderate FM residual risk rating. Implementation Support will also include desk reviews such as the review of the IFRs and audit reports. In-depth reviews and forensic reviews may be done where deemed necessary. The FM implementation support will be an integrated part of the Project's implementation reviews.

ANNEX 3 D: PROJECT DESCRIPTION FOR KENYA (GEF ID: 9853)

PROPOSED GLOBAL ENVIRONMENT FACILITY GRANTS TO THE REPUBLIC OF KENYA IN THE AMOUNT OF US$ 8,073,395

STRATEGIC CONTEXT

A – Country Context

1. Africa economic growth and industrialization trend. Africa's economic growth rebounded to 3.7 percent in 2017, up from 2.3 percent in 2016, and is forecast to rise further to 3.8 percent in 2018. The upward growth trend is likely to sustain if the African economy – currently undergoing structural changes, succeeds in reviving national and regional industrialization. The industrial sector is progressively gaining ground in many African countries. It represents 4 to 32 percent of the national GDPs in most African countries. Undoubtedly, the pace of industrialization will be influenced by the changes in international demand and international prices, and sooner or later industrial growth will lead to increased production and consumption, and higher exploitation and processing of Africa's mineral and natural resources. This, in turn may lead to more environmental pollution and degradation.

2. Environmental challenges and use and management of chemical waste. Most Sub-Saharan African countries have already experienced multiple environmental-health challenges related to inadequate capacity to effectively monitor the use of chemicals and manage chemical waste. Institutions lack effective regulation and enforcement; producers lack access to clean production and waste management technologies, and the public has no information on environmental-health risks. Nearly 35% of the deaths in the sub-Saharan Africa are linked to environmental hazards from toxic chemicals. Diseases caused by pollution were estimated to have caused 9 million premature deaths in 2015, which was 16% of all deaths worldwide and three times more than deaths from AIDS, tuberculosis and malaria combined, and 15 times more than from all wars and other forms of violence.

3. Evolution of environmental governance in Kenya. Kenya's National Environment Action Plan completed in 1994 recommended the need for a national policy and law on the environment. The Environmental Management and Coordination Act (EMCA) was enacted in 1999 and was Kenya's first framework environmental law that was amended in 2015. The Sessional Paper no. 6 and EMCA added to other sectoral statutes on various facets of the environment. This created conflicts and overlaps in environmental policies and laws, thus hindering achievement of sustainable development objectives and the country's vision 2030. The promulgation of the Constitution of Kenya in 2010 and other new developments like climate change were important in further shaping Kenya's environmental policy and legislative development. Constitution of Kenya has profound implications for the management of the environment, including chemicals and solid waste at the national, regional, and county levels.

4. Kenya industrialization trend and associated wastes. Kenya aspires to be fully industrialized by year 2030, opening up job opportunities and value addition to agricultural produce and natural mineral resources for export and local consumption. This trend of development is expected to initiate industrial enterprises, which would in turn result in increased quantities and complexity of pollutants, including POPs. In order to reap the full benefits of this mode of economic development while conserving the environment, there is need to plan and develop the associated infrastructure to handle increased effluents and wastes. Some of the environmental challenges facing the industry include: generation and management of solid, liquid, and hazardous waste and e-waste; gaseous emissions,

occupational health and safety; adoption of cleaner production technologies and compliance with EIA/EA, Waste, and Water regulations.

5. Kenya e-Waste. Electronic waste is Kenya's fastest growing waste component, with an estimated 17,000 tons of electronic waste generated in annually. When e-waste is burnt, toxic substances controlled under the Stockholm Convention such as UPOPs are generated and POPs contained in the waste such as PBDEs are released. The high rate of e-waste accumulation in Kenya is caused by incomplete product life-cycles, the increasing affordability of electronics, and donations of used electronics from other countries. Illegal import of e-waste or used electronics from all over the world is a major source of e-waste in Kenya. The high rate of e-waste accumulation in Kenya is caused by longer product life-cycles (3 years life time for personal computers in developed countries versus 7 years in Kenya). This is driven by the demand of inexpensive e-waste and secondary materials, as well as cheap dumping prices compared to the treatment with stricter standards in the export countries. Despite several initiatives, such as Computer for Schools Kenya (CFSK) and its offshoot Waste Electrical and Electronic Equipment Centre (WEEE Centre) that operate Kenya's few e-waste recycling centers, and mobile phone collection initiatives from Nokia and HP, the recycling activities of e-waste in Kenya are usually carried out on an informal basis, often involving open burning in unmonitored dumpsites or landfills. This predominantly rudimentary recycling has caused substantial damage to the health of scavengers and local environment. The management of hazardous waste and toxic pollutants from the informal waste recycling sector is an emerging challenge for Kenya. This is resulting in serious environmental and public health hazards in rural and urban areas. Addressing these hazards requires a collaborative approach.

6. Kenya e-Waste unsafe practices. Due to a long-time lack of policies, statutes and regulatory mechanisms and standards for disposal of e-Waste, such waste inevitably ends up improperly burned or dumped, or is partly recycled in unsafe, environmentally unfriendly and even life-threatening conditions. These unsafe practices are exposing Kenyans to severe health risks as the chemicals seep into the water and find their way to crops that people eventually consume. Hazardous compounds found in this waste have been linked to strong neuro-developmental and behavioral effects, especially in children. Health risks may result from direct contact with harmful materials such as lead, cadmium, chromium and other hazardous substances or from toxic substances that subsequently accumulate in soil, water streams and food. To address environmental issues related to increasing e-Waste, and to ensure their storage, transport, treatment, reuse, recycling, recovery and disposal is conducted in an environmentally sound manner, a proactive approach is essential.

B – Sectoral and Institutional Context

7. According to Kenya's NIP of the Stockholm Convention of POPs, chemicals in Kenya contribute about 8% of Gross Domestic Product in agriculture, trade, manufacturing and energy sectors. The country uses approximately 8.2 billion Kenya Shillings (US$100million) to import the chemicals, of which a small part is industrial POPs. It is in the imports of plastic products, electrical and electronic goods, computers, mobile phones, foams, and flame retardants that form the bulk of the newly listed POPs occur. The main challenge that comes with chemical use is the proper management of chemicals across the lifecycle. Poor management of chemicals comes with a price due to poor health and degraded ecosystems.

8. Kenyan annual e-waste generation includes 11,400 tonnes of old refrigerators, 2,800 tonnes of TVs, 2,500 tonnes of personal computers, 500 tonnes of printers and 150 of mobile phones (UNEP). Collection and recycling of e-waste is a major challenge due to the wide range of end-of-life products, many of which are persistent, bio-accumulative and toxic substances, such as POPs (e.g., brominated flame retardants -PBDEs and PCBs) and heavy metals (e.g., lead, nickel, chromium, mercury). The recycling activities of e-waste in Kenya is mostly carried out on an informal

basis, often involving open burning in unmonitored dumpsites or landfills. This rudimentary recycling has caused substantial damage to the health of scavengers and the local environment.

> **Box 1: Environment and Human Health Impacts of e-Waste:** E-waste is expensive to treat in an environmentally sound manner. Many developing countries lack specific regulation and enforcement for this type of toxic waste, adequate infrastructure, and technologies to implement 'win-win' solutions of this growing challenge. Recycling of e-waste provides business opportunities due to waste's economic value although e-waste recycling often operates as a 'grey-sector' of the economy. Arguably, recycling of e-waste can generate positive environmental impacts by reducing carbon emissions and reducing the demand for metals from mining. For instance, it is estimated that for every 1 ton of gold or platinum produced, over 10,000 tons of CO_2 is emitted. If the same metals are recovered from recycled e-waste and equal amount of GHG emissions will not be released in the atmosphere. However, the environmental benefits are overshadowed by the huge health and socio-economic risks especially in the developing countries where labor costs are low, regulations are absent, and enforcement is weak. In Ghana, for example, recovery of valuable metals is done manually (mainly copper and aluminum) which includes open burning of plastic-coated components to isolate copper. Burning activates copper as a catalyst for dioxin release, including from polyvinyl chloride (PVC) from plastic (Sepúlveda et al., 2010).
> ***Source:*** *The World Bank: Green ICT: Sustainable E-waste Management in Sub-Saharan Africa (2014).*

9. Leaching and evaporation of these toxic substances occurs at the e-waste sites and results in the contamination of surrounding natural resources, including soil, crops, drinking water, livestock, and fish. Burning of e-waste, which is a common method of utilization, generates further toxic substances such as UPOPs. Kenya has low labor costs and no enforcement of health and safety regulations for workers, especially in informal sector, who are exposed to high levels of toxic substances. These workers are generally the urban poor and scavengers are unregulated. Public awareness of the hazardous nature of e-waste is low and, along with economic factors, results in the use of low end or crude waste management techniques which are highly polluting.

10. Kenya has been undergoing rapid ICT transformation in recent years, attempting to bridge the "digital divide" by importing second-hand or used computers, mobile phones, monitors, printers from developed countries. While there are estimates and anecdotal evidence that point to an increase in e-waste quantities in the country over the past few years, particularly given the import of inexpensive, used equipment, there is a significant lack of data on e-waste in the country. This is aggravated by the current system of gathering information in which second-hand and waste products are by and large invisible to national statistics in production, sale, and trade-in of goods. Kenya has inadequate systems in place for the separation, storage, collection, transport, and disposal of waste. There is also insufficient legislation dealing specifically with e-waste aggravated by lax enforcement of laws dealing with waste more generally.

11. **Institutional and management overview.** E-waste management practices in Kenya have until very recently been predominantly informal, mainly involving collection and refurbishing and resale which is common in the informal sector. There appears to be limited dumping of e-waste in dumping sites as a result of the very active informal sector that collects the wastes before it reaches dumping sites. Other management practices include voluntary take back schemes piloted by the private sector. In 2013, an e-waste recycling plant was established in Nairobi. East Africa Compliant Recycling (EACR) is operating Kenya's first e-waste recycling facility, operating to international health, safety, and environmental standards, and establishing a local, sustainable IT e-waste recycling industry. Local industries have the capacity to recover plastics, ferrous metals and aluminum, and sell the same to various users, including the informal market. However, local industries lack capacity to deal with copper, precious metals, and CRTs, as well as other hazardous fractions.

12. Current level of institutional capacity (technical, financial and administrative) to monitor enforce good practices and manage health and environmental consequences is limited. Despite the existing Waste Management Regulations (2006), Kenya's National Solid Waste Management Strategy (2014) and the development of the draft Electronic Waste Management Regulations (NEMA), the institutional framework for waste management in Kenya is not fully operational. Enforcement of regulations is also challenging due to the diversity and variety of e-waste streams, scattered sources, unregulated imports and the large informal workforce. There is a need for supporting standards or guidelines for e-waste management and their enforcement, based on the new national regulations.

13. Lack of effective regulatory frameworks and infrastructure for sound hazardous waste management, including safe disposal and recycling is a critical barrier to e-waste recycling in Kenya. The lack of clear disposal mechanisms has resulted in excessive stocks being held by the consumer and further lack of well-developed structures to handle e-waste disposal is also causing a 'drag' on waste volumes. For example, Government ministries and departments have to bond the computers and invite competitive tenders for disposal as scrap in line with procurement procedures. The process is slow and results in obsolete computers being held in government stores. Collectors, refurbishers and the recycling infrastructures are generally not developed and therefore the flow down the value chain has much lower volumes. The existing system for managing e-waste in Kenya is generally not sustainable because mechanisms for collecting, sorting, reuse, refurbishing, repairing, and remanufacturing are not well developed and/or implemented. Problems associated with market issues, obsolescence issues, feedstock collection, feedstock management, and product-design will need to be addressed in order to generate further interest in e-waste recycling.

14. Insufficient awareness on and roles of waste management practices. At the consumer and producer levels in Kenya there is insufficient awareness on various aspects of waste management: on stakeholder roles and responsibilities, the cycle of handling such waste, the opportunities that lie in safe disposal of such and the potential of using waste as a resource. The roles are spread to various key stakeholder institutions with no clear coordination, accountability and enforcement mechanisms. Stakeholder coordination is very important to ensure that waste, including e-waste, is managed jointly with other line ministries like Ministry of Environment and Forests, Ministry of Health, Ministry of Education, Ministry of Industrialization and Enterprise Development, Ministry of Information, Communication and Technology, and Ministry of Devolution and Planning, among others.

15. Kenya is continuing to prioritize incorporation of e-waste control and management specifically into its legislative framework. Currently existing legislation and its international agreements, such as the Basel, Bamako and Stockholm conventions cover certain aspects of e-waste management. However, Kenya has prepared guidelines specifically for e-waste management and in 2013 further completed the development of draft e-waste regulations, which are yet to come into force. Further, the Environmental Management and Coordination (Waste Management Regulations) regulations 2006, may apply to electronic waste where they can be classified as hazardous waste.

C – Relevance to Higher Level Objectives

16. The proposed EHPMP is aligned with the WBG's twin goals of ending extreme poverty and promoting shared prosperity. This program follows the Regional Integration Assistance Strategy FY18-FY23, specifically Strategic Priority 4 "Promote Collective Action to Address Regional Economic Contagion, Fragility, Epidemic and Climate 'Hot Spots'" aiming to build regional collaboration and knowledge sharing to address common problems such as waste management and pollution and to share good practices and support capacity building and strengthen civic engagement. The EHPMP is aligned with and will support the objectives of Pillars 1 and 2 of the Bank's Africa Strategy – competitiveness and employment, and vulnerability and resilience, and the foundations of the strategy — governance and public-sector capacity. Most African countries have already experienced multiple challenges related to inadequate capacity to effectively monitor the use of chemicals, and management of chemical waste. They lack regulations and effective enforcement, access to clean production and waste management technologies, and up to

date information on environmental-health risks. The EHPMP will complement other regional initiatives and individual projects that the Bank supports; focusing on competitiveness, sustainability and governance.

17. Kenya activities under EHPMP are consistent with the World Bank Group's Country Partnership Framework that aims to help Kenya address the development challenges in its priority areas identified in the National Development Plan. The project is aligned with the CPS (FY14-18) Domain #2 Protection and Potential – Delivering Shared Prosperity, Outcomes 5 (Improved Social Service Delivery for Vulnerable Groups, Particularly Women) and 6 (Improved Capacity to Manage Risks from Climate Change), with the Program targeting communities, including vulnerable groups and women, who suffer from direct impacts of unsustainable e-waste management; and Domain #1 Competitiveness and Sustainability, Outcome 1 (Enhanced Infrastructure and Logistics for Sustainable Growth) through improving the business environment and infrastructure while responding to environmental health pressures associated with poor management of hazardous waste.

18. EHPMP and the SDGs. The proposed EHPMP in Africa will contribute to the capacity of African countries participating in the Program to better understand the management aspects of chemical waste in relation to their aspiration to meet SDGs. Chemicals play an important role in development, and so the Sound Management of Chemicals and Wastes (SMCW) is an important component of the global effort to achieve sustainable, inclusive and resilient human development and the SDGs Widespread contamination from chemical waste and lack of policies to address human health risks may jeopardize the efforts of African countries the achieve SGDs. Management of hazardous chemicals is closely linked to Goal 3 (Good health and Well-being), Goal 6 (Clean water and Sanitation), Goal 11 (Sustainable Cities and Communities), Goal 12 (Responsible Consumption and Production), Goal 14 (Life Below Water), and Goal 8 (Decent Work and Economic Growth). There are specific targets for each of the goals related to chemical pollution and health. For instance, target 3.9 refers to reduction of deaths and illnesses caused by hazardous chemicals and air, water, and soil pollution. Target 6.3 aims to reduce pollution, eliminate dumping, and minimize release of hazardous chemicals and materials. Target 12.4. specifically aims to achieve environmentally sound management of chemicals and all waste throughout management impacts through entire product life cycle and minimize the adverse impacts on human health and the environment. Target 12.5 aims to substantially reduce waste generation through prevention, reduction, repair, recycling, and reuse.

19. Alignment with national and regional priorities

20. The project is fully aligned with Kenya's revised and updated National Implementation Plan (NIP) for the Stockholm Convention on Persistent Organic Pollutants (NIP) 2014-2019, and which shows the significance and priority attached to POPs releases from e-waste. The project components are directly linked with a number of activities under the current NIP, such as Activity 5 Measures to reduce releases from unintentional production (Article 5), Activity 6: Measures to reduce releases from stockpiles and wastes (Article 6) and provides a number of opportunities to contribute to Activities 9 and 10 dedicated to public awareness raising, knowledge exchange and stakeholder involvement.

21. The project will directly contribute to Kenya's Vision 2030, which calls for providing a clean and secure environment. The project is also well aligned with the Government of Kenya's emerging drive to improve waste management in the country, particularly e-waste management strategies and plans.

22. Kenya's National Solid Waste Management Strategy. The Kenya National Environmental Management Authority published Kenya's National Solid Waste Management Strategy in 2014 in response to citizen complaints of poor waste management, outlining collective action mechanisms to systematically improve waste management.

The project will respond to Kenya's National Solid Waste Management Strategy, specifically Section 2.2.6 of the Strategy which addresses e-Waste.

PROJECT DESCRIPTION

A – Project Development Objective

PDO Statement

To strengthen the institutional capacity to regulate and manage electronic waste in Kenya.

PDO Level Indicators

1. Policy interventions on e-waste and mercury designed and consulted
2. Trained skilled staff in government with expertise on management of e-waste and mercury at national and regional levels
3. Stakeholder outreach events
4. Citizens and/or communities involved in planning, implementation and evaluation of demonstration pilots
5. Demonstration pilots completed and evaluated

B – Project Components

23. The project comprises four components, as described in the following paragraphs. Kenya specific project will focus on the following components in line with the overarching regional program.

24. **Component 1: Institutional strengthening, knowledge and capacity building (US$ 1.98 m GEF, US$ 5.0 million co-financing).** Component 1 will support capacity building activities which include benchmarking of key NEMA staff to acquire best practices on waste management for reduction of releases of POPs from unsound e-waste management practices, and ensure appropriate skills transfer; sensitization workshops on waste management, including e-waste, with EEE and E-waste management stakeholders in the value chain country-wide; support to NEMA staff supporting waste and e-waste management regulations; and streamlining Customs coding with appropriate training of the Customs and borders inspectorate to curtail entry of illicit e-waste in the first place. In addition, the component will ensure both national level stakeholders coordination and participation in the regional learning and knowledge sharing activities on the harmful chemicals agenda. This will contribute to strengthening the regional partnerships and collaboration.

25. Component 1 will also support strengthening environmentally sound management of e-waste regulations and guidelines and development of systems for monitoring and enforcement, relevant to waste management with a focus on e-waste. The component will also review existing documentation and undertake a country-wise situation analysis on waste, including inventory of major toxic pollutants emanating from the sector; assessment of environmental health implications of harmful chemicals and waste and options for risk management; and economic analysis of the waste management sector for the national economy. Scope of activities proposed under Component 1 includes:

a. Capacity building of NEMA staff to acquire best practices on waste management and Best Available Technologies for dissemination for reduction of releases of Persistent Organic Pollutants from unsound e-waste management practices and ensure appropriate skills and knowledge transfer.

b. Review of existing efforts to develop a national e-waste inventory of products and IT vendors and subsequently identify a robust solution to support sustainable management of electronic waste from collection to disassembly to waste reduction and reuse. The review will commence with stakeholder mapping, including private sector and informal recycling sector stakeholders.

c. Development of guidelines and monitoring protocols on waste management, including e-waste and hazardous waste resulting from electronic waste for EEE and E-waste management stakeholders in the value chain country-wide

d. Institutional strengthening of the Ministry of Environment and Forests, NEMA and customs officers to support implementation and enforcement of e-waste management regulations and laws including at the port of entry. This will include training on best practices and technologies for reduction of POP releases related to e-waste.

e. Streamlining customs coding with appropriate training of the Customs and borders inspectorate to curtail entry of e-waste dumping as provided in Basel Convention on Trans boundary movement of hazardous waste and other waste.

f. Facilitate the national level stakeholders for coordination and participation in the regional learning and knowledge sharing activities on the harmful chemicals agenda.

26. Capacity building will include strengthening the current environmental policies and regulations and capacity to monitor; screen and evaluate health and environmental risks associated with e-waste and related uPOPs releases.

27. There are existing regional entities that the program will leverage to further enhance the national level interventions. These include the Regional Economic Communities (REC) such as COMESA, SADC, and East African Community (EAC), with its EAC Health Research Commission to support such regional harmonization, thereby strengthening national and regional systems to enforce regulations and manage illegal trade flows. The RECs, based on their sustainability commitments, provide an opportune platform to promote experience-sharing and harmonization of appropriate policies and dissemination of good practices and lessons learned through development of environmental management systems that not only address production processes but also promote waste minimization, treatment and disposal.

28. Expected component outputs:

a. Guidelines and monitoring protocols relevant to waste management with a focus on e-waste.
b. Training delivered on best practices and technologies for reduction of POP releases delivered to government and non-governmental stakeholders at national and county levels
c. Outreach and sensitization workshops conducted on e-waste and hazardous waste management for stakeholders in the value chain country-wide.
d. Streamlining customs coding with appropriate training of the Customs and borders inspectorate to curtail entry of e-waste dumping
e. Stakeholder Mapping finalized (including private and informal sectors)

29. **Component 2: Support for policy dialogue and regulatory enhancements (US$ 1.8 m GEF, US$ 2.5 million co-financing).** The component will support Government's efforts in strengthening the current environmental policies

and regulations and capacity to monitor; screen and evaluate health and environmental risks associated with e-waste. The component will assist development of strategy for promoting the reduction of emissions and releases of, and exposure to, harmful chemicals and hazardous waste. Such a strategy would include gathering of health data, training for health-care workers and awareness-raising through health facilities. Particular attention will be taken to prevent the exposure of vulnerable populations, particularly children and women of child-bearing age, especially pregnant women, to harmful chemicals and dissemination of information to different actors and affected communities. Activities to be finances under Component 2 include:

a. The component will support finalization of E-waste management regulation and its subsequent dissemination and adoption by selected county governments.

b. Review the current environmental policies and regulations and capacity to identify strengthening measures to monitor the flow of e-waste throughout their life cycle. Regulatory enhancements for Environmental and Social management will include assistance to strengthen existing legislations with respect to recycling and disposal; financing system for e-waste recycling and disposal (possibly through a prepaid fee, producer responsibility etc.); use of cleaner technologies (dismantling and recycling); and development of communication strategy for awareness raising and information dissemination.

c. Development of strategy for promoting the reduction of emissions and releases of, and exposure to, harmful chemicals and hazardous waste e.g. collecting healthcare data on e-waste management, training for health-care workers and awareness-raising through health facilities.

d. Based on stakeholder engagement under Component 1, the project will support an assessment on inclusion of vulnerable populations, particularly children and women of childbearing age, especially pregnant women, into the government policies. Based on the assessment outcomes, develop suitable mechanisms and specific policy level measures to prevent the exposure of these vulnerable populations to harmful chemicals and dissemination of information to different actors and affected communities.

30. In parallel with finalization of the e-waste management regulation, the project will support development of a national integrated framework for monitoring and evaluation of e-waste for sustainable management to facilitate implementation of the e-waste policy provisions at the county government level

31. *Expected component outputs:*
   a. Support to finalization of the E-waste Management regulation with subsequent dissemination to pilot county governments
   b. A national integrated framework for monitoring and evaluation of e-waste for sustainable management to prevent exposure developed.
   c. National Steering Committee established and a communication strategy in place

32. **Component 3: Demonstrating application of technological tools and economic approaches (US$ 3.9 m GEF, US$ 27.3 million co-financing).** This component will support the initiation of a pilot project in a selected county in Kenya on implementation of integrated waste management approach to reduce releases of POPs from e-waste through improving source reduction/reuse, collection, transportation, and disposal/recycling, and following Articles 5 and 6 of the Stockholm Convention and related COP guidelines and guidance. This will start with (a) analysis of the current plans, (b) inventory information on toxic substances like PBDEs production, importation and usage and, (c) priorities and institutional capacity (including private sector) for the selected county. Such analysis

and inventory will ensure that appropriate solutions are selected, and the basic waste management services are in place and operating, before more advanced approaches are considered. Based on the identified priorities, the infrastructure investments will be designed and implemented, focusing on addressing the gaps in the collection and disposal system. This component will also support piloting e-waste management in a selected county in Kenya – starting with capacity building for all relevant stakeholders in the county (including government, CSOs, and private sector), investment in infrastructure for the entire e-waste management cycle from generation, to collection, transportation, setting up of collection centers or transfer stations and treatment (recycling) facility. It includes developing protocols and methodologies for assessment of environmental health risks associated with e-waste based on health and environmental data, knowledge, risks and impacts.

33. The Bank is envisioning to engage stakeholders already working in the field of e-waste management, including CFSK, WEEE, HP and others to leverage and eventually mainstream the existing good practices. This component is aligned with the Kenya Urban Support Program (KUSP) which assists the Government of Kenya in operationalizing its National Urban Development Policy (NUDP) and achieving medium term planning goals in the urban sector. Under this Component EHPMP, in collaboration with KUSP, will identify pilot sites at the county-level to improve health outcomes of e-waste management and will focus on establishing treatment/recycling facility at the site of an already existing waste management facilities.

34. Expected component outputs:

a. Investments in infrastructure for the entire e-waste management cycle (from generation, to collection, transportation, setting up of collection centers or transfer stations and treatment facility.
b. Adoption of use of cleaner technologies for e-waste recycling in selected county-level pilots.
c. Inventory information on toxic substances like PBDEs production, importation and usage collated
d. Stakeholder engagement and awareness raising on use of cleaner technologies for e-waste recycling

35. **Component 4: Project coordination and management (US$ 384,447 GEF, 500.00 Counterpart funding).** This component will provide the resources necessary for effective project coordination and management; monitoring and evaluation at the national, local and regional levels. NEMA will function as the main implementing agency for this project.

36. Project Beneficiaries: Key players in e-waste generation, management and disposal include a variety of ministries and private and public-sector partners. The Table below outlines the key institutions, roles, and constraints of these actors both up and downstream in the sector.

Institution	Role	Challenges/Constraints
Government Ministries and Department		
Kenya Revenue Authority	Enforce custom regulations related to import of electronic equipment	Limited capacity and technology to inspect all imports of electronic equipment to identify e-waste stock versus second-hand devices.
Ministry of Environment / Ministry of ICT	Policy formulation on e-waste management	Lack of capacity and resources for e-waste policy formulation
Ministry of Industries	Policy formulation on IT Sector development	Inadequate resources for e-waste policy formulation

Institution	Role	Challenges/Constraints
Ministry of Health	Policy formulation on e-waste management	Inadequate resources for e-waste policy formulation
NEMA	Enforcement of regulations, awareness creation,	Lack of capacity for e-waste management enforcement, awareness creations,
Kenya Bureau of Standards	Standards and specifications development for IT sector and e-waste management	Inadequate capacity and resources
Civil Society Organizations		
Computer for Schools I-Hub, ICT Action Network	Create awareness on e-waste problem; Influence Policy and regulation on e-waste management;	Lack of data on e-waste quantities
Private Sector		
Recycling Companies	Recycle/refurbish e-waste	Inadequate regulatory and legal framework for operations; Low public awareness on e-waste as resources;
Equipment Manufacturers (HP, Dell, IBM)	Extended Product Responsibility	

37. Results Chain:

38. Capacity of national agencies/authorities responsible for identifying and addressing environmental health risks associated with chemicals and waste (including uPOPs) improved. This outcomes will be measured by: (a) improved capacity for monitoring and collection of data on the usage and trade of e-waste; (b) Inspection protocols developed and enforcement authorities equipped with monitoring equipment; (c) increased awareness among project stakeholders about environmental health risks from uPOPs associated with e-waste; (d) train inspectors and officers of agencies, with focus on pilot counties; and (e) participate in the regional forum for monitoring and decision-making on use and trade of mercury and unsound processing of electronic waste.

39. National environmental policies and regulations of participating countries strengthened: These outcomes will be measured by the following: (a) policies and regulations for management of urban and e-waste developed/updated by participating countries; (b) contribution to the regional guidance note on sustainability of e-waste lifecycle; (e) participation in the South -South exchange organized for sharing knowledge on e-waste management; (f) participation in the regional meetings on common e-waste and other chemicals management priorities.

40. Demonstration pilots for reducing environmental health risks (from uPOPs) carried out. The outcomes will be measured by (a) number of entities (public or private) engaged in e-waste demo pilots; (b) number of pilots demonstrating reduction of uPOPs based on introduction of sustainable technologies, and (c) number of pilots with introducing models that engage affected communities.

41. **Rationale for Bank Involvement and Role of Partners:** The Bank will use its leverage to convene the highest levels of national government, led by Ministries of Finance, to a common platform to help accelerate action toward follow-up investment priorities. Such a platform will supplement ongoing efforts and enable the participating countries to strengthen policy dialogue and identify solutions to focus on meeting Stockholm Convention obligations

and promote increased contributions from the private sector. This will allow GEF interventions to be sustained after the Project is completed. Proposed activities are aimed at contributing to the individual Government's efforts in minimizing emissions from unsustainable electronic waste recycling practices. This includes uncontrolled waste burning and strengthening the current environmental policies and regulations and capacity to monitor, screen and assessment of health and environmental risks associated with uPOPs; promoting sustainable e-waste management practices (from collection and dismantling to recycling and reuse); strengthening the current environmental policies and regulations and capacity for monitoring and evaluation. Building capacity for development of strategy and regulation to reduce the POP emissions, reducing the exposure of the population e-waste would require public sector financing because the primary beneficiaries (those whose health is affected most negatively) are the poor and vulnerable populations. Years of ineffective public policies have led to substantial human health consequences in waste management sector. If left unattended, with the ongoing trend for notable growth of imports and exports of goods and services in the country, including POPs industries, trade and services, the socio-economic cost associated with public health hazards will grow and pile up as contingent public liability that may turn into a major source of fiscal distress. It is therefore anticipated that project initiatives will remain in the public domain. The Bank will use its leverage to engage and convene the national and country-level governments, led by National Treasury, to a common platform to help accelerate actions toward investment priorities driven by policy shift on chemicals management. The country-level platform will enable the participating countries to collaborate and engage with other regional partners to strengthen the policy dialogue and identifying solutions to focus on meeting the international conventions' obligations and promote increased contributions from the private sector. This also serves as a vision for sustainability of GEF interventions after the program is completed.

F. Lessons Learned and Reflected in the Project Design

42. The EHPMP will complement other regional initiatives and individual projects. The EHPMP will complement other regional and individual projects that the Bank supports in line with the CPF's focus on competitiveness, sustainability, and governance. Examples of such projects includes UNEP's Integrated Health and Environment Observatories and Legal and Institutional Strengthening for the Sound Management of Chemicals in Africa (African ChemObs) program. ChemObs has held its national inception workshop in July 2018.

43. The need for a regional approach is predicated not only on the physical transboundary nature of mercury and POPs emissions and impacts, but on regional opportunities for solutions and regional causes for mismanagement. The preparatory studies and assessments carried out through the GEF-funded MSP on "Reducing Environmental Health Impact of Harmful Chemicals in Africa Region" and under the World Bank's Pollution Management and Environmental Health (PMEH) program validate a regional approach to addressing these issues. For example, the recently commissioned Mercury Trade study, under the GEF-MSP, revealed a significant gap between the estimated consumption of mercury and official imports, indicating that there is major illegal trade across African countries. Illegal traffic is also prevalent with electronic waste.

44. Case studies in Côte d'Ivoire, Kenya and Senegal as part of the overall effort to gain further insight into a range of specific issues facing countries with regard to e-waste identified lessons that can be applied to future recommendations. While the three country case studies were necessarily limited in scope, they yielded valuable information. See paragraphs 30 - 35.

45. Addressing lack of existing data on e-waste. While there are a number of cross-cutting issues which are seen in all three countries, perhaps the most salient is the lack of existing data on e-waste. There was little to no data available in the areas of the import/origin of e-waste; quantities of waste; end of life storage and disposal; the size of the informal sector and its impact economically and on human and environmental health. Some of this is due to the

difficulties faced by Customs officials in tracking incoming second-hand EEE and e-waste. In some cases, this is due to a lack of monitoring systems, on others the authority or capacity to enforce them.

46. The need for use of comprehensive national inventories. The countries in the study recognized the need for comprehensive national inventories and Kenya, for example, has set this as a key priority using a participatory approach for the inventory as designed and implemented by NEMA. In addition to be a data issue, Kenya, among other countries faced the common difficulties of illegal import of e-waste under the category of second-hand goods; the flouting of Basel Convention regulations by 'importers;' tracking the flow of product over borders in personal luggage or other smuggling operations; unclear or poor labeling standards in export countries; under-funded and under-trained Customs, etc. This lack of data in these countries also stems, in part, from another issue common to each of the three countries – weak or non-existent legislation, regulation and policy that hampers the ability of government agencies to monitor and manage e-waste effectively. Kenya's legislation (Draft Electronic Waste Regulations 2013) while not yet in force goes a long way in creating a legislative and regulatory environment in which up and downstream issues of e-waste are taken into account. It also establishes the appropriate authority for agencies to establish and monitor systems which can, in time, begin to fill the data gaps as well as address serious adverse impacts on environment and human health and welfare. The draft regulations provide a possible way forward on legislating the full life cycle of product to waste, including inter alia, registering EEE producers, requiring compliance certification, information exchange on end of life processing between producers and recyclers, control of disposal and recycling methods, etc. A key factor as Kenya moves forward will be ensuring that, once published in the official gazette, the regulations have the budget and force to move them beyond paper to reality.

47. Financial resources for enforcement authority of e-waste specific legislation. The three case study countries also indicated a lack of financial resources to carry out what enforcement authority they did have. E-waste specific legislation could also enhance the clarity and importance of budget allocations for successful management of the issue across sectors.

48. The important role of the private sector. There are at least some examples in each of the countries of the private sector stepping forward to partner with the public sector and/or civil society to work on a range of issue with regard to e-waste. In Côte d'Ivoire and Kenya, for example, Hewlett-Packard has been instrumental in establishing, or developing, recycling centers to improve the safety and return on e-waste processing. A key question though given the common qualities of the existing 'processing sectors' in each country, e.g., informal and small-scale, with often marginalized or uneducated workers is how to improve the safety and sustainability of the e-waste recycling/reprocessing sector while safeguarding, and hopefully improving, workers' financial return.

49. Civil society stepping in where key gaps exist. As shown in all three countries, civil society has often tried to step in where a gap existed with regard to collection or management of e-waste, research, data collection, awareness raising, etc. Examples of this include NGOs engaging in e-waste collection activities in Côte d'Ivoire and Kenya or in pre-treatment centers in Senegal. It will be important to ensure that the important role for civil society continues as countries move forward with a more coordinated approach to green ICT and e-waste management.

50. Possibilities for greening the ICT and e-waste recycling sectors and creating potential for further employment/green jobs. The three case studies have shown that the possibilities for greening the ICT and e-waste recycling sectors and creating the potential for further employment/green jobs, is a possibility. According to the flow analysis and estimates, e-waste volumes are still manageable, though growing. It is possible to act in the shorter term to establish better functioning, integrated management systems, while preparing for an economically sustainable flow of recyclable material (on a sub-regional basis, most likely) in the longer term. Despite the current difficulties and challenges faced by these and other countries in the region, the overall future and the trend in PPP initiatives and improved legislative guidance, as seen in Kenya, are encouraging signs for the way forward.

51. The Program will establish a virtual platform for regional partnerships and policy dialogue, knowledge management and communication, will leverage lessons learned and disseminate information, tools, and techniques to scale up best practices. It aims to bring together environmental regulators and urban municipal councils with jurisdiction over the contaminated land. The investments, institution and information ideas proposed under the Program to tackle the environmental health issues have been discussed in a significant high-level roundtable with various interested countries, namely, the Governments of Ghana, Tanzania, Zambia, Kenya, and Senegal and with the USEPA, NRDC, UNDP, UNIDO, UNEP, industry associations, and Non-Governmental Organizations.

52. The design of the EHPM Program draws lessons from the Community Artisanal and Small-Scale Mining (CASM) initiative specifically to inform the approach to the global ASM support. These inter alia include:

- Strengthening of Information and knowledge sharing,
- Enhancing regional and global partnerships to share services, capacity building and tools tailored for the specific needs of stakeholders.
- Monitoring and Evaluation to follow up on progress of information sharing and improve accountability; and
- Collaboration both within and outside the World Bank Group.

53. The EHPMP will work closely with local communities and community-based organizations who are invested in and benefit from current practices in solid and electronic waste management sectors.

IMPLEMENTATION ARRANGEMENTS

A – Institutional and Implementation Arrangements

54. The regional coordination project (ASA) will provide the overall guidance and oversight for the individual projects. The regional coordination project will establish the coordination framework for the Program and will enable a sustained communication with and among Program stakeholders through stakeholder consultations at the national and regional levels to support all components. A Program Steering Committee (PSC) with representation from key partners and stakeholders will be established as an advisory mechanism to maximize projects' synergies and support the design of activities and implementation of the overall Program. The PSC will have a secretariat with representatives of all participating countries. High-level meeting will be organized on a semi-annual basis for coordination of policies and implementation of program measures towards meeting countries' commitments under MBAs. The main role of the PSC is to provide a coordination forum, serve as a monitoring platform across projects and Program activities. The PSC will ensure technical alignment and synergy between the Program's components to allow cross-fertilization.

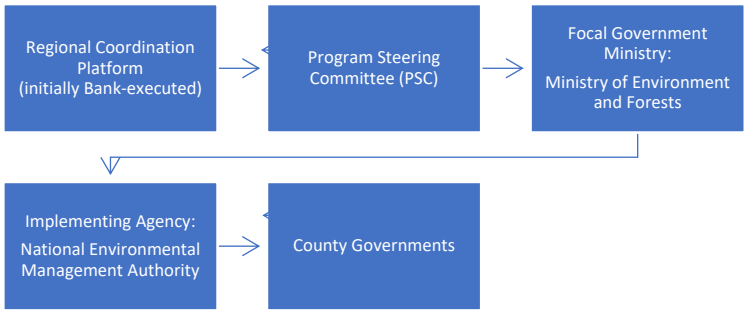

Figure XX: EHPMP Kenya - Draft implementation structure

55. **The Ministry of Environment and Forests and its subsidiary agency National Management Agency (NEMA) will be the leading the project implementation.** Both have a legislative mandate that provides authority with regards to management and control of e-waste. The Ministry of Environment has the mandate to promote, monitor and coordinate environmental activities and enforce compliance of environmental regulations and guidelines. Other stakeholders who will participate in the consultative process under Component 1 activities and will be the beneficiaries of the capacity building activities under Component 2 include:

Name of the Implementing Agency	**Implementation Role**
Ministry of Industry, Trade and Cooperatives	Policy formulation on IT Sector development Focal point on project activities under industrial level
Ministry of Health	Policy formulation on e-waste management
Ministry of ICT	Policy formulation on e-waste management
Kenya bureau of standards	Standards and specifications development for IT sector and e-waste management
Kenya revenue Authority	Enforce custom regulations related to import of electronic equipment
Ministry of education	Take lead on the management of electronics (computers) for schools Create awareness on e-waste problem and promote take back scheme for recycling Influence Policy and regulation on e-waste management
I-Hub, ICT Action Network	Create awareness on e-waste problem Influence Policy and regulation on e-waste management
Equipment Manufacturers (HP, Dell, IBM)	Extended producer responsibility

	Create awareness to clients and other stakeholders
Recycling Companies	Recycle/Refurbish electronic waste products

PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis (if applicable)

B – Fiduciary - still pending, current assessment of the agency (NEMA) is outdated and it is being updated by the Procurement and Financial Management Specialists.

D – Environmental and Social

56. Assessment of environmental and social risks of the program in Kenya has identified potential negative impacts under Component 3 - Demonstrating application of technological tools and economic approaches. This component is aiming to finance specific demonstration projects for cleaner technology in areas contaminated by chemical waste. These investments will be tailored to country specific implementation conditions and selected to avoid or minimize impacts on livelihoods and employment opportunities. The demonstrative investments (pilots) will introduce cleaner technologies and methodologies to reduce emissions of unintentional POPs in waste management. The pilots will be selected and designed based on priority environmental health risks and cost effectiveness of interventions. These pilots will be directly connected to Kenya - Urban Support Program - (P156777). The selection process will incorporate environmental and social screening to determine the level of risk and the nature and extent of the environmental assessment needed for the project. The screening will consider the location, sensitivity, and scale of the pilot; the nature and magnitude of the potential environmental and social risks and impacts, and the capacity and commitment of the implementing agency to manage the environmental and social risks and impacts in a manner consistent with the ESSs. The proposed pilots with the following characteristics will not be considered for support under this Program: (a) Proposals with high level of environmental and social risk; and (b) Proposals requiring land acquisition or involuntary resettlement.

57. Existing environmental and social due diligence: As part of the project design it was proposed that Component 3 is co-located with a waste management investment financed by KUSP to support its objectives and enhance sustainability of the EHPMP pilot. Therefore, screening and assessment of environmental and social risks of Component 3 demonstrative activities, KUSP due diligence provides an important baseline. As part of preparation of KUSP, which covers all 47 counties, has an objective to establish and strengthen urban institutions to deliver improved infrastructure and services in participating counties in Kenya. It is a hybrid IPF/PforR operation, which conducted the Environment and Social Systems Assessment (ESSA), which found the environmental and social management aspects of regulatory and institutional system in Kenya, including waste management sector, largely adequate. The ESSA, prepared in June 2017, recognizes that there remain gaps in the existing institutional systems for environmental and social management that need further strengthening, particularly at the county level. The environmental and social management units at both national and county levels are not adequately supported through budgetary allocations and provision of necessary facilities equipment and supplies, adequate and skilled human resources. The counties do not have documented procedures and processes in place for the management of the environmental and social management risks.

58. Environmental and Social Management Framework: For overall EHPMP, specific Environmental and Social Standards activities and responsibilities are being described in the Environmental and Social Management

Framework (ESMF). NEMA as the project implementing agency will be responsible complying with the Bank Environmental and Social Standards and for overseeing implementation of the ESMF. The project is expected to enhance positive environmental and social impacts as it will focus on improving environmental conditions of selected pilot sites. NEMA as the implementing agency has adequate in-house capacity to supervise, monitor, and overall manage the environmental and social risks under the proposed pilot interventions, however, these institutions will need to build additional capacity for contract management during pilot implementation and for managing social and environmental risks and impacts beyond aspects that are generally included in the OP's. Specifically, ESS3 – Pollution Management and Resource Efficiency and ESS4 – Community Health and Safety may require additional capacity building to assist NEMA in ESF compliance. Use of Borrower framework will not be considered under this project. The summary of applicable ESSs is provided below:

59. Assessment and management of environmental and social risks and impacts. The key potential environmental issues, which can be readily managed/mitigated are related to (i) hazardous waste management (including disposal) during preparation of pilot sites, (ii) occupational health and safety of workers, (iii) restriction of land use, and (iv) potential impacts to community health and safety. From the preliminary review carried out at this concept stage, it can be concluded that implementing agencies' ESMS and procedures need to be enhanced to comply with ESS1 requirements. The Project will address the gaps through the ESCP, which will be based on the update / preparation and implementation of the ESIA and the associated ESMPs. Where there are existing ESIAs (covering the ongoing Bank-funded projects linked with each of the pilots), such ESIAs will be reviewed to assess their coverage of the proposed pilot interventions.

60. Resource Efficiency and Pollution Prevention and Management: There is a potential for the project pilot sites to have historical pollution, in case an existing e-waste management recovery site is selected. For each pilot the implementing agency will establish a process to identify the responsible party, and in parallel undertake a screening on whether the existing level of pollution could pose a significant risk to human health or the environment, and if such risk is identified undertake a health and safety risk assessment of the existing pollution. Based on the demonstrative nature of pilot projects on use of cleaner and safer technologies and reduction of the health risks and exposure to hazardous chemicals for the project beneficiaries, the pilots with characteristics such as (a) potential to constitute a significant source of emissions in an already degraded area, (b) proximity to areas of importance to biodiversity; (c) the potential for cumulative impacts with uncertain and/or irreversible consequences; and (c) impacts of climate change, will not be considered under the program. The pilots will be designed to minimize the generation of waste, and reuse, recycle and recover waste in a manner that is safe for human health and the environment. In case of e-waste pilots, the purpose of the project is aiming towards material reuse, recycle and recovery. For all pilot designs, any remaining waste will be treated or disposed of it in a safe manner that includes the appropriate control of emissions and residues resulting from the handling and processing of the waste material. The treatment and disposal process will comply with national legislation and Basel Conventions on storage, transportation and disposal of hazardous wastes. No transboundary waste movements is funded under the project. In case relevant national legislation is insufficient, the implementing agencies will adopt GIIP alternatives for its environmentally sound and safe management and disposal.

61. Land Acquisition, Restrictions on Land Use and Involuntary Resettlement: Proposed activities associated with demonstrating application of technological tool may require land acquisition.

62. Community Health and Safety: Implementation of the project will have both direct and indirect benefits to the people's health and safety. The main objective of the project is to reduce health and environmental risks caused by mercury handling. The use of alternative technologies as described in Component 3 activities aims at reducing exposure to uPOPs during electronic waste recycling process. The project will also put in place a framework for

ensuring safe use of chemicals used in ASGM. In addition, the environmental impact assessment will ensure that mitigation measures for improved health and safety of workers and people living in mining areas are implemented. Furthermore, the capacity building programs in components 1 will provide necessary knowledge and skills on safety measures to be incorporated in e-waste recycling sector, including safe handling of hazardous chemicals.

63. Stakeholders Engagement and Information Disclosure: The draft Stakeholder Engagement Framework for the program in under preparation. The client is seeking stakeholder feedback and opportunities for proposed future engagement, ensuring that all consultations are inclusive and accessible (both in format and location) and through channels that are suitable in the local context. NEMA and the Ministry of Environment and Forests will engage in meaningful consultations with all stakeholders throughout the project life cycle, paying attention to the inclusion of vulnerable and disadvantaged groups (including the elderly, persons with disabilities, female headed households and orphans and vulnerable children). The implementing agencies will provide stakeholders with timely, relevant, understandable and accessible information, and consult with them in a culturally appropriate manner, which is free of manipulation, interference, coercion, discrimination and intimidation. As part of the environmental and social assessment the borrower will maintain, and disclose, a documented record of stakeholder engagement, including a description of the stakeholders consulted, a summary of the feedback received and a brief explanation of how the feedback was taken into account, or the reasons why it was not. Preliminary list of stakeholders includes the several groups:

a. Government agencies: National Environmental Management Authority, Ministry of Environment and Forests, Kenya Revenue Authority, Ministry of ICT, Ministry of Industries, Ministry of Health, Kenya Bureau of Standards, Ministry of Devolution and ASALs, Kenya School of Government, Ministry of Education, County Governments (e.g. Nairobi City County, Mombasa, Eldoret).
b. Multilateral organizations
c. Civil Society Organizations: Computer for Schools, I-Hub, ICT Action Network, Agenda for Environment and Responsible Development (AGENDA) (based in Tanzania).
d. Private Sector: Recycling companies, Equipment Manufacturers (Dell, IBM, HP)
e. Community organizations in the areas covered by Component 3 activities.

ANNEX 3 E: PROJECT DESCRIPTION FOR SENEGAL (GEF ID: 9854)

PROPOSED GLOBAL ENVIRONMENT FACILITY GRANTS TO THE REPUBLIC OF SENEGAL
IN THE AMOUNT OF

US$ 5,504,587

STRATEGIC CONTEXT

A – Country Context

1. In February 2014, the Senegalese authorities launched the Emerging Senegal Plan (*Plan Senegal Emergent*, PSE) to accelerate the country's progress towards emerging market status by 2035. The main purpose of the PSE is to restore growth and accelerate the pace of poverty reduction by investing in agriculture, energy, housing and infrastructure. The policy reform areas include land reform, improvement of business and investment climate and energy reform.

2. In the same year, through the third Act of Decentralization, the landscape of the Senegalese territorial governance changed once again with the full "municipalization" of the territory. Rural communities were converted to fully-fledged local governments; responsibilities previously attributed to regions were transferred to Departments; and additional responsibilities were transferred to existing urban authorities in urban planning, environment, education, public health management and social development.

3. However, Senegal has yet to benefit from the positive outcomes associated with urbanization in terms of growth and poverty reduction. Senegalese secondary cities, which concentrate the largest percentage of urban poor, tend to be most vulnerable to external shocks.

4. More than 45 percent of the Senegalese population lives in urban areas. Projections estimate that by 2050, 60 percent of the population will live in cities. The incidence of poverty in urban areas remains much lower than in rural areas, particularly in Dakar (26.1 and 41.3 percent in Dakar and other urban areas, respectively). However, with almost half of the population living in urban areas and one quarter living in Dakar, urban Senegal now hosts close to 30 percent of the total number of poor, mostly in secondary cities. Although economic growth in Dakar has provided the basis for lifting urban inhabitants out of poverty, the same cannot be said for secondary cities. The sustained influx of rural populations fleeing drought and downturns in agricultural production has created challenges for Senegal's secondary cities, who are faced with a growing deficit of urban infrastructure, poor service delivery and few work opportunities.

5. Because of its position, Dakar exerts an attraction on people in search of better living and working conditions. The rapid population growth in the Senegalese capital has resulted in environmental degradation. According to the National Statistics Agency, in 2013, the population density was 5,704 people per km². The rush for land, in a context of urban expansion dominated by informal housing, has occurred most often at the expense of the Niayes area in the region of Dakar, a zone made up of alternating sand dunes and wetlands well suited for market gardening. Extended periods of drought have coincided with this settlement and has given the illusion that all land was safe for residential areas. However, human settlement has destabilized the ecological functions that these special wetlands serve as reservoir, buffer, filter and

horizontal flow regulator. Despite all urban plans, pre- and post-independence, Dakar is experiencing serious difficulties related to climate change and the rapid and uncontrolled urban growth, especially in the "Maristes and Dalifort" municipalities, an area of Niayes located in the suburban zone of the capital.

6. The Maristes and Dalifort district is crossed by two lakes that are an extension of the Niayes area. This wetland system extends over 1,700 m long and 80 m wide and plays an important ecological role. This area is subject to strong urban pressure through a rapid transformation of their ecosystem. Since the 1980s the exponential urban growth of Dakar has led to a significant loss of biodiversity; most of the natural areas were transformed to residential areas. These conversions of wetlands to residential areas were made without considering the soil characteristics and have seriously affected some activities such as market gardening. Dunes and retention tanks have disappeared after earthworks and the establishment of waste dumps to develop residential area. Uncollected waste provides breeding areas and conditions for the proliferation of potentially disease carrying vectors such as insect and rodent pests, with their associated health and nuisance issues.

7. Furthermore, the lack of sorting, ineffective collection, the burning of the waste, as well as the uncontrolled disposal of waste are common practices. This mismanagement of waste has negative impacts on human health, the economy of the household, the quality of life, the air, the soil, the water resources and the global environment.

B- Sectoral and Institutional Context

8. Senegal has been one of the most stable and politically open countries in Africa, which has resulted in relatively good governance outcomes, but has also led to considerable challenges in effective implementation of development policies.

9. In Senegal, there is no sanitary landfill in operation. Dakar's solid waste is currently disposed of into a large open dump, at Mbeubeuss, a densely-populated suburban area of the capital. The site is a source of water, air and land pollution, which requires urgent management as it continues to expand.

10. Under the institutional leadership of the Ministry in charge of Local Governance, "l'Unité de Coordination et de Gestion des déchets - UCG" (Coordination Unit for Solid Waste Management) was created to support local communities in taking charge of solid waste management. The objective of UCG is to put in place a mechanism to enhance the capacities of local communities which are, for the most part, marked by a deficit of technical, financial, logistical, organizational as well as managerial capacities in the management of public health.

11. In this respect UCG, aligned with the PSE, and in coherence with the national strategy, aims to implement the National Program for Waste Management (Plan National de Gestion des Déchets, PNGD) which aims to support local communities in improving their living environment. In 2014, the UCG initiated a national tour which identified and characterized, in 48 towns, more than 1,700 unregulated dumpsites. The average waste collection rate is 40 % in regional capitals and only 28 % in secondary cities. There is a presence of waste pickers on mixed solid waste sites, with open burning also practiced and there is no awareness of hazardous waste handling.

12. Additionally, in many places in Senegal, plastic and metal containers that have contained hazardous chemicals are reused by recyclers who, after rinsing, resell them for other uses. These could be considered as hazardous waste.

13. Senegal ratified the Stockholm Convention (SC) on Persistent Organic Pollutants (POPs) in May 2003 and developed its National Implementation Plan (NIP) on April 26, 2007 with the assistance from the United Nations Environment Programme (UNEP) as GEF Implementing Agency, and has already submitted the review and update of its NIP as part of its commitment under the SC. Under the SC, a total of 26 chemical substances are listed as POPs, including pesticides (such as DDT), industrial chemicals (such as polychlorinated biphenyls, PCBs) and unintentional by-products of industrial processes (such as dioxins and furans). The last group of chemicals is often called Unintentionally Produced POPs (UPOPs).

14. Reforms to enable the intervention of key stakeholders in waste management are still lacking adequate implementation mechanisms. Existing local policy and regulations on sound management of harmful chemicals and wastes need to be carefully assessed and revised to ensure that they align with the specialized guidelines of the Stockholm, Rotterdam, and Basel Conventions.

15. This situation calls on all stakeholders given the lack of coordination, consultation, implementation, monitoring and evaluation of the recommended measures from the various land use planning documents. Waste management is everyone’s responsibility and not only that of the municipality. The effective collaboration of local government, municipalities, the private sector, residents and civil society organizations is required.

16. In this context, with the appropriate mix of policy and action, suburban zones like Maristes and Dalifort can be converted to the landscape and cultural heritage zones that they once were; income generating activities, recreational activities (swimming, sailing, hiking/walking, golf) can be promoted as these are natural places for relaxation. The Global Environment Facility (GEF)-financed project is aligned with Senegal's priorities on sound management of harmful chemicals and wastes; it will contribute to achieving the overall PDO. This project will involve all actors and stakeholders in the context of an inclusive dialogue for the environmentally sound management (ESM) of harmful chemicals and urban waste. It will contribute to reducing environmental health risks by reducing the release of UPOPs and other toxic chemicals.

17. The project will build on, and complement activities financed under, a Bank-funded project: Senegal Municipal Solid Waste Management Project (P161477) which focuses on improved solid waste management services in selected cities in Senegal. It will also leverage an IDA-funded project on decentralization aiming at increasing local government resources and enhancing the transparency, predictability and equitable distribution of State financial transfers to territorial governments (TGs).

18. The World Bank's "Strategic Planning Guide for Municipal Solid Waste Management" will provide useful information that can increase the effectiveness and efficiency, and will be used to effectively implement, this project.

C. Relationship to CPF / Links to CPFs

19. According to the Senegal Strategic Country Diagnostic (SCD), despite the proliferation of sub-national governments induced by Decentralization Act III, several factors have limited the effectiveness of the decentralization process: (i) local governments continue to lack the necessary financial resources to fulfill their mandates, and weak technical and managerial capacity create disincentives for the central government to devolve financial resources; (ii) the institutional arrangements originally intended to accompany Local Governments (LGs) have done little to progressively enhance their autonomy; and (iii) participatory approaches to local governance have yet to be institutionalized.

20. The proposed Project is in line with the draft Country Partnership Framework (CPF) for Senegal, specifically with focus area 3 on increasing resilience and sustainability in a context of growing risks. Objective 3.1 aims at ensuring decent living conditions in the most vulnerable areas with a focus on rural electricity, water/sanitation and urban waste; and objective 3.2 aims at promoting and protecting resilient livelihoods and ecosystems in the face of climate change. The project is envisioned to contribute to increase access to solid waste management services in Senegal, by supporting institutional strengthening and capacity building of stakeholders. The Program is also consistent with the Bank's strategy to provide multi-sector support to the Government of Senegal to support its PSE.

Proposed PDO:

To strengthen the institutional capacity to regulate and manage solid and hazardous electronic wastes in Senegal.

A. Concept

21. **Description:** Given the immediate priorities of the Senegalese Government in environmental health and pollution management, the proposed project would consist of three components, which are summarized below.

22. **Component 1: Institutional strengthening, knowledge and capacity building for Minimization of UPOPs from open burning of urban and other toxic wastes (US$ 1,5 GEF, US$ 3.3 million co-financing).** There is an urgent need to reform legal frameworks and to build capacities for minimizing UPOPs from open burning of urban and other toxic wastes.

23. The project will assist the government of Senegal in ensuring that adequate official guidance documents are available to support the implementation of the Stockholm Convention and its amendments, specifically through the assessment and updating of the existing regulations and guidelines. Supporting material is needed to fill the legal gap for environmentally sound management of municipal solid waste and hazardous waste. Appropriate best available techniques (BAT) and best environmental practices (BEP) will be established and implemented to reduce the release of UPOPs from open burning practices.

24. This component will support initiatives taken by the government and the municipalities of Maristes and Dalifort to establish legal and institutional tools to formalize the waste management system and to promote resource reduction, re-use, recycling and composting. The creation of an enabling policy and regulatory environment is only effective if it is accompanied by regular monitoring. With support from NGOs, awareness campaigns, training and study tours on sound management of waste will be conducted at

all levels. The awareness and training program will commence with stakeholder mapping (that will include private sector and informal sector stakeholders). The impact on human health and the environment from the release of UPOPs (dioxins and furans) from open burning will be considered. This requires providing recommendations that can discourage improper waste disposal and improving the collection and recycling systems. This, also, can lead to a switch of mentality from "dump-it-yourself" approach to an efficient collection system adoption. Under this component, an information, education and communication strategy will be developed to disseminate the policy and guidelines on harmful chemicals and wastes management to key stakeholders and to explain how appropriate project implementation can lead to the creation of profitable business and job opportunities. A series of events will be held to explain to the residents why sorted waste is important and how the collection of recyclable waste discharged from homes such as used paper, cardboard, empty containers (cans, plastic bottles) can generate income. Recyclers and waste pickers will receive adequate training on occupational health and safer practices.

25. Operating an efficient, effective, environmentally sound municipal solid waste management program requires building administrative capacity for government and private sector players and technical capacity for designing, operating, maintaining, and monitoring each part of the process. The component will ensure national level stakeholder coordination and participation in the regional learning and knowledge sharing activities on the harmful chemicals agenda. This will contribute to strengthening regional partnerships and collaboration.

26. *Expected component outputs:*
    a. Assessment and updating of the existing regulations and guidelines
    b. Training delivered to different stakeholder groups on: 1). on the new/amended legislation, regulations, and bylaws on waste management; and 2) BAT/BEP for national and municipal waste management (generation, collection, transportation, sorting, treatment, recycling, and disposal)
    c. Stakeholder Mapping finalized (including private and informal sectors).
    d. Communication strategy developed and disseminated to key stakeholders.
    e. Targeted study tours organized to share knowledge and expertise and contribute to regional framework of action

27. **Component 2: Support to policy dialogue and regulatory enhancements (US$ 1 million GEF, US$ 7 million co-financing).** This component will support the Government's efforts to strengthen the current environmental policies, regulations and capacity to monitor, screen and evaluate environmental and health risks associated with POPs and hazardous waste. The component will assist the development of a strategy to promote the reduction of emissions and exposure to harmful chemicals and hazardous waste. Such a strategy would include gathering health data, training health-care workers and awareness-raising through health facilities. It will include dissemination of information to different actors and affected communities. Attention will be taken to prevent the exposure of vulnerable populations, particularly children and women of child-bearing age, especially pregnant women, to harmful chemicals.

28. The project will develop guidelines and checklists to be easily accessible and understood by different actors; implement demonstration programs for reduction at source; and introduce new technologies to manage certain categories of waste including POPs.

29. This component will also support analysis and develop methodology to (i) reduce, in an economic and socially acceptable manner, the impact of chemical pollution from unregulated landfills and (ii) support the development of communication tools to raise awareness about the health costs and benefits of pollution management, including community outreach to increase public understanding and visibility of the scale and environmental health impacts. It will serve to accelerate the appropriation of revised policy and to implement good waste management practices in the municipalities.

30. The project intervention will be well monitored and reported to ensure a successful implementation. Lessons learned will be disseminated and replicated at national level and regionally via the regional economic communities (REC) leadership. Given that once a community legislation comes into force, it overrides all national laws dealing with the same subject matter and subsequent national legislation must be consistent with and made in the light of the community legislation.

31. *Expected component outputs:*

a. A national strategy and implementation plan for promoting the reduction of emissions and releases of, and exposure to, POPs and priority chemicals developed
b. A methodology for screening and evaluating health and environment risks associated with POPs releases and other hazardous chemicals developed
c. A strategy and guidelines for screening and evaluating health and environment risks developed
d. National Steering Committee established and a communication strategy in place

32. **Component 3: Demonstrating application of technological tools (US$ 2.7 million GEF, US$ 9.8 million co-financing).** The main objective of this component is to support and implement actions to set up a system aiming at reducing environmental health risks from the release of POPs and other toxic chemicals through ESM of urban waste in Maristes and Dalifort municipalities, which can later be replicated and scaled-up nationally and regionally. Under this component the project will support activities to reduce UPOPs by better preventing UPOPs precursors such as plastic wastes mixed with municipal and organic wastes that are subject to open burning and consequently cause higher emissions of UPOPs. Unregulated combustion will be also better controlled by improving uncontrolled dump sites through separation, segregation, recycling of municipal and hazardous waste which should be the primary responsibility of municipalities. In this regard, the project will identify relevant partners such as private companies specialized in waste management, NGOs, etc., and develop a business model that would ensure the capitalization of waste management experiences and sustainability of the accumulated knowledge.

33. A waste management unit will be set up in the participating municipalities to coordinate waste management efforts. With respect to the Guidelines on best available techniques and provisional guidance on best environmental practices relevant to Article 5 and Annex C of the Stockholm Convention on Persistent Organic Pollutants, appropriate actions will be developed to manage municipal solid waste and hazardous waste in a sound manner, to minimize the releases of UPOPs and greenhouses gases. The reduction of the release of UPOPS can be expected to be very significant under this project component implementation.

34. *Expected component outputs:*

a. Support to municipalities for separation, segregation, & recycling of municipal and hazardous waste.
b. Waste management unit set up in the participating municipalities to coordinate waste management efforts.
c. Identify relevant partners, private companies specialized in waste management, NGOs to develop a business model for waste management.

35. Component 4. Project coordination and management (US$ 275,000 GEF, $ 1.0 million co-Financing including 0.3 Counterpart in kind contribution). This component will provide the resources necessary for effective project coordination and management; monitoring and evaluation at the national, local and regional levels. The Environment and Classified Establishments Directorate (Division de l'Environnement et des Etablissements Classés - DEEC) is responsible for implementing this project.

36. **Incremental/additional cost reasoning and co-financing.** GEF resources will assist the government of Senegal to improve the collection and recycling system as well as establish appropriate BAT/BEP to reduce the release of UPOPs from open burning of waste in uncontrolled dumpsites. GEF resources will increase awareness of risks related to the significant adverse impacts on human health and the environment from the release of dioxins and furans and will promote environmentally sound alternatives. To effectively implement this project, ensure cost effectiveness, and increase efficiency, the project will refer to the World Bank's Strategic Planning Guide for Municipal Solid Waste Management as well as lessons learned from past and ongoing projects. The World Bank is implementing a study[30] to provide recommendations to improve the performance of solid waste management through output-based aid mechanisms. A focus of this activity will be to identify solutions that improve access to sound solid waste services to poor households. Senegal has also experienced innovative financing through public-private joint ventures to deliver improved waste management services and enhanced cost efficiency. Co-financing will contribute to fund the gap analysis of the legal framework needed to support the project intervention. It will contribute to eliminate illegal dumping of hazardous waste in the area surrounding the lakes and to develop a green space where the private sector can invest to create recreational activities, commercial activities, restaurants, etc.

B. Overall risk rating:

37. The operation's overall risk is considered moderate considering its fiduciary, environmental, social, and stakeholder risks. These challenges can be addressed through a holistic and integrated approach, supporting different policy reform levers and the key actors throughout the project operation. Additionally, the project can mitigate the stakeholders risk through dedicated communication, enhancing capacity building and demonstration of technologies to reduce open burning and ESM of solid waste.

C. Institutional and Implementation Arrangements

The regional coordination project will provide the overall guidance and oversight for the individual projects. The regional coordination project will establish the coordination framework for the Program and will enable a sustained communication with and among Program stakeholders through stakeholder consultations at the national and regional levels to support all components. A Program Steering Committee (PSC) with representation from key

[30] financed by a solid waste Global Partnership on Output-Based Aid (GPOBA)

partners and stakeholders will be established as an advisory mechanism to maximize projects' synergies and support the design of activities and implementation of the overall Program. The PSC will have a secretariat with representatives of all participating countries.

38. The overall objective of Senegal's environmental and sustainable development policy is: "*to create a national dynamic for improving the environment and the management of natural resources and integrating sustainable development principles in policies designed to strengthen population resilience to climate change*".

39. The Environment and Classified Establishments Directorate (Division de l'Environnement et des Etablissements Classés - DEEC) is responsible for implementing Government policy to protect the environment and the population against pollution, nuisances and hazardous waste, and in the management of environmental requirements and provisions for classified establishments and their surrounding areas. In this regard, the DEEC will be the Implementing authority under the supervision of municipalities in collaboration with a local NGO, to be selected.

40. Under this project, the capacities of key stakeholders will be strengthened for an effective appropriation and implementation.

D – Environmental and Social

62. **Social (including Safeguards):** The socio-economic dimensions of the project, particularly on populations affected by exposure to chemical related contamination and other hazards include: (a) need for inclusion of communities in the planning (and implementation) process; (b) citizen engagement and awareness building about environmental quality in their neighborhood; (c) building social capital at community level through localized interventions, with a special focus on vulnerable community members; and (d) adherence to World Bank policy on land acquisition and resettlement.

63. **Inclusion:** CEP provided several important lessons, one of which was the importance of inclusion of the local population into decision making for such pollution management projects to increase sustainability of investments and promote understanding of the purpose of project investments. The project is designed with a participatory approach in mind and aims to promote community-driven activities dedicated to the improvement of environmental health of the communities most affected by chemical pollution.

64. **Gender:** Women have the potential to play an important role in behavioral change that could significantly reduce exposure of children to hazardous environment. Women in Kabwe can therefore play an important role in changing health seeking behavior, including mitigation of health impacts due to lead poisoning. Thus, the project has a strong emphasis on inclusion of women in the sensitization and communication campaign, participation in the health interventions that target affected children, and local level nutritional support, livelihood support activities.

65. **Vulnerable groups:** The selected municipalities have already implemented a number of initiatives targeting groups such as women headed households, the elderly, the disabled and youth. The project will provide special

attention to these groups with dedicated grant opportunities under subcomponent 3.2 and targeted sensitization and education campaigns.

66. **Environmental Safeguards:** Component 3 (Demonstrating application of technological tools and economic approaches) will finance specific demonstration projects for cleaner technology in areas contaminated by chemical waste. These investments will be based on a standard set of (social, environment and economic) criteria, tailored to country specific implementation conditions and selected to avoid or minimize impacts on livelihoods and employment opportunities. The demonstrative investments (pilots) will introduce cleaner technologies and methodologies to reduce emissions of unintentional POPs in waste management. The pilots will be selected and designed based on priority environmental health risks and cost effectiveness of interventions. The screening will consider the location, sensitivity, and scale of the pilot; the nature and magnitude of the potential environmental and social risks and impacts, and the capacity and commitment of the implementing agency to manage the environmental and social risks and impacts in a manner consistent with the World Bank Group's Environmental and Social Standards.

67. The environmental risk classification for the Project is Substantial under the World Bank ESF, based on the nature and scale of the demonstration project activities, which include potential impacts from managing hazardous waste, however, majority of the impacts likely to be generated from the project activities are site-specific, limited in number, and can be mitigated with measures that are readily identifiable. These pilot activities will be designed to demonstrate a use of new technologies to reduce uPOP emissions associated with waste management. The implementing agency has knowledge and capacity to manage the environmental risks under the proposed pilot interventions. However, the implementing agency will need to build additional capacity for contract management during pilot implementation and for managing social and environmental risks and impacts beyond aspects that are generally included in the ESSs.

68. However, most interventions under the project are not likely to result in significant environmental, health or social impacts as they will be designed to reduce environmental health impacts and address the source of the impact.

69. Since the exact locations and site-specific details of the activities and scope of works are not yet identified, the relevant safeguards instrument at appraisal stage is an Environmental and Social Management Framework (ESMF). The ESMF provides detailed step-by-step processes for identification and screening of critical environment and social risks; procedures for evaluating the significance of environmental risks and impacts; development of site specific mitigation and monitoring plans when subproject details are identified; and institutional arrangements for safeguards implementation and capacity building measures. The ESMF provides guidelines for the development of ESIAs and ESMPs that will present mitigation measures to address the potential environmental and social impacts at the subproject level, once the activities location and scope have been identified.

ANNEX 4: Estimated Budget and Annual Projections by Components

Summary Budget breakdown by country and component

Components	Tanzania	Ghana	Zambia	Kenya	Senegal
Component 1	1.50	1.90	1.80	1.98	1.50
Component 2	1.50	1.90	1.80	1.80	1.00
Component 3	3.98	4.50	4.26	3.98	2.73
Component 4	0.34	0.41	0.39	0.38	0.26

Estimated Annual Component Budget Projections

Program Components	FY19 [m US$]	FY20 [m US$]	FY21 [m US$]	FY22 [m US$]	FY23 [m US$]	Total	Percent [%]
Component 1: Institutional strengthening, knowledge and capacity building							
Tanzania	0.15	0.3	0.45	0.3	0.3	**1.5**	17.28
Ghana	0.19	0.38	0.57	0.38	0.38	**1.9**	21.89
Zambia	0.18	0.36	0.54	0.36	0.36	**1.8**	20.74
Kenya	0.198	0.396	0.594	0.396	0.396	**1.98**	22.81
Senegal	0.15	0.3	0.45	0.3	0.3	**1.5**	17.28
Sub-Total	0.868	1.736	2.604	1.736	1.736	**8.68**	100.00

Component 2: Policy Dialogue and Regulatory Enhancements							
Tanzania	0.15	0.3	0.45	0.3	0.3	**1.5**	18.75
Ghana	0.19	0.38	0.57	0.38	0.38	**1.9**	23.75
Zambia	0.18	0.36	0.54	0.36	0.36	**1.8**	22.50
Kenya	0.18	0.36	0.54	0.36	0.36	**1.8**	22.50
Senegal	0.1	0.2	0.3	0.2	0.2	**1**	12.50
Sub-Total	0.8	1.6	2.4	1.6	1.6	**8**	100.00
Component 3: Demonstrating application of technological tools							
Tanzania	0.4	0.8	1.2	0.8	0.8	**4**	20.72
Ghana	0.45	0.9001136	1.3501704	0.9001136	0.9001136	**4.5**	23.32
Zambia	0.42	0.84	1.26	0.84	0.84	**4.2**	21.76
Kenya	0.39	0.78	1.17	0.78	0.78	**3.9**	20.21
Senegal	0.27	0.54	0.81	0.54	0.54	**2.7**	13.99
Sub-Total	1.9	3.86	5.7901704	3.8601136	3.8601136	**19.30057**	100.00

Component 4: Program Coordination and Management							
Tanzania	0.04	0.08	0.12	0.08	0.08	**0.4**	21.52
Ghana	0.04	0.08	0.12	0.08	0.08	**0.4**	21.52
Zambia	0.04	0.08	0.12	0.08	0.08	**0.4**	21.52

Kenya	0.038	0.0768	0.1152	0.0768	0.0768	**0.384**	20.66
Senegal	0.0275	0.055	0.0825	0.055	0.055	**0.275**	14.79
Sub-Total	0.1859	0.3718	0.5577	0.3718	0.3718	**1.859**	100.00

Total	**3.78**	**7.57**	**11.35**	**7.57**	**7.57**	**37.84**	**100.00**

ABBREVIATIONS AND ACRONYMS

AIDS	Acquired immune Deficiency Syndrome
ASA	Advisory Services and Analytics
ASGM	Artisanal and Small-Scale Gold Mining
AU	African Union
BAN	Basel Action Network
BAT	Best available technologies
BEP	Best environmental practices
CASM	Community Artisanal and Small-Scale Mining
CFSK	Computers for Schools Kenya
ChemObs	Integrated Health and Environment Observatories and Legal and Institutional Strengthening for the Sound Management of Chemicals in Africa
COMESA	Common Market for Eastern and Southern Africa
COP	Conference of Parties
CPF	Country Partnership Framework
CSO	Civil Society Organization
DALY	Disability-adjusted life year
DDT	Dichlorodiphenyltrichloroethane
DEEC	Division de l'Environnement et des Etablissements Classés
ECOWAS	Economic Community of West African States
EEE	Electrical & Electronic Equipment
EGPS	Extractives Global Programmatic Support
EHPMP	Environmental Health and Pollution Management Program
EITI	Extractive Industries Transparency Initiative

EPA	Environmental Protection Agency
EPP	Environmental Protection Plan
ERR	Economic Rate of Return
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plans
ESRS	Environmental and Social Review Summary
ESS	Environmental and Social Standard
FM	Financial Management
FY	Fiscal Year
GCLA	Government Chemist Laboratory Authority
GEF	Global Environmental Facility
GP	Global Practice
gTEQ	grams of toxic equivalent
ICB	International Competitive Bidding
ICT	Information and Communication Technologies
IDA	International Development Association
IFC	International Finance Corporation
IPF	Investment Project Financing
KUSP	Kenya Urban Support Program
LSM	Large Scale Mining
MC	Minerals Commission
MEF	Ministry of Environment and Forests
MPA	Multiphase Programmatic Approach
MRO	Mines Resident Offices

MSP	Medium Size Project
MSW	Municipal Solid Waste
NAP	National Action Plan
NCB	National Competitive Bidding
NEMA	National Environmental Management Authority
NEMC	The National Environmental Management Council
NGO	Non-governmental organization
NIP	National Implementation Plan
NRDC	Natural Resources Defense Council
NSWMS	National Solid Waste Management Strategy
NUDP	National Urban Development Policy
ODS	Ozone-depleting substance
OECD	Organization of Economic Cooperation and Development
OP	Operational Policy
PACE	Partnership for Action on Computing Equipment
PBDEs	Polybrominated diphenyl ethers
PCB	Polychlorinated Biphenyl
PDO	Project Development Objective
PIM	Project Implementation Manual
PIU	Project Implementation Unit
PMEH	Pollution Management and Environmental Health
POPs	Persistent Organic Pollutants
PPSD	Project Procurement Strategy Documents
PSC	Program Steering Committee
REC	Regional Economic Community
RMO	Resident/Regional Mines Offices

RPF	Resettlement Policy Framework
SA	Social Assessment
SADC	Southern African Development Community
SAICM	Strategic Approach to International Chemicals Management
SCD	Strategic Country Diagnostic
SDC	Swiss Agency for Development and Cooperation
SDR	Special Drawing Rights
SEDCO	Small Enterprise Development Corporation
SEF	Stakeholder Engagement Framework
SEP	Stakeholder Engagement Plan
SORT	Systematic Operations Risk-Rating Tool
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
UNITAR	The United Nations Institute for Training and Research
UNU	United Nations University
UPOPs	Unintentional Persistent Organic Pollutants
WAEMU	West African Economic and Monetary Union
WHO	World Health Organization
ZEMA	Zambia Environmental Management Agency
ZMERIP	Zambia Mining and Environmental Remediation and Improvement Project

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