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Report No: PAD3198

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT

IN THE AMOUNT OF US\$37.89 MILLION

TO THE

REPUBLIC OF KENYA, REPUBLIC OF GHANA, REPUBLIC OF ZAMBIA, UNITED REPUBLIC OF
TANZANIA, REPUBLIC OF SENEGAL

FROM THE GLOBAL ENVIRONMENT FACILITY

FOR AN

AFRICA ENVIRONMENTAL HEALTH AND POLLUTION MANAGEMENT PROGRAM

JULY 9, 2020

Environment, Natural Resources and Blue Economy Global Practice
Africa Region

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CURRENCY EQUIVALENTS

(Exchange Rates Effective April 30, 2020)

FISCAL YEAR

January 1 - December 31

0.732 SDR = 1 USD

1 USD = 0.88195 EUR

Senegal Currency Unit = CFA Francs (CFAF)

CFAF 598 = US\$1

Ghana Currency Unit = Ghanaian Cedi (GHS)

GHS 5.80 = US\$1

Kenya Currency Unit = Kenyan Shilling (KES)

KES 106.95 = US\$1

Tanzania Currency Unit = Tanzanian Shilling (TZS)

TZS 2,315.00 = US\$1

Zambia Currency Unit = Zambian Kwacha (ZMW)

ZMW 17.97 = US\$1

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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
BoT	Bank of Tanzania
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	Direction 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
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GLRSSMP	Ghana Landscape Restoration and Small-Scale Mining Project
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
KfW	Kreditanstalt für Wiederaufbau (Credit Institute for Reconstruction)

KUSP	Kenya Urban Support Program
LSM	Large Scale Mining
MC	Mining 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	National Environment 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
PCU	Project Coordination Unit
PDO	Project Development Objective
PIM	Project Implementation Manual
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 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
SOE	Statement Of Expenditure
SORT	Systematic Operations Risk-Rating Tool
TC	Technical Committee
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
UNITAR	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
WBG	The World Bank Group



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DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
Ghana, Kenya, Senegal, Tanzania, Zambia	Africa Environmental Health and Pollution Management Program	
Project ID	Financing Instrument	Environmental and Social Risk Classification
P167788	Investment Project Financing	Substantial
GEF Focal Area		
Persistent Organic Pollutants		

Financing & Implementation Modalities

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	<input type="checkbox"/> Hands-on Enhanced Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date
27-Jul-2020	31-Jul-2025

Bank/IFC Collaboration

No

Proposed Development Objective(s)

To reduce exposure to mercury and uPOPs pollution at 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



Components

Component Name	Cost (US\$, millions)
Institutional Strengthening, Knowledge and Capacity Building	8.00
Policy Dialogue and Regulatory Enhancements	8.68
Demonstrating Application of Technological Tools and Economic Approaches	19.36
Program Implementation and Coordination	1.85

Organizations

Borrower:	Republic of Kenya Republic of Ghana Republic of Zambia United Republic of Tanzania Republic of Senegal
Implementing Agency:	The National Environmental Management Council (NEMC) Environmental Protection Agency (EPA) National Environmental Management Authority (Ministry of Environment and Forestry) Zambia Environmental Management Agency Direction de l'Environnement et des Etablissements Classés - DEEC

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	37.89
Total Financing	37.89
of which IBRD/IDA	0.00
Financing Gap	0.00

DETAILS

Non-World Bank Group Financing

Trust Funds	37.89
Global Environment Facility (GEF)	37.89



Expected Disbursements (in US\$, Millions)

WB Fiscal Year	2020	2021	2022	2023	2024	2025
Annual	7.00	10.00	10.00	7.00	3.00	0.89
Cumulative	7.00	17.00	27.00	34.00	37.00	37.89

INSTITUTIONAL DATA

Practice Area (Lead)

Environment, Natural Resources & the Blue Economy

Contributing Practice Areas

Energy & Extractives

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	● Substantial
2. Macroeconomic	● Moderate
3. Sector Strategies and Policies	● Substantial
4. Technical Design of Project or Program	● Substantial
5. Institutional Capacity for Implementation and Sustainability	● Substantial
6. Fiduciary	● Substantial
7. Environment and Social	● Substantial
8. Stakeholders	● Substantial
9. Other	
10. Overall	● Substantial



COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

Yes No

Does the project require any waivers of Bank policies?

Yes No

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards

Relevance

Assessment and Management of Environmental and Social Risks and Impacts

Relevant

Stakeholder Engagement and Information Disclosure

Relevant

Labor and Working Conditions

Relevant

Resource Efficiency and Pollution Prevention and Management

Relevant

Community Health and Safety

Relevant

Land Acquisition, Restrictions on Land Use and Involuntary Resettlement

Not Currently Relevant

Biodiversity Conservation and Sustainable Management of Living Natural Resources

Not Currently Relevant

Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities

Not Currently Relevant

Cultural Heritage

Not Currently Relevant

Financial Intermediaries

Not Currently Relevant

NOTE: For further information regarding the World Bank’s due diligence assessment of the Project’s potential environmental and social risks and impacts, please refer to the Project’s Appraisal Environmental and Social Review Summary (ESRS).

Legal Covenants

Sections and Description



KENYA: Grant Agreement - Schedule 2, Section I.B.1. Not later than sixty (60) days after the Effective Date the Recipient shall prepare, a Project implementation manual in form and substance satisfactory to the Bank.

Sections and Description

KENYA: Grant Agreement - Schedule 2, Section I.D.1. The Recipient shall prepare and furnish to the Bank not later than October 31st of each Fiscal Year during the implementation of the Project (beginning in calendar year 2020), a work plan and budget.

Sections and Description

TANZANIA: Grant Agreement - Schedule 2, Section I.B.1. Not later than two months after Effective Date the Recipient shall prepare, a Project implementation manual in form and substance satisfactory to the Bank.

Sections and Description

TANZANIA: Grant Agreement - Schedule 2, Section I.D.1. The Recipient shall prepare and furnish to the Bank not later than June 1st of each Fiscal Year during the implementation of the Project (beginning in calendar year 2021), a work plan and budget.

Sections and Description

ZAMBIA: Grant Agreement - Schedule 2, Section I.D.1. The Recipient shall prepare and furnish to the Bank not later than November 1st of each Fiscal Year during the implementation of the Project (beginning in calendar year 2021), a work plan and budget.

Sections and Description

GHANA: Grant Agreement - Schedule 2, Section I.B.1. No later than three (3) months after Effective Date the Recipient shall prepare a Project implementation manual in form and substance satisfactory to the Bank.

Sections and Description

GHANA: Grant Agreement - Schedule 2, Section I.D.1. The Recipient shall prepare and furnish to the Bank not later than November 1st of each Fiscal Year during the implementation of the Project (beginning in calendar year 2020), a work plan and budget.

Sections and Description

SENEGAL: Grant Agreement - Schedule 2, Section I.B.1. Not later than four (4) months after the Effective Date, the Recipient shall prepare, a Project implementation manual in form and substance satisfactory to the Bank.

Sections and Description

SENEGAL: Grant Agreement - Schedule 2, Section I.D.1. The Recipient shall prepare and furnish to the Bank not later than November 1st of each Fiscal Year during the implementation of the Project (beginning in calendar year 2020), a work plan and budget.



Sections and Description

SENEGAL: The Recipient shall recruit, no later than four (4) months after the Effective Date, or a date later agreed upon in writing with the Bank, an accountant, with terms of reference satisfactory to the Bank.

Conditions



I. STRATEGIC CONTEXT

A. Regional Context

- Africa's economy is growing rapidly, however its industry is heavily dependent on imports of chemicals.** Africa's economic growth stabilized at 3.4 in 2019 and was forecast to rise to 4.1 percent in 2020¹. Due to the formidable challenges associated with the COVID-19 pandemic, economic growth is expected to contract to between -2.1 and -5.1% in 2020². The industrial sector is progressively gaining ground and represents 4 to 32 percent of the national Gross Domestic Products (GDPs) in most African countries³. But many countries import chemicals for industrial, domestic, and agricultural uses. As a result, the region has witnessed a significant increase in the trade of hazardous materials, with serious impacts on environment and health. Among the most critical pollution management issues in Sub-Saharan Africa are those related to mercury use in the artisanal and small-scale gold mining (ASGM) sector, and management of electronic waste (e-waste).
- An estimated two to three million people in Africa are at risk of exposure to toxic chemicals from ASGM⁴.** Rising international gold prices have made ASGM an attractive employment alternative for struggling farmers, poor rural communities, and migrant laborers. Ghana and Tanzania each have ASGM workforces estimated at more than 1 million people⁵. However, ASGM has been consistently listed as a major source of water and soil pollution. Serious health concerns associated with heavy metal poisoning from metals such as cadmium and mercury are disproportionately affecting poor and vulnerable people. It is estimated that gold production from small-scale mining accounts for about 38 percent of total mercury emissions on the continent⁶. A mercury trade diagnostic study conducted by the Environment, Natural Resources and Blue Economy Global Practice estimated that 90 to 95 percent of mercury used is smuggled from neighboring nations⁷. However, there is limited data and knowledge about the amount of mercury used or the extent of mercury contamination and its health, environmental, and social impacts.
- The global generation of e-waste reached an estimated 50 million tons in 2018, with about 80 percent being shipped to developing countries in Asia and Africa.⁸** A study commissioned by the World Bank⁹ indicates that Ghana, Kenya, and Nigeria have the highest levels of e-waste in the region due to their growing involvement in Information and Communications Technology (ICT) imports, recycling, and refurbishing. Countries such as Senegal and Uganda can expect e-waste flows from computers alone to increase four to eight-fold by 2020¹⁰. Improper recycling and disposal of heavy metals associated with the burning of e-waste is particularly acute in Africa, where environmental monitoring and regulatory enforcement are relatively weak. The mismanagement of chemicals, releases of unintentionally produced Persistent Organic Pollutants (uPOPs)¹¹ from open-burning and other

¹ AfDB: African Economic Outlook 2018.

² The World Bank Group: Africa's Pulse, Volume 21, 2020

³ AfDB: African Economic Outlook 2018

⁴ UNIDO 2018: Curbing Illicit mercury and gold flows in West Africa and UNEP's Global Mercury Assessment of 2018.

⁵ Minamata Convention: Initial Assessment Reports for Tanzania (2017) and for Ghana (2018)

⁶ UNEP Global Mercury Assessment, 2018.

⁷ The World Bank Report on Mercury Trade and Use in Artisanal and Small-scale Mining in Sub-Saharan Africa (2016)

⁸ UNU Global E-waste Monitor 2017.

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.

¹¹ uPOPs are persistent organic pollutants that are formed and released unintentionally from anthropogenic sources and include the following chemicals: Polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/PCDF), Hexachlorobenzene (HCB), and Polychlorinated biphenyls (PCB), and Pentachlorobenzene (PeCB). See Stockholm Convention Annex Parts I-III for details.



sources present serious threats to human health in many parts of Africa.

B. Sectoral and Institutional Context

4. **Mercury use in the ASGM sector and management of e-waste are among the most critical pollution management issues in Sub-Saharan Africa.** Mercury is used as an amalgamation agent in the ASGM operations. The informal, illegal, and unregulated nature of mercury use in such operations creates a legacy of severe adverse and irreversible environmental and health damage. Mercury contamination could have serious economic consequences to the lucrative local and regional fisheries, due to the potential health risks associated with its bioaccumulation in the food chains¹². In addition, over the past 20 years, the ICT market has grown exponentially and is estimated to generate the fastest growing waste stream in the world, at 20-50 million tons per year. E-waste is shipped, often illegally, to developing countries for recycling. It is a valuable commodity with more than 92 percent recoverable and reusable materials ranging from precious metals (i.e. gold, silver, copper, platinum, and palladium) to recyclable metals and plastics, with a potential value of €55 billion¹³. However, it is expensive to treat it in an environmentally sound manner, and many developing countries lack the specific regulations and adequate infrastructure and technologies to implement 'win-win' solutions to this growing challenge. As a result, the quantities of e-waste accumulating in Sub-Saharan countries have been increasing exponentially in recent years. It is critical to address the policy environment for both mercury and e-waste management, improve knowledge on the economic and health impact of pollution, and facilitate access to cleaner technologies in the region.
5. **The institutional and policy environment dealing with mercury and e-waste is weak at the national level.** Institutions in Sub-Saharan Africa lack effective regulations and enforcement, users lack adequate management strategies and technologies, and the public has limited information on environmental-health risks. Except for a few countries, like Ghana, there are no policies in place to manage mercury and e-waste related pollution. At the national level, specific factors that undermine efforts to address human health risks include: illegal trade, informal recycling of e-waste, inadequate infrastructure for proper treatment and disposal of hazardous waste, weak institutions, lack of monitoring and awareness of health risks, and weak coordination and shared objectives among key stakeholders on addressing harmful impacts from chemicals.
6. **Multiple and fragmented approaches to address specific chemicals have not yielded the expected results.** Many programs have been implemented in the region by various development agencies, funded by the Global Environment Facility (GEF) and bilateral donors. However, although the coverage of GEF POPs activities is broad, most programs have been site-specific and uncoordinated, generating only minimal improvement of environmental health and pollution impacts. Overall, experience has shown that isolated policy and regulatory interventions in one country may not necessarily produce significant results, but rather, run the risk of shifting the problem toward other countries with weak regulations and enforcement.
7. **Effective regulations combined with incentives would help governments deliver on commitments under key international agreements.** Extensive consultations with African governments and partners indicate that there is a common understanding and demand for a more harmonized approach towards reducing environmental and health risks resulting from mercury and POPs emissions from wastes. Emerging recommendations from analytical studies support a need to harmonize efforts and to understand institutional capacity constraints and their economic, environmental, and social implications at the national and regional levels. Sub-Saharan African

¹² UNEP's Global Mercury Assessment of 2018.

¹³ UNU Global E-waste Monitor 2017.



countries are at various stages of putting in place relevant policies and environmental legislation to support implementation of their commitments under the international conventions, including multiple initiatives under the framework of Multilateral Environment Conventions, particularly the Minamata, Stockholm, and Basel Conventions¹⁴.

8. **Reducing the health risks caused by exposure to mercury and e-waste is high priority for Sub-Saharan countries.** The proposed project responds to this priority in **Ghana, Kenya, Senegal, Tanzania and Zambia**. The choice of countries was based on client demand and ownership, strength of baseline activities, and National Implementation Plan (NIP) readiness. The next phase will consider scaling up the project's activities to additional countries as they meet readiness requirements. Countries in the pipeline are Burkina Faso, Mauritania, Malawi, Mali, Niger and for ASGM, and Benin and Togo for e-waste.
9. **The transboundary nature of mercury and uPOPs emissions, and the regional opportunities for solutions call for a regional project approach.** The World Bank responded to requests from interested countries to leverage its convening power at the highest levels of national governments to help accelerate action toward addressing commitments under the relevant conventions. The preparatory studies carried out through the GEF-funded MSP¹⁵ and under the World Bank's Pollution Management and Environmental Health (PMEH) Program emphasized the need for a regional approach to address these issues. The studies on mercury and e-waste trade revealed that there is a major illegal trade across African countries. Unless there are regionally harmonized policies on mercury and e-waste trade and their respective uses, country-level interventions may not have the desired outcomes. The project will leverage existing regional entities, including the Regional Economic Communities (REC) such as the Economic Community of West African States (ECOWAS), the West African Economic and Monetary Union (WAEMU), the Common Market for Eastern and Southern Africa (COMESA), and the Southern Africa Development Community (SADC) to support regional harmonization, thereby strengthening national and regional systems to enforce regulations and manage illegal trade flows. In addition, it will work closely with local communities and community-based organizations, who will benefit from opportunities for income generation and green jobs.

C. Relevance to Higher Level Objectives

10. **The proposed Environmental Health and Pollution Management Program (EHPMP) is aligned with the World Bank Group's (WBG's) twin goals of ending extreme poverty and promoting shared prosperity.** This project follows the WBG's 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. It is also aligned with the World Bank's Africa Strategy (FY19-23), supporting Pillars 1 and 2, related to competitiveness and employment, vulnerability and resilience, and governance and public-sector capacity. EHPMP will promote sustainable inclusive growth by improving access to environmental services through knowledge sharing and capacity building; will strengthen human capital by improving health of vulnerable populations, especially women and children; and will complement other regional initiatives and individual projects, focusing on competitiveness, sustainability and governance. Moreover, by providing opportunities for women to increase benefits from

¹⁴ The Minamata Convention is a global treaty on mercury (adopted in 2013, entered into force in 2017); The Stockholm Convention is a global treaty on Persistent Organic Pollutants (adopted in 2001, entered into force in 2004) and the Basel Convention is a global treaty on the control of transboundary movements of hazardous wastes and their disposal (adopted in 1989, entered into force in 1992).

¹⁵ Reducing Environmental Health Impact of Harmful Chemicals in Africa Region (https://www.thegef.org/gef/project_detail?projID=5583).



participation in the ASGM and e-waste sectors, the project is consistent with the World Bank Group Gender Strategy (FY16-23), and the GEF Policy on Gender Equality (2017).

11. **This project will be nested in the Pollution Management and Circular Economy business line of the Environment, Natural Resources and Blue Economy World Bank Global Practice.** As such the project will play a key part in the Environmental Health and Pollution Management Global Solutions Group (GSG) to build upon and enhance the collective expertise of its members through learning, knowledge sharing, and building partnerships to provide comprehensive and effective solutions to our clients in their efforts to reduce pollution and improve health. Between FY04 and FY19, the Bank financed pollution management interventions valued at more than US\$47 billion. Pollution Management offers no-regrets options that can alleviate poverty boost shared prosperity and address the vital demands of millions of people for healthier and more productive lives. In addition, pollution management can enhance competitiveness through job creation, better energy efficiency, improved transport, and sustainable urban and rural development. Pollution management can also make substantial contributions to climate change mitigation through actions, such as reduction of black carbon emissions, which contribute to both air pollution and global warming.
12. The EHPMP will contribute to the **GEF 6 Chemicals and Waste Focal Area Strategy** that aims “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 EHPMP is directly informed by the Stockholm Convention on POPs¹⁶ and the Minamata Convention on Mercury¹⁷, 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 project contributes also to the Sound Management of Chemicals and Wastes, which is an important component of the global effort to achieve sustainable, inclusive and resilient human development and the Sustainable Development Goals (SDGs). Specifically, by intervening in the management of hazardous chemicals, it is closely linked with the Goals 3, 5, 6, 8, 11, 12 and 14 and their specific targets.
13. The project is aligned with the WBG’s **Country Partnership Strategies and Frameworks**¹⁸ of the five countries: in **Ghana**, the project is expected to improve artisanal practices of small-scale miners, enhance the sector competitiveness (by adopting new mining technologies, improving land and water management), and protect the poor and vulnerable (by improving maternal and child health and labor practice); in **Kenya**¹⁹, it is expected to protect vulnerable groups and women (by reducing exposure to unsustainable ASGM and e-waste management) and is also expected to improve business environment (by responding to environmental health pressures associated with poor management of hazardous waste); in **Senegal**²⁰, it is expected to increase access to solid waste management services, by supporting institutional strengthening and capacity building of the sector; in **Tanzania**, it is expected to enhance the formalization of the ASGM sector, which will create incentives for artisanal

¹⁶ A global treaty to protect human health and the environment from persistent organic pollutants (POPs). The project addresses particularly the Articles 5 and 6.

¹⁷ A framework through which a toxic compound of global concern can be used and managed to drive national policy reforms to protect human health and the environment. The project addresses the provisions of Article 7, which requires that “each Party that has artisanal and small-scale gold mining and processing subject to this Article within its territory will take steps to reduce, and where feasible eliminate, the use of mercury and mercury compounds in, and the emissions and releases to the environment of mercury from, such mining and processing”.

¹⁸ These include Ghana’s Systematic Country Diagnostic and Country Partnership Framework (FY21-27 – Report No. 132010-GH), Kenya’s Country Partnership Strategy (FY14-18 - Report No. 113547-KE), Senegal’s Country Partnership Strategy (FY20-24 - Report No. 143333-SN), Tanzania’s Country Partnership Framework (FY18-22 - Report No. 121790-TZ), Zambia’s Country Partnership Framework (FY19-23 – Report No. 128467-ZA).

¹⁹ It fully aligned with the country’s: updated NIP (2014) which shows the significance, and the priority attached to POPs releases from e-waste; Vision 2030, which calls for providing clean and secure environment; and with the Government’s emerging drive to improve waste management, particularly, e-waste management strategies and plans.

²⁰ It is also consistent with the Bank’s strategy to provide multi-sector support to the Government’s Plan Senegal Emergent (2014).



miners to access relevant knowledge, financing and institutional support; this is expected to improve natural resource management, thus accelerating the country's equitable and sustainable growth; in **Zambia**²¹, the project is expected to help the Government address the development challenges in its priority areas identified in the Seventh National Development Plan, by contributing to the focus area "More even territorial development: Opportunities and Jobs for the poor".

14. **The project will be implemented in synergy with other ongoing projects and initiatives supporting the environmental health agenda in Africa.** Principal among these projects are the *GEF Knowledge Exchange and Institutional Partnerships to Reduce Environmental Health Risks from Exposure to Harmful Chemicals and Waste* (BETF, P166233); the *Global Center of Excellence in Artisanal and Small-Scale Mining* (World Bank/OECD); and the recently launched (February 2019) *Global Opportunities for Long-term Development (GOLD) of the ASGM sector*. In addition, the proposed project will be implemented in close collaboration with several other ongoing or planned operations: in **Ghana** - the Forest Investment Program - Enhancing Forest Landscapes; the Ghana Landscape Restoration and Small Scale Mining Project (GLRSSMP, P171933), and the Greater Accra Resilient and Integrated Development Project (GARID, P164330); in **Kenya** - the Kenya Urban Support Program (KUSP); in **Senegal** - the Municipal Solid Waste Management Project (PROMOGED – P161477); in **Tanzania** - the Resilient Natural Resources Management for Tourism and Growth Project (P150523); in **Zambia** - the Mining and Environmental Remediation and Improvement Project (P154683).

II. PROJECT DESCRIPTION

A. Project Development Objective

PDO Statement

15. The project aims to reduce exposure to mercury and uPOPs pollution at 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.

PDO Level Indicators

16. The following PDO indicators are proposed, disaggregated by country:
 - a. Knowledge products on mercury and uPOPs management designed and disseminated (Number);
 - b. Policy interventions on mercury and e-waste management (including uPOPs emissions) designed and consulted (Number);
 - c. Piloting of best environmental practices and cleaner technologies to help countries meet their Stockholm and Minamata Convention obligations completed and evaluated (Number);
 - d. Mercury use in ASGM reduced at pilot sites (Percentage);
 - e. Exposure to uPOPs pollution from open burning of hazardous waste including e-waste reduced at pilot sites (Percentage);
 - f. Stakeholder outreach events completed (Number).
17. The following intermediate indicators are proposed, disaggregated by country:

²¹ In addition, the project is aligned with the [National Solid Waste Management Strategy](#) (NSWMS) of 2004 which sets out an integrated approach to addressing the problem of improper solid waste management; and with the [National Implementation Plan](#) (NIP) of 2017, which sets out the roadmap and methodology for implementing the Stockholm Convention in the country. The project will also build capacity in the management of e-waste as an emerging issue that warrant action countrywide.



Component 1

- a. E-waste management and mercury use benchmarked in participating countries (volume/Mt) through the regional platform (Yes/No);
- b. Trained inspection officers (Number trained, % of participants women);
- c. Communities involved in planning, implementation and evaluation of demonstration pilots (Number);

Component 2

- d. Guidelines and checklists for stakeholders and workers developed (Yes/No);
- e. Stakeholder communication strategy developed (Yes/No);

Component 3

- f. Training events for relevant stakeholders conducted (Number);
- g. Private sector in selected e-waste pilot project sites engaged (Yes/No);

B. Project Components

- 18. **Rationale.** The mismanagement of mercury and e-waste in Sub-Saharan countries have devastating impacts at the regional scale. For example, illegal trade of mercury, facilitated by non-guarded borders and routes, leads to severe developmental problems in children, and income losses across countries; the uPOPs released from inappropriately disposed e-waste can travel long distances, causing transboundary impacts, such as cancer and diminished intelligence. These are regional-level problems, which cannot be solved through the efforts of single countries; they require joint and coordinated efforts across countries and at the regional level. Without action, the number of deaths and sick people due to exposure to chemicals would increase exponentially in the future.
- 19. **Approach.** To respond to this urgent need, the proposed project will implement a **regional approach** to improve the management and reduce exposure to mercury and uPOPs. This approach will promote harmonization of policies and regulations across countries; will disseminate state-of-the-art knowledge and best practices to reduce harmful emissions; and will leverage finance to scale up these practices after the end of the project. These actions will be conducted through a knowledge platform²² dedicated to facilitating the coordination and alignment of countries' activities with the existing sound practices. While the platform will be managed by the Bank in the first project year, efforts will be made to identify and appoint²³ a regional institution – e.g. AU, ECOWAS, COMESA, EAC, or SADC – to manage it on a long-term basis, thus ensuring regional ownership in the promotion of lessons learned and good practices in the management of chemicals.
- 20. **Components.** The project will combine country level and regional level activities through four components, described below. Annex 3 describes the project components by country.

Component 1: Institutional strengthening, knowledge and capacity building

- 21. This component will strengthen the knowledge and capacity to address the health risks due to the release of chemicals from ASGM, e-waste and other solid waste dumpsites. At the country level, some activities aim at reducing the use of and exposure to **mercury**, e.g.: raising awareness on the health risks associated with

²² The platform and the organization of regional activities will be part of the GEF Project on Knowledge Exchange and Institutional Partnerships to Reduce Environmental Health Risks from exposure to harmful chemicals and waste (US\$4.31 million, BETF). However, the participation of the five countries in these regional activities will be financed by the proposed project.

²³ The World Bank will use the following criteria to select the regional institution: (i) impact on 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 the project sites.



inappropriate mining and processing; training artisanal miners in using best practices, including mercury-free methods; promoting transparency across the gold value chain (e.g. procurement of cheap and reliable sources of mercury, access to credit, technical know-how); facilitating the formalization of the ASGM sector; and conducting national mercury inventories, consistent with the requirements of the Minamata Convention.

22. Other activities aim at reducing the release of **uPOPs**, e.g.: building capacity of e-waste agents on safe handling and recycling of waste; enhancing capacity of customs officers to strengthen borders' inspections to curtail entry of illicit waste; building partnerships with the private sector for improved collection, recovery and recycling of e-waste; conducting e-waste inventories, by provenance and type; reviewing major toxic pollutants, and providing options for risk management.
23. In addition, at the regional level, this component will support the participation of key stakeholders in multi-national workshops and other fora organized through the knowledge platform. This will allow south-south learning, exchange of up-to-date knowledge and inter-governmental cooperation, with the view of changing the mindset towards adopting cleaner practices and technologies. Very importantly, these events will be instrumental in *learning from* other countries' successful experience in the application of sound technologies in chemical management, as well as *sharing with regional actors the project's* lessons from the deployment of cleaner technologies within Component 3.

Component 2: Policy Dialogue and Regulatory Enhancements

24. This component will support the Governments' efforts in strengthening current environmental policies and legislations and facilitate their implementation to better address the health risks associated with mercury and uPOPs. The component will cover the following types of actions at the country level.
25. Concerning **mercury**: amending laws and regulations to include provisions addressing the challenges posed by mercury, in line with the Minamata Convention; developing strategies to promote emissions reductions from mercury (including mercury-free methods, managing trade, training); and developing public health strategies to reduce exposure of miners and their communities to mercury²⁴.
26. Concerning the **uPOPs**: developing guidelines and standards related to best practices in e-waste handling, processing and disposal; developing strategies and implementation plans for promoting the reduction of emissions and exposure to uPOPs; conducting assessments of national and local frameworks for waste management, from generation to disposal; conducting value chain analyses and identifying appropriate solutions to strengthen waste management; developing or finalizing e-waste management regulations and their dissemination.
27. For both types of actions, particular attention will be given to provisions aiming at preventing exposure of vulnerable populations (e.g. children, women of child-bearing age, pregnant women) to the toxicity of mercury and uPOPs. In addition, at the regional level, the component will support the participation of stakeholders in regional events that would be fundamental for building harmonized policies and strategies to reduce generation and exposure to chemicals²⁵.

²⁴ This will involve gathering health data, training of health care workers, and awareness raising through health facilities.

²⁵ These events will tackle up-to-date knowledge and technologies addressing the provisions of Article 7 of Minamata Convention (e.g. reducing whole ore amalgamation; open burning of amalgam or processed amalgam; burning of amalgam in residential areas; and cyanide leaching in sediment, ore or tailings to which mercury has been added); and the provisions of Articles 5 and 6 of Stockholm Convention.



Component 3: Demonstrating the Application of Technological Tools and Economic Approaches

28. This component will finance the selection and application of specific cleaner technologies in contaminated areas of each country. The technologies will be chosen based on criteria aiming at: reducing environmental health risks at the community level, cost effectiveness, and potential for replication (scale-up). Thus, the investments will be community-focused, and the project will be technology-neutral, to ensure that the most appropriate and cost-effective technology choices are made. The types of investments envisaged for each country are presented below.

- Mercury

29. Ghana²⁶. The project will focus on demonstrating best ASGM practices through the establishment of demonstration centers for training and promotion of alternative (mercury-free) technologies in the ASGM sector. It is expected that these investments will contribute to reducing both the amount of mercury to be procured, and the amount of mercury emissions and wastage.

30. Tanzania²⁷. The project will research alternative technologies, prepare equipment to enable moving away from mercury, and implement specific technologies in contaminated sites. In addition, it will rehabilitate abandoned mining sites and plant trees, to improve the environmental conditions of these areas. Overall, these investments will support the Government's efforts to formalize the ASGM sector.

- Unintentionally produced Persistent Organic Pollutants

31. Ghana²⁸. The project will design and implement pilot investments in Agbobloshie and other e-waste contaminated sites such as Kumasi, Ashaiman, Tamale, or Koforidua, Paga, Aflao, Sunyani, and Techiman. These investments will use environmentally-sound management techniques to improve the collection, transportation, safe disposal and recycling of e-waste. Some of these pilots will also explore the development or strengthening value chains, to demonstrate solutions for larger private sector engagement in e-waste management.

32. Kenya²⁹. The project will support the initiation of a pilot initiative in a selected county on implementation of integrated waste management approach to reduce releases of POPs from e-waste. The component will address source reduction/reuse, collection, transportation, and disposal/recycling of solid waste and e-waste. It will include: an assessment of current management plans and an analysis of available information on e-waste; identification of priorities and appropriate solutions; implementation of investments, focusing on addressing the gaps in the collection and disposal system; piloting an investment in improving the entire e-waste management

²⁶ This will be linked with the Ghana Landscape Restoration and Small-Scale Mining Project or GLRSSMP (P171933), which seeks to strengthen integrated landscape management, formalization of artisanal and small-scale mining, and increase benefits to communities in the targeted degraded savannah and cocoa forest areas.

²⁷ This will be linked with the Resilient Natural Resources Management for Tourism and Growth Project (P150523), which seeks to improve management of natural resources in Southern Tanzania and to increase access to alternative livelihood activities for targeted communities.

²⁸ This will directly support the Government's vision for e-waste management (as recently detailed for instance in EPA's 2018 National Integrated e-waste Management Scheme) with two interventions at different steps of the e-waste management cycle, working, upstream, on formalizing collection, and downstream, on managing safe disposal. Design and implementation of the disposal investment will be coordinated with the Greater Accra Resilient and Integrated Development Project (GARID, P164330), which plans the construction of an engineered landfill and supporting infrastructure (e.g., transfer stations) within the Greater Accra Region.

²⁹ 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.



cycle from generation to treatment (recycling) facility.

- 33. Senegal³⁰. The project will set up a system aiming at reducing environmental health risks from the release of uPOPs and other toxic chemicals in Hann Belk Air and Dalifort municipalities in Dakar. Specifically, it will support efforts to limit unregulated open burning of wastes by removing uncontrolled dump sites through separation, segregation, recycling, stocking, collecting and transporting municipal and hazardous wastes. In this regard, the component will support the engagement with private enterprises and identification of relevant partners. Furthermore, it will implement a comprehensive urban solid waste management system and will take measures to secure and develop public spaces (e.g. gardens, lakes, retention ponds), so as to prevent the proliferation of waste dumps and open burning.
- 34. Zambia³¹. The project will support the improvement of an operating landfill to include a recycling facility. This will help ensure segregation between hazardous and non-hazardous wastes. This will include support for exploring sustainable ways to reduce the impact of chemical pollution emitted from unregulated landfills; training rag-pickers and providing them with occupational health and safety equipment; and facilitating direct investment into an e-waste recycling facility, which will serve as a center of excellence in the Kabwe or Lusaka areas.

Component 4: Project Coordination and Management

- 35. This component will provide support for project coordination and management; monitoring and evaluation at the national, and local levels. It will strengthen existing PCUs with additional staff to cover activities specific to this project and assist in preparing, implementing and monitoring approved activities in the participating countries. It will support the consolidation of country-level project information, including indicator baseline, reference sources and measurement to aggregate the results and development outcomes at EHPM program level. 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 that will feed into the regional knowledge exchange platform. The cost will cover the expenses related to project management, implementation and supervision of project activities, administration of procurement and financial management, implementation & supervision of environmental and social safeguards and monitoring and evaluation.

36. Summary of GEF Financing by Country

Component	Tanzania	Ghana	Zambia	Kenya	Senegal
<i>Component 1: Institutional strengthening, knowledge and capacity building</i>	1,500,000	1,900,000	1,800,000	1,900,000	1,504,587
<i>Component 2: Policy dialogue and regulatory enhancements</i>	1,500,000	1,900,000	1,800,000	1,800,000	1,000,000
<i>Component 3: Demonstrating the application of technological tools and economic approaches</i>	3,989,952	4,500,568	4,263,696	3,988,948	2,737,877
<i>Component 4: Project coordination and management</i>	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

³⁰ The demonstration investments will be linked with the Senegal Municipal Solid Waste Management Project (PROMOGED – P161477).

³¹ The demonstration investments will be linked with the ZMERIP (P154683).



C. Project Beneficiaries

37. The project is expected to provide substantial benefits locally (e.g. improved health and better work conditions to local communities), nationally (e.g. revenues from ASGM formalization and waste recycling) and regionally (e.g. improved health across countries, due to less transboundary emissions of chemicals). The project's primary audience includes the Governments of Ghana, Kenya, Senegal, Tanzania and Zambia - in particular the Ministries of Environment, Industries, Mines, Chemicals, ICT and Health, 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, Non-Government Organizations (NGOs), including local organizations and communities affected by harmful chemicals and wastes. They will be actively involved in the design and implementation of country projects.
38. Within the secondary audience, direct beneficiaries include: communities who are partially or entirely dependent on the ASGM sector and/or e-waste recycling operations for their livelihoods in **Ghana** (estimated to be 1.2 million people³²); local communities, community-based organizations, and local government institutions in **Kenya**; local communities, civil society and NGOs in **Senegal**; 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 of **Tanzania**; community-based organizations, private sector, NGOs, and local communities invested in pollution management in **Zambia**. Attention will be given to ensure the participation of local communities, women and vulnerable people at project sites of all countries.
39. **Gender.** Women account for 40-50 percent of the total workforce in Africa.³³ Their role in ASM is significant, as they are involved in the application of labor-intensive mining methods, processing³⁴, and provision of goods and services (e.g. food, cleaning, transporting dirt) to miners. Despite that, they do not have access or control over assets (e.g. land, licenses, data). In addition, legal and cultural discriminations coupled with domestic and care responsibilities, and lack of education, relegate women to passive participation, with no influence on key decision-making. Persistent gender inequalities and cultural norms prevent women from accessing finance, which prevents them from investing in mining equipment and technology required for businesses.
40. Similar inequalities exist also in the waste sector. While waste-pickers are generally considered a vulnerable sub-population, female waste-pickers are highly vulnerable. They lack formal education, marketable skills, access to information (e.g. safety measures, knowledge regarding technology), and have greater time restrictions due to household and childcare compared to male waste-pickers. As a result, female waste-pickers tend to get less pay compared to males, rarely wear safety gear, and are likely to be disproportionately exposed to hazardous working conditions and waste. E-waste specifically affects women's morbidity, mortality, and fertility, as well as the health of children.
41. This project will provide opportunities for women to increase benefits and minimize health risks from participating in the above sectors. It will undertake gender analysis as part of the socio-economic assessment; 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

³² In addition, poor households and informal settlement families in Accra city, Agbobloshie, and along the Odaw River will indirectly benefit from the project.

³³IGF, Intergovernmental Forum on Mining, Minerals, Metals, and Sustainable Development (2017). Global Trends in Artisanal and Small-Scale Mining (ASM): A review of key number and issues. Winnipeg: IISD. (<https://www.iisd.org/sites/default/files/publications/igf-asm-global-trends.pdf>)

³⁴As processing activities are often conducted in the home, women and their families can be at great risk from mercury poisoning and silicosis.

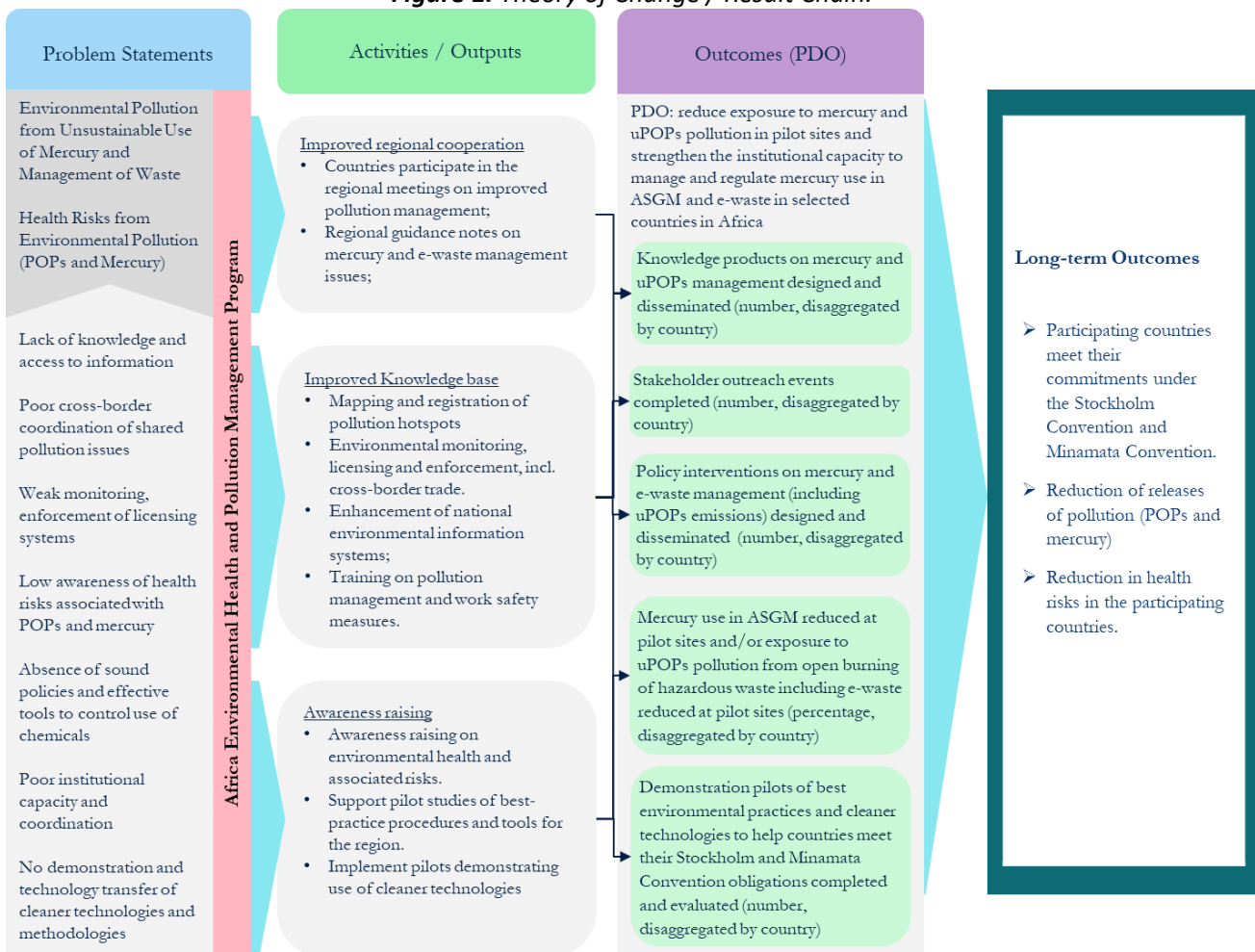


of the policy dialogue to build women’s capacity to actively participate and have a voice in key decision-making, while providing dialogue platforms that are inclusive and action oriented. Under components 1 and 3, the project will make sure women have greater access to information (e.g. on safety measures, adoption to cleaner technology, availability of training and other public programs) and opportunities for decent work terms and conditions.

D. Results Chain

42. The EHPMP will leverage targeted investments to reduce mercury emissions and uPOPs releases from gold amalgamation, open burning of solid and electronic waste and other unsound recycling techniques, to demonstrate reduced environmental health risks. This will include institutional strengthening, capacity building, knowledge sharing, policy and regulatory enhancements, as well as piloting technological and economic approaches to reduce environmental health risks. It is based on a theory of change that sees both community involvement through benefit sharing and strengthening of compliance and enforcement efforts as essential in addressing environmental health risks. The project will build on existing initiatives and platforms, including collaboration with the countries with best practice experience in ASGM and e-waste sectors.

Figure 1. Theory of Change / Result Chain.





E. Rationale for Bank Involvement and Role of Partners

43. The comparative advantage of the World Bank lies in its ability to leverage resources, convene stakeholders, and lead a dialogue at the national and regional levels. The Bank brings its unique convening power to help elevate policy dialogue to a high-level common platform, which will enable participating countries to meet obligations under international conventions and promote increased investment from the private sector. This will allow GEF interventions to be sustained after the end of the project, building on the co-financing leveraged from the World Bank through the International Development Association funding (P150523, P154683, P156777, P161477 and P171933). Activities with high environmental health consequences, such as artisanal gold mining, e-waste recycling, and scavenging in urban dumpsites reflect poverty and vulnerability. This is usually a livelihood option for poor and marginalized people often unaware of long-term impacts to their health and the surrounding environment. These are complex socio-economic and environmental challenges, requiring a sustained and integrated approach through strengthening of institutions, capacity building and awareness raising, policy and regulatory enhancement, and targeted investments in cleaner technologies.

Incremental cost reasoning and associated co-financing

44. The project will provide incremental funding across the suite of project interventions financed by IDA in environment, urban, and mining sectors 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 sharing, policy dialogue, and regulatory enhancement to generate greater awareness of the impacts, including the health impacts related to the release of uPOPs and mercury. The parallel financing from the World Bank through IDA³⁵ (provided through separate Bank operations connected with proposed pilots funded in Component 3 in each participating country) and the in-kind contributions from participating countries will focus on investment to demonstrate application of technological tools and economic approaches for reduced environmental health risks associated with these harmful chemicals and wastes.
45. The project will strengthen communication at the national level to promote the integration of sound chemical and waste management into national budgets and sector level plans. Efforts will target policy makers in 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 also other sector ministries 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 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 end of the project.

Global environmental benefits

46. **The project is one of the first integrated attempts to assist African countries** develop strategies and plans to ensure long term sustainability of actions and significantly reducing the risks of exposure to harmful chemicals

³⁵ There is no IDA contribution in the Environmental Health and Pollution Management Program as funds are provided fully by GEF grants.



and hazardous wastes. 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.

47. The project directly contributes to GEF Corporate Result #5 *Increase in phase-out, disposal and reduction of releases of POPs, Ozone Depleting Substances, mercury and other chemicals of global concern*. An economic analysis of project activities showed positive results (Section IV A).

F. Lessons Learned and Reflected in the Project Design

48. EHPMP draws lessons from the Sustainable Artisanal Mining project implemented by the Swiss Agency for Development and Cooperation (SDC) on existing ASM knowledge sharing initiatives. This project concluded that a combination of information and knowledge sharing approaches was key to success. The design of the EHPMP also draws lessons from the Community Artisanal and Small-Scale Mining (CASM) initiative (P102999), specifically to inform the global ASM support. These include *inter alia*: 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.
49. This project also draws lessons from several other projects, including a project in Tanzania implemented under GEF/UNEP/UNIDO Global Mercury Project between 2003 and 2006. 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. This project will build on the success of the previous project and broaden the scope to cover regions with a high concentration of ASGM activities.
50. EHPMP draws lessons from UNEP's Integrated Health and Environment Observatories and Legal and Institutional Strengthening for the Sound Management of Chemicals in Africa (African ChemObs) program (2015). As part of an effort to gain further insight into e-waste specific issues, it included the following key lessons: i) a need to address lack of existing data on e-waste; ii) a need for comprehensive national inventories; iii) a need for increased capacity and financial resources to enforce e-waste specific legislation for Customs and trans-boundary issues; iv) the importance of involving the private sector; and v) enhancing the role of civil society where needed.
51. In Zambia, previous projects demonstrated that high capital investment in the solid waste management sector does not necessarily lead to improvements in the quality of waste management services. Substantial improvements can be achieved in many cases by making low-cost modifications in the existing system, focusing on increasing system efficiencies. Examples are education and communication leading to reduction of waste. The project will build on 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".



III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

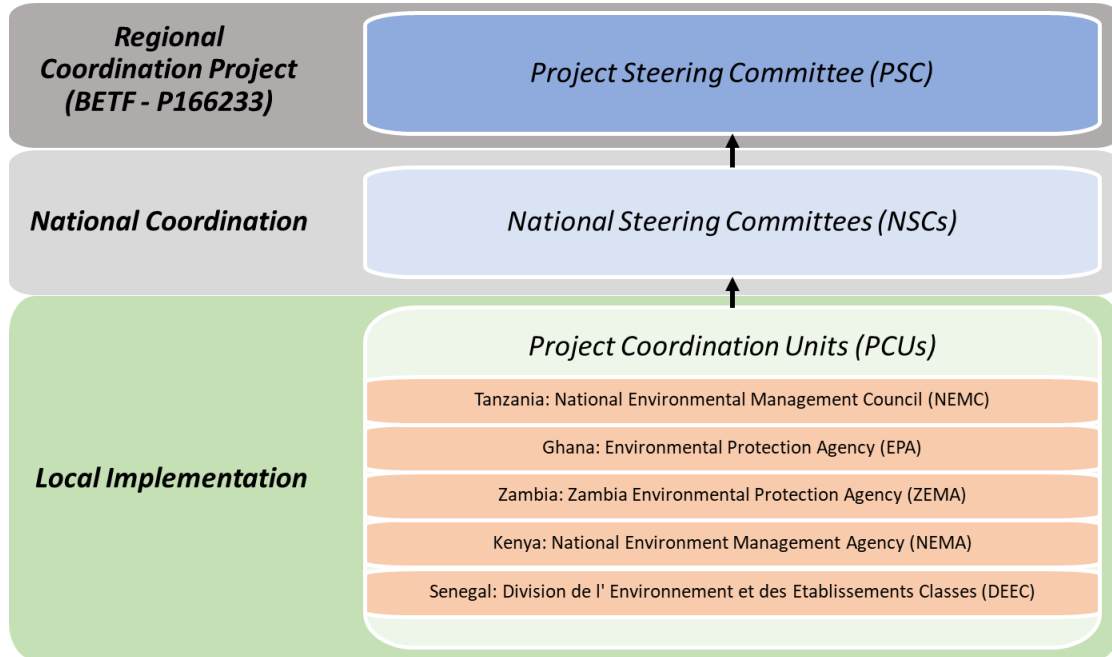
52. The institutional and implementation arrangements are represented in Figure 2. At the regional level, a **Project Steering Committee (PSC)** will be established as an advisory mechanism within six months after project effectiveness to maximize synergies and support the successful design and implementation of the overall project. The PSC will serve as a forum for guidance and monitoring on project implementation and provide a high-level coordination on technical alignment and synergy among the project components and participating countries. The PSC will provide overall strategic guidance, support policy dialogue with countries for regional integration, coordinate cross-boundary interventions, facilitate resource mobilization, and assess the results and impacts of the project. The PSC will be chaired by the WBG and consist of other GEF Implementing Agencies (UNDP, UNEP, UNIDO, AfDB), GEF secretariat, OECD, and key partners who are leaders in the field (i.e. UNITAR, IGF, USEPA), representatives of civil society and participating countries.
53. The project is supported by a regional platform for knowledge sharing and technology dissemination efforts (BETF - P166233). The regional knowledge platform will establish a coordination framework for the EHPMP with the participating countries, the regional partners, and other stakeholders to promote communication among project stakeholders through consultations at the national and regional levels. The purpose of the platform is to enable the coordination among stakeholders, monitor outcomes of national projects, support preparation of projects, and capture lessons learned and best practices from national projects. EHPMP, as an umbrella project, ties in five country projects which tackle common chemicals management issues and share concerns of lack of effective solutions.
54. In addition, each participating country will have a **National Steering Committee (NSC)**, and a **Project Coordination Unit (PCU)**³⁶ within three months after project effectiveness. The NSC will include the key stakeholders at the national level. NSC functions are to: i) provide guidance on national policy matters and strategic decisions; (ii) approve annual work plans and quarterly progress reports; and (iii) coordinate with the PSC and regional knowledge platform to facilitate knowledge sharing. The EHPMP will be implemented by the national PCU in each country, embedded within the National Focal Point Ministries. The PCU in each participating country supports the implementation at the national level and coordination with the EHPMP and other regional entities. Each PCU will prepare annual work plans and budgets (AWPBs), manage procurement, and provide support to counterpart institutions in the implementation of activities. Each PCU comprises the following necessary staff: (a) Project Coordinator; (b) Communication Specialist; (c) M&E and Reporting Specialist; (d) Environmental and Social Safeguards Specialist; (e) Procurement Specialist; and (f) FM Specialist.

³⁶ In Tanzania, the Project Coordination Unit (PCU) is referred to as the Project Implementation Team (PIT).



55. Further details on Implementation arrangements can be seen in Annex 1.

Figure 2. Implementation Arrangements.



B. Results Monitoring and Evaluation Arrangements

56. The project’s M&E is designed for accountability, communication, learning, and project management support. M&E activities will (a) generate information on progress of the project; (b) analyze and aggregate data generated at regional, country, and local levels; and (c) document and disseminate key lessons to users and stakeholders across the participating countries.

57. M&E will be undertaken at two levels: (a) at the regional level, and (b) by the five participating countries through the respective PCUs and NSCs. The regional knowledge platform will have the overall coordinating role of the M&E function of the EHPMP and will ensure the data and information from the individual countries is collected and collated for reporting purposes. The regional knowledge platform will design and implement data collection efforts, providing coordination based on the M&E manual describing the requirement for all countries.

C. Sustainability

58. Building sound policies, strong legislations, and strengthening the institutional capacity will generate the enabling environment for long term sustainability of improved pollution management. The project will strengthen enforcement of existing national regulations and seek to promote legislation at the regional level. EHPMP will work with communities to address pollution at the local level that will generate regional environmental benefits. EHPMP will catalyze innovations that can be deployed at speed and scaled up across all African countries. A focus on demonstrating institutional models and establishing technologically and economically sustainable solutions



will facilitate smarter investment going forward. The demonstration pilots will focus on investment with a view to lay ground to support more interventions with specific stakeholders. The policy and institutional models will help crowd-in investment going forward and ensure that future interventions can be more effective and results-oriented.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

59. **Technical analysis.** Adopting alternative technologies for solid waste management can help alleviate emissions of uPOPs and greenhouse gases (GHGs), leading to environmental and public health benefits. This project will contribute to climate change mitigation via better solid waste management. In several countries (Kenya, Senegal, and Zambia), project interventions under Component 3 seek to improve solid waste management approaches, most notably by limiting open burning and open dumping and supporting better collection and transport, sorting and recycling, as well as composting and landfilling of solid waste. This will often be the case in conjunction with larger solid waste management operations, which count as co-financing to the present project. All these interventions can result into GHG reductions (methane and carbon dioxide, primarily), depending on baseline conditions and successful implementation. The climate impact of Component 3 interventions will be assessed ex-post and reported at project completion. Pollution management can also make substantial contributions to climate change mitigation through actions, such as reduction of black carbon emissions, which contribute to both air pollution and global warming. The project will promote the adoption of such technologies for the management of different categories of wastes (e.g. municipal, hazardous, and medical wastes). These will help: (a) reduce open burning of wastes and prevent POPs releases in line with the Article 5 of Stockholm Convention and related Best Available Techniques (BAT)/Best Environmental Practice (BEP) guidance; (b) improve recycling systems, thus providing economic opportunities with enhanced local ownership, responsibilities, and participation; and (c) reduce health costs associated with poor waste management practices.
60. In addition, EHPMP will promote transparency along the ASGM value chain, thus opening greater opportunities for miners to negotiate better gold prices. Moreover, cleaner (mercury-free) technologies and safer alternatives will help reduce mercury emissions and toxic fumes, translating into beneficial health impacts. Financial benefits can also arise from better management of input, including mercury recycling. Mandating and supporting ASGM miners to rehabilitate closed mines will allow revegetation of large tracts of land, support of reforestation efforts, and, in some cases, return of land for productive agricultural or pastoral use. The project will promote dialogue for improved management of mercury use, consistent with national action plans and relevant legislations. Longer term interventions will focus on promoting sustainability, community benefits, and effective environmental governance by communities.
61. **Economic Analysis.** Exposure to mercury and uPOPs is one of the leading causes of health problems in Sub-Saharan Africa. Through its interventions in capacity building, policy dialogue, and adoption of cleaner technologies, the project is expected to reduce the environmental health risks from exposure to mercury and uPOPs. The economic analysis is based on both cost-benefit analysis (CBA) and cost-effectiveness analysis (CEA).
62. The CBA was applied to estimate the social profitability of interventions in mercury pollution reduction in Tanzania and Ghana. In Tanzania, these interventions are expected provide benefits in terms of reduced morbidity among miners due to less exposure to mercury – leading to an Economic Rate of Return (ERR) between 7 percent and 48



percent. In Ghana, the project is expected to provide income gains due to reduction in IQ losses in populations exposed to methylmercury – generating an ERR between 13 percent and 20 percent. Thus, the proposed interventions in pollution reduction from mercury are considered socially profitable.

63. The CEA was applied to determine the cost-effectiveness of the project interventions in reducing uPOPs in Ghana, Kenya, Senegal and Zambia. These interventions – e.g. improving the collection, transportation, and disposal of waste – are expected to result in reduced emissions of dioxins, furans and other uPOPs, with beneficial effects on human health. These interventions are cost-effective, generating a reduction of 0.3 g toxic equivalent (TEQ) to 3.6 gTEQ of uPOPs per US\$1 million investment cost (see Annex 6 for details).

B. Fiduciary

(i) Financial Management

64. 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. 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.
65. 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; (ii) the 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 (iii) Implementing entities develop a Project Implementation Manual (PIM), including financial procedures.
66. The financial management arrangements in place should be adequate to meet the World Bank's minimum requirements under Bank Policy and Bank Directive: Investment Project Financing, 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

67. Procurement under the proposed project will be carried out in accordance with the World Bank's *“Procurement Regulations for Investment Project Financing for IPF Borrowers”* –dated July 2016, revised November, 2017 and August 2018 and the *“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, revised in January 2011 and July 1, 2016; and the provisions stipulated in the specific legal agreements.
68. The procurement procedure to be followed for Open National Bidding (“ONB”) will be the open bidding procedure set forth in the respective Public Procurement Acts and the Public Procurement Regulations provided, however, that such procedure will be subject to the provisions of Section V Paragraphs 5.3 to 5.6 of the Banks Procurement Regulations for IPF Borrowers dated July 2016, revised in November, 2017 and August 2018.
69. Procurement capacity assessments of the implementing agencies for the project in each country have been carried out as part of project preparation. This includes the preparation or updates of Project Procurement Strategy for



development (PPSD), the Procurement Risk Assessment and Managements (PRAMS) and the preparation of the procurement plans for the first 18 months. Prior to Negotiations, Textual word Versions of the Procurement plan were uploaded online in the World Bank’s “System for Tracking Exchanges in Procurement STEP” where all prior review procurement will be processed. Post Review contracts will also be uploaded for record keeping and data completeness purposes for all procurement undertaken on Procurement post review basis. The assessments have been based on the 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.

Procurement methods to be used for the Project

- 70. Methods of procurement of goods, non-consultant services, and works will be as follows:
 - a. Open International Bidding. Except as otherwise provided, goods and works will be procured under contracts awarded based on Open International Bidding (OIB).
 - b. Other methods of procurement of goods, non-consultant services and works. The list of specific methods and procurement approaches that will apply are as provided in the procurement plans for each project. The methods of procurement, other than International Competitive Bidding which may be used for goods, non-consultant services and works will be drawn from the Procurement Regulations. The Procurement Plan specifies the circumstances under which such methods may be used, including methods such as: (i) Open National Bidding; (ii) Procurement from UN agencies; (iii) Force Account; (iv) Shopping (v) Direct Contracting; and (vi) Community Participation in Procurement.

- 71. Methods of procurement for consulting services are:
 - a. Quality and Cost-Based Selection (QCBS) will apply for large value, complex assignments and those that are likely to be procurement through open international market approach.
 - 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 will 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).

C. Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

D. Environmental and Social

The key potential environmental issues associated with Component 3 activities, which can be in most cases readily avoided or 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. The project sites will be located in the areas that will not require physical or economic



displacement or land acquisition due to the nature of proposed project activities.

The Bank's review considered the implementing agencies' capacity to manage its environmental, social, safety and health performance in compliance with ESS1 and other relevant standards. The institutional capacity for managing social risks in the five countries is variable and there is currently limited experience in implementing social elements of the new Environmental and Social Framework. However, the national environmental authorities all have previous experience in implementing World Bank Projects (including supporting the existing bank operations the pilot projects will be linked to).

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 ESIA's 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 the 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 ? Resilient Natural Resource Management for Tourism and Growth Project (P150523)
- 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 and prepare a relevant instrument (ESIA/ESMP/SA), which will be approved by the Bank and publicly redisclosed to reflect the requirements of relevant ESSs.

72. The project Stakeholder Engagement Plan (SEP) as well as the Environmental and Social Commitment Plan (ESCP) for the project, which sets out agreed measures and actions required to meet relevant Environmental and Social Standards (ESSs) over a specified timeframe of the project, were disclosed on Bank website on February 6, 2020. The Borrower has prepared a project-wide Environmental and Social Management Framework (ESMF), which covers activities in all five countries and provides a screening mechanism to eliminate demonstration pilots with high or substantial E&S risks. The ESMF includes guidance for preparation of site-specific Environmental and Social Impact Assessments (ESIA) and associated management plans based on the Environmental and Social Standards requirements and the WBG Environmental Health and Safety Guidelines. The ESMF also includes country-level Grievance Mechanisms with guidance on collecting and managing grievances from the project-affected people. The ESMF was consulted upon in each country, reviewed and approved by the Bank and disclosed in the Bank on March 24, 2020 and in-country (along with SEP and ESCP) as follows: Ghana on March 03,2020, Kenya on February 06,2020, Senegal on March 05, 2020, Tanzania on March 16, 2020, and Zambia on March 11, 2020.



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

73. **The overall risk of the project is “Substantial”.** The risk ratings for the project have been identified using the Systematic Operations Risk-Rating Tool (SORT). The overall risk is assessed as Substantial because of multiple key risk categories. These risks and the proposed mitigation measures are elaborated as follows:
74. **Technical design - Substantial.** The technical design is complicated by the number of countries and their specific needs in environmental health and pollution management. The demonstration pilots will be designed to meet those country specific needs and challenges. The risks will be mitigated by (i) rigorous due diligence on the technical design of the pilot demonstrations; (ii) continued engagement with relevant stakeholders on the design and implementation; (iii) capacity building support to the key stakeholders.
75. **Environmental and social risk - Substantial:** The environmental risk is Substantial based on sector-level risks associated with the management of hazardous e-waste and the use of mercury in artisanal gold mining. However, the project activities include pilot demonstrations to phaseout these management practices. The selected pilot activities will be designed to demonstrate new technologies to phase-out mercury use in ASGM and reduce uPOPs emissions associated with waste management. To manage the potential risks and impacts associated with these demonstration activities, the project prepared Environmental and Social Management Framework (ESMF) providing a screening mechanism to eliminate demonstration pilots with high or substantial environmental and social risks and impacts. The ESMF includes guidance for preparation of site-specific Environmental and Social Impact Assessments (ESIA) and associated management plans. The ESMF also includes country-level Grievance Mechanisms with guidance on collecting and managing grievances from the project-affected people.
76. **Political and Governance risks – Substantial.** The informal status of ASGM and e-waste recycling opens the sectors vulnerable to corruption and abuse of vulnerable groups and communities without legal protections. Informality also makes it hard to invest in technological and social solutions to minimize these risks. The risks will be monitored and managed by the promotion of transparency and access to information on activities included in the project. The project is linked with the GLRSSMP Project (P171933), which seeks to address the challenges associated with illegal mining by supporting ASM formalization, strengthening the governments' capacity to monitor ASM operations, and support environmentally and socially sustainable ASM practices. Shared activities between the two projects include improving the enabling environment for legalization and formalization of ASM.



77. **Institutional capacity for implementation and sustainability risk - Substantial.** Capacity constraints in the public sector presents a risk that could impede the implementation of reform measures supported by the Program. Institutional Capacity for Implementation and Sustainability risk will be mitigated through capacity building, community engagement and awareness raising activities and policy and regulatory reforms 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. Capacity constraints impose the risk that actions supported by EHPMP may not be implemented as successfully as expected or in the timeframe agreed due to staff changes or unavailability. However, the program will support the Governments' efforts to address institutional capacity risks on environmental health management through Component 1. The risk for overlapping responsibility will be mitigated through the appointment of focal points from each country and respective institution.
78. **Sector Strategies and Policies risk – Substantial.** The informal nature of both artisanal small-scale mining and e-waste recycling makes it challenging to organize and educate the people and communities involved on the health risks of mercury and uPOPs emissions. The risks will be mitigated via the coordination on the implementation plans within and among participating countries. Under component 2 all countries will work on their respective strategies. Under the regional knowledge exchange and institutional partnerships platform, countries will be able to strengthen regional partnerships for policy dialogue and improve policy and regulatory frameworks on mercury use and e-waste management.
79. **Stakeholders - Substantial.** Considering the large number of stakeholders in both mining and e-waste management and the current lack of formalization of the sectors, the lack of effective coordination can be a significant risk to project implementation. Continuous citizen engagement and public consultation will be carried out during project implementation. Coordination with development partners engaged in the sector will also help mitigate stakeholder risks.



VII. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: Africa

Africa Environmental Health and Pollution Management Program

Project Development Objectives(s)

To reduce exposure to mercury and uPOPs pollution at 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 Development Objective Indicators

Indicator Name	PBC	Baseline	End Target
Institutional strengthening, knowledge and capacity building			
Knowledge products on mercury and uPOPs management designed and disseminated (Number)		0.00	10.00
Tanzania (Number)		0.00	2.00
Ghana (Number)		0.00	2.00
Zambia (Number)		0.00	2.00
Kenya (Number)		0.00	2.00
Senegal (Number)		0.00	2.00
Stakeholder outreach events completed (Number)		0.00	40.00
Tanzania (Number)		0.00	8.00
Ghana (Number)		0.00	8.00



Indicator Name	PBC	Baseline	End Target
Zambia (Number)		0.00	8.00
Kenya (Number)		0.00	8.00
Senegal (Number)		0.00	8.00
Policy interventions on mercury and e-waste management (including uPOPs emissions) designed and consulted (Number)		0.00	10.00
Tanzania (Number)		0.00	2.00
Ghana (Number)		0.00	2.00
Zambia (Number)		0.00	2.00
Kenya (Number)		0.00	2.00
Senegal (Number)		0.00	2.00
Demonstration pilots, awareness raising on cleaner technologies for management of mercury and waste			
Piloting of best environmental practices and cleaner technologies to help countries meet their Stockholm and Minamata Convention obligations completed and evaluated (Number)		0.00	8.00
Tanzania (Number)		0.00	2.00
Ghana (Number)		0.00	2.00
Zambia (Number)		0.00	1.00
Kenya (Number)		0.00	1.00
Senegal (Number)		0.00	2.00
Mercury use in ASGM reduced at pilot sites (Percentage)		0.00	20.00
Tanzania (Percentage)		0.00	20.00



Indicator Name	PBC	Baseline	End Target
Ghana (Percentage)		0.00	20.00
Exposure to uPOPs pollution from open burning of hazardous waste including e-waste reduced at pilot sites (Percentage)		0.00	20.00
Ghana (Percentage)		0.00	20.00
Zambia (Percentage)		0.00	20.00
Kenya (Percentage)		0.00	20.00
Senegal (Percentage)		0.00	20.00

Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	End Target
Institutional strengthening, knowledge and capacity building			
E-waste management and mercury use benchmarked in participating countries (volume/Mt) through the regional platform (Yes/No)		No	Yes
Tanzania (Yes/No)		No	Yes
Ghana (Yes/No)		No	Yes
Zambia (Yes/No)		No	Yes
Kenya (Yes/No)		No	Yes
Senegal (Yes/No)		No	Yes
Trained inspection officers (Number)		0.00	110.00
Tanzania (Number)		0.00	20.00



Indicator Name	PBC	Baseline	End Target
Ghana (Number)		0.00	30.00
Zambia (Number)		0.00	20.00
Kenya (Number)		0.00	20.00
Senegal (Number)		0.00	20.00
Tanzania: % female participants (Percentage)		0.00	30.00
Ghana: % female participants (Percentage)		0.00	30.00
Zambia: % female participants (Percentage)		0.00	30.00
Kenya: % female participants (Percentage)		0.00	30.00
Senegal: % female participants (Percentage)		0.00	30.00
Communities involved in planning, implementation and evaluation of demonstration pilots (Number)		0.00	10.00
Tanzania (Number)		0.00	2.00
Ghana (Number)		0.00	2.00
Zambia (Number)		0.00	2.00
Kenya (Number)		0.00	2.00
Senegal (Number)		0.00	2.00
Policy Dialogue and Regulatory Enhancements			
Guidelines and checklists for stakeholders and workers developed (Yes/No)		No	Yes
Tanzania (Yes/No)		No	Yes
Ghana (Yes/No)		No	Yes
Zambia (Yes/No)		No	Yes
Kenya (Yes/No)		No	Yes
Senegal (Yes/No)		No	Yes



Indicator Name	PBC	Baseline	End Target
Stakeholder communication strategy developed (Yes/No)		No	Yes
Tanzania (Yes/No)		No	Yes
Ghana (Yes/No)		No	Yes
Zambia (Yes/No)		No	Yes
Kenya (Yes/No)		No	Yes
Senegal (Yes/No)		No	Yes
Demonstration pilots, awareness raising on cleaner technologies for management of mercury and waste			
Training events for relevant stakeholders conducted (Number)		0.00	10.00
Tanzania (Number)		0.00	2.00
Ghana (Number)		0.00	2.00
Zambia (Number)		0.00	2.00
Kenya (Number)		0.00	2.00
Senegal (Number)		0.00	2.00
Private sector in selected pilot project sites engaged (Yes/No)		No	Yes
Tanzania (Yes/No)		No	Yes
Ghana (Yes/No)		No	Yes
Zambia (Yes/No)		No	Yes
Kenya (Yes/No)		No	Yes
Senegal (Yes/No)		No	Yes



Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Knowledge products on mercury and uPOPs management designed and disseminated	The indicator is an indirect measurement of the strengthened capacity through improved knowledge resources and collaboration for environmental risk management related to e-waste and mercury. The knowledge products developed and consulted shall be reported and submitted to the relevant ministries.	Annually	Knowledge products	Technical review of key documents	Steering Committee
Tanzania					NEMC
Ghana					EPA
Zambia					ZEMA
Kenya					NEMA
Senegal					DEEC
Stakeholder outreach events completed	The indicator covers the required stakeholder outreach events, promoting the project objectives,	Annually	Participation records	Review of participation records in outreach events	Steering Committee



	activities and results, at the regional, national and local level. It measures the number of outreach events conducted within the framework of the projects.				
Tanzania					NEMC
Ghana					EPA
Zambia					ZEMA
Kenya					NEMA
Senegal					DEEC
Policy interventions on mercury and e-waste management (including uPOPs emissions) designed and consulted	The indicator is an indirect measurement of the strengthened capacity through improved policy instruments and legal framework for environmental risk management related to e-waste and mercury. The policies designed and consulted shall be reported and submitted to the relevant ministries.	Annually	Policy intervention documents	Policy and legal review of key documents	Steering Committe
Tanzania					NEMC



Ghana					EPA
Zambia					ZEMA
Kenya					NEMA
Senegal					DEEC
Piloting of best environmental practices and cleaner technologies to help countries meet their Stockholm and Minamata Convention obligations completed and evaluated	The indicator measures the number of demonstration pilots established, functioning and evaluated. The progress in preparation and implementation is provided through annual progress review reports. Following the completion of each pilot project implementation a 'Demonstration pilot evaluation report' shall be delivered. The final evaluation report shall be disseminated, by the participating countries as well as the regional platform, to concerned stakeholders and interested parties.	Upon completion of pilot projects (with annual progress reports reviews)	Pilot evaluation reports and field surveys	Field survey and implementation progress review	Steering Committee
Tanzania					NEMC



Ghana					EPA
Zambia					ZEMA
Kenya					NEMA, Ministry of Devolution and selected county governments
Senegal					DEEC
Mercury use in ASGM reduced at pilot sites	The indicator measures the reduction of mercury use in ASGM reduced at pilot sites and/or the exposure to uPOPs pollution from open burning of hazardous waste including e-waste reduced at pilot sites, as compared to a baseline conducted at the pilot sites. The progress shall be reported in the progress reports. Following the completion of each pilot project implementation a 'Demonstration pilot evaluation report' shall be delivered, incl. an assessment of the clean technology impact.	Annually	Pilot evaluation reports / progress review	Pilot project progress review	Steering Committee
Tanzania					NEMC



Ghana					EPA
Exposure to uPOPs pollution from open burning of hazardous waste including e-waste reduced at pilot sites	The indicator measures the reduction of the exposure to uPOPs pollution from open burning of hazardous waste including e-waste reduced at pilot sites, as compared to a baseline conducted at the pilot sites. The progress shall be reported in the progress reports. Following the completion of each pilot project implementation a 'Demonstration pilot evaluation report' shall be delivered, incl. an assessment of the clean technology impact.	Annually	Pilot evaluation reports / progress review	Pilot progress review	Steering Committe
Ghana					EPA
Zambia					ZEMA
Kenya					NEMA
Senegal					DEEC



Monitoring & Evaluation Plan: Intermediate Results Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
E-waste management and mercury use benchmarked in participating countries (volume/Mt) through the regional platform	The indicator measures the progress in developing environmental monitoring protocols. The indicator shall be assessed upon delivery or annually through the progress reports.	Annual	Benchmarking report	Review of benchmarking report and development progress review	Steering Committee
Tanzania					NEMC
Ghana					EPA
Zambia					ZEMA
Kenya					NEMA
Senegal					DEEC
Trained inspection officers	The indicator measures number of participants in project learning events for improved management of e-waste and/or mercury, incl. events arranged by the regional knowledge platform. The indicator is measured by the participation of the inspection officers as	Annually	Training records and capacity review	Review of participation records in training events	Steering Committee



	reported in the progress reports. The participants are disaggregated by gender.				
Tanzania					NEMC
Ghana					EPA
Zambia					ZEMA
Kenya					NEMA
Senegal					DEEC
Tanzania: % female participants					NEMC
Ghana: % female participants					EPA
Zambia: % female participants					ZEMA
Kenya: % female participants					NEMA
Senegal: % female participants					DEEC
Communities involved in planning, implementation and evaluation of demonstration pilots	The indicator ensures the participation and inclusion of communities affected by the project. The communities shall be involved in the project development throughout the planning,	Annually	Participation records	Review of participation records in planning and perception survey	Steering Committee



	implementation and evaluation of the demonstration pilots. The indicator is measured by the participation of the citizens and/or communities as reported in the progress reports.				
Tanzania					NEMC
Ghana					EPA
Zambia					ZEMA
Kenya					NEMA
Senegal					DEEC
Guidelines and checklists for stakeholders and workers developed	The indicator measures the progress in developing guidelines and checklists for project stakeholders and workers. The indicator shall be assessed upon delivery or annually through the progress reports.	Annually	Delivered guidelines and checklists / progress review	Delivered guidelines and checklists / progress review	Steering Committee
Tanzania					NEMC
Ghana					EPA
Zambia					ZEMA



Kenya					NEMA
Senegal					DEEC
Stakeholder communication strategy developed	The indicator ensures the development of the stakeholder communication strategy. The indicator contributes to the required stakeholder outreach objectives, activities and results. The indicator is reported through the submission of the communication strategy and/or in the annual progress report.	Upon completion / annual implementation progress report	Delivered communication strategy / progress review	Delivered communication strategy / progress review	Steering Committee
Tanzania					NEMC
Ghana					EPA
Zambia					ZEMA
Kenya					NEMA
Senegal					DEEC
Training events for relevant stakeholders conducted	The indicator measures the number of training events conducted with the participation of stakeholders, government	Annual	Participation records in training events	Review of participation records in training events	Steering Committee



	officials and/or communities.				
Tanzania					NEMC
Ghana					EPA
Zambia					ZEMA
Kenya					NEMA
Senegal					DEEC
Private sector in selected pilot project sites engaged	The indicator ensures the engagement of the private sector in the pilot projects. The project shall promote the private sector participation in the project development throughout the planning, implementation and evaluation of the demonstration pilots. The indicator is measured by the active participation of the private sector as reported in the progress reports.	Annual	Participation records of planning, implementation and evaluation events	Pilot project progress review	Steering Committee
Tanzania					NEMC
Ghana					EPA



Zambia					ZEMA
Kenya					NEMA
Senegal					DEEC



ANNEX 1: IMPLEMENTATION ARRANGEMENTS AND SUPPORT PLAN

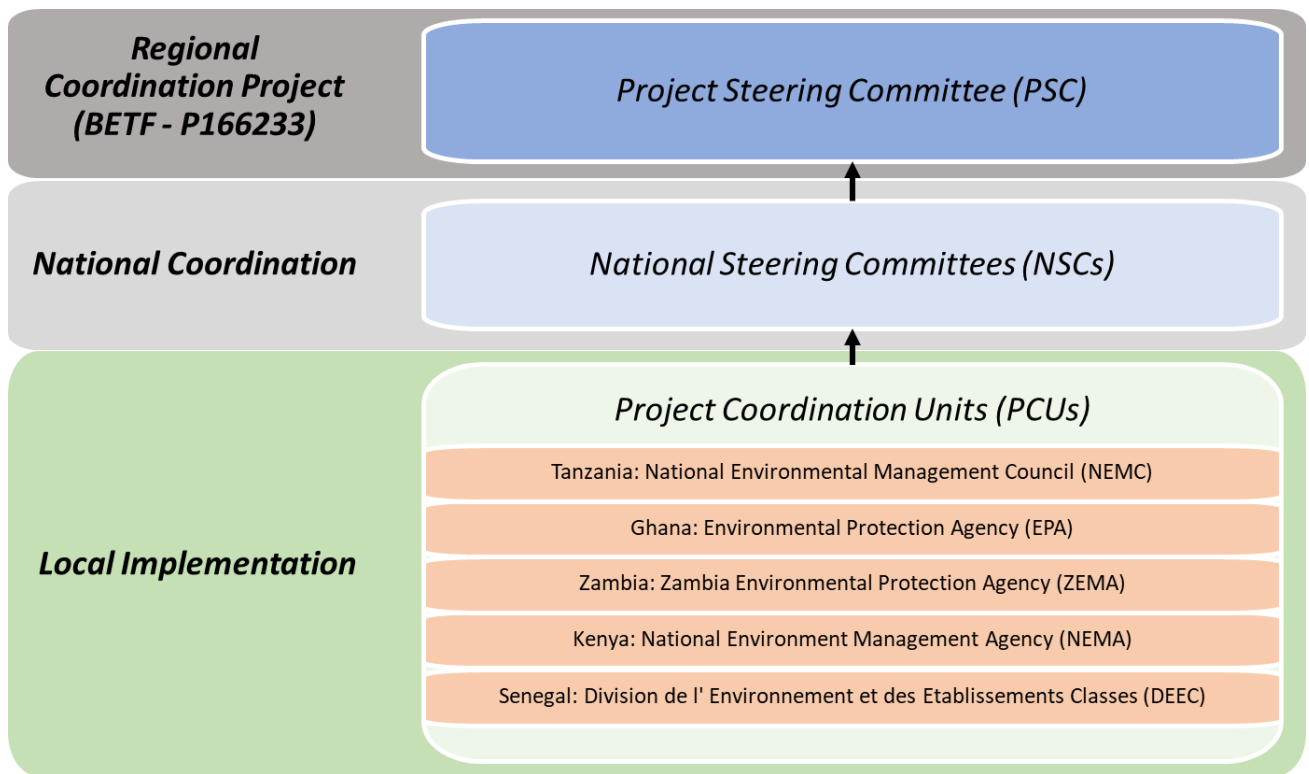
Regional Implementation Arrangement

1. A regional coordination project: Knowledge exchange and institutional partnerships to reduce environmental health risks from exposure to harmful chemicals and wastes (BETF - P166233 approved in 2019) will establish a regional platform and the coordination framework for the EHPMP among participating countries, regional partners, and other stakeholders to strengthen institutional partnership, knowledge exchange and improved coordination on environmental health risks related to harmful chemicals. The platform will enable coordination, monitor outcomes of national projects, capture lessons learned and best practices from national projects and sustain communication with and among Program stakeholders through consultations at the national and regional levels. The regional platform will provide overall guidance and oversight for individual national projects. The World Bank will be responsible for coordinating Program preparation and implementation progress and Program-level reporting, mid-term review, final EHPMP completion and the achievement of EHPMP-level impact on the global environment. The regional platform will specifically (i) coordinate the relationship between regional forums, national partners, and other stakeholders involved in project implementation; (ii) provide technical assistance to national projects; (iii) support the reform process on policy, regulatory, and institutional frameworks; (iv) facilitate cooperation between participating countries; (v) develop tools for knowledge exchange; (vi) disseminate project results; and (vii) provide fiduciary and M&E support.
2. **Program Steering Committee (PSC):** A Program Steering Committee (PSC) with representation from key partners and stakeholders will be established as an advisory mechanism to maximize project synergies and support implementation of the overall Program. The PSC will provide overall strategic guidance, support policy dialogue with countries for regional integration, coordinate cross-boundary interventions, facilitate resource mobilization, and assess the results and impacts of the project. The PSC will be chaired by the WBG and consist of other GEF Implementing Agencies (UNDP, UNEP, UNIDO, AfDB), GEF secretariat, OECD, and key partners who are leaders in the field (i.e. UNITAR, IGF, USEPA), representatives of relevant civil society and participating countries. PSC organizations can leverage their existing programs and specialist groups to integrate knowledge and coordinate activities as deemed appropriate. Additional PSC members can be considered periodically, based on new investment contributions and capabilities deployed to address significant aspects of chemical and waste management. Individual PSC members can provide input through various PSC mechanisms, including by: (i) participating in PSC meetings; (ii) volunteering for technical committees within specific program areas; (iii) reviewing program documents; and (iv) engaging in knowledge management or other related activities. The Terms of Reference will be finalized at the first PSC meeting where members can be briefed on the structure of the Program, on the national projects and on the coordinating grant. In addition, the PSC will agree on the various task forces for the program (technical, knowledge management, monitoring & evaluation and communication). The PSC will meet at least once a year to review and approve the draft annual work plans, assess project progress, approve regional and transboundary activities, and advise on potential emerging priority issues relevant to the project. The PSC will provide high-level coordination on technical alignment and synergy among the EHPMP components to allow cross-fertilization.
3. **National Implementation Arrangement.** All five countries will have a respective National Steering Committee (NSC), and Project Coordination Unit (PCU). The NSC will provide policy guidance and overall project oversight and supervision. The Technical taskforces within the NSC will provide technical guidance for this project. All implementers of activities are required to submit quarterly reports to the PCU in each country.



4. **National Steering Committee (NSC).** Each country will establish a national steering committee to provide guidance, oversight, and supervision. The NSC will include the key stakeholders at the National level. NSC functions are to: i) provide guidance on policy matters and strategic decisions; (ii) approve annual work plans and quarterly progress reports; and (iii) coordinate with the regional knowledge platform to facilitate knowledge sharing.
5. **Project Coordination.** At the national level the project will be implemented by a project coordination unit embedded in the respective National Focal Point Ministries. The national PCU will be responsible for: i) preparing annual work plans, ii) preparing Fiduciary and safeguard documents, iii) monitoring and reporting; iv) organizing National Steering Committee meetings, coordinating all regulatory and administrative approvals and clearances; and v) coordinating with the regional platform. The PCU comprises the following necessary staff: a) Project Coordinator; c) Communication Specialist; d) M&E and Reporting Specialist; e) Environmental and Social Safeguards Specialist; f) Procurement Specialist; and g) FM Specialist.

Figure A1. Program implementation arrangements³⁷.



Financial Management and Disbursement Arrangements

6. The Financial Management (FM) assessments have been carried out in the respective countries in accordance with the financial management manual for World Bank-financed investment operations. The objective of the assessment was to determine whether the respective implementing entities have acceptable financial management arrangements in place that satisfy the Bank Policy and Bank Directive: Investment Project Financing.

³⁷ In Tanzania, the Project Coordination Unit (PCU) is referred to as the Project Implementation Team (PIT).



These arrangements would ensure that the PCUs: (i) use Project funds 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 assessments concluded that the FM arrangements (budgeting, accounting, internal control, financial reporting, and auditing systems) in place meet the Bank's minimum requirements for project FM arrangement as per Bank Policy and Bank Directive: Investment Project Financing.

7. **FM Implementation Arrangements.** The respective PCUs will be responsible for financial management of the project, maintaining the accounts and providing FM support on all fiduciary aspects of this project. The PCUs will prepare Annual Work Plans and Budgets (AWPB) and submit to the World Bank, before the beginning of the fiscal year. The AWPB will be monitored during project implementation using unaudited interim financial reports (IFRs).
8. **Accounting arrangements and periodic financial reporting.** 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 PCUs will maintain adequate financial records in accordance with accepted international accounting standards and practices as well as the respective project implementation manuals. The PCUs will submit quarterly unaudited interim financial reports (IFRs) to the Bank within 45 days after the end of the calendar reporting period. The National Audit Office will audit project accounts based on terms of reference in accordance with International Standards on Auditing. The Internal Audit Unit will carry out internal Audit of the project to assist the project management unit. The audited financial statements will be submitted to the Bank within six months from the end of the fiscal year. The internal control procedures will be documented in the Project Implementation Manuals.
9. **Disbursement and Funds Flow Arrangements.** This Project will use advances, replenish funds, and document expenses in monthly statements of expenditure (SOEs). The disbursement letters will specify the disbursement arrangements, including designated accounts. The PCUs will maintain two sets of bank accounts: (a) a US dollar Designated Account and (b) a local currency bank account. The signatories to these accounts should be in line with the FM Manual and submitted to the Bank between the signing of the Project and its effectiveness. 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. Subsequently, withdrawal requests will be made according to project needs on a monthly basis. Other methods of disbursement that can be used by the PCUs include direct payments, reimbursements, and special commitments. If ineligible expenditures are found to have been made from the designated and/or operating bank accounts, the PCUs 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 IDA amounts advanced to the designated account.

Procurement

10. **Institutional arrangement for procurement.** The PCUs/PITs of the respective country will be responsible for the procurement of goods, works, consulting, and non-consulting services under all components implemented by the country projects. The procurement assessments have been carried out in all participating countries and concluded that procurement arrangements in place are adequate and compliant with the World Bank Procurement Guidelines. The Project Procurement Strategies for Development (PPSD) describe how procurement activities will support project operations and deliver Value for Money (VfM). Procurement processes and procedures are detailed in the Project Implementation Manuals.
11. Procurement will be carried out in accordance with the (a) World Bank Procurement Regulations for IPF Borrowers



dated July 2016, revised November 2017 and August 2018; (b) the 'Guidelines on Preventing and Combating Fraud and Corruption in Projects financed by IBRD Loans and IDA Credits and Grants', dated October 15, 2006, revised in January 2011 and July 1, 2016; and (c) the provisions stipulated in the Financing Agreement. The bid documents will be based on the Standard Procurement Document, recently enhanced with the Environment, Social Health and Safety (ES).

12. **Procurement of Goods and Works.** Goods and works and non-consulting services will be procured using the Bank's Standard Bidding Document (SBD) for all Open International Bidding (OIB). The implementing agency will use Standard Bid Evaluation Forms for procurement of goods and works for OIB contracts. National Bidding Documents acceptable to the Bank may be used for (i) procurement of works and goods under Open National Bidding (ONB) procedures, however there will be no preference accorded to domestic contractors and suppliers. Specific methods and market approaches will be specified in the respective PCU Procurement Plans.
13. **Procurement of consulting services (firms and individuals).** The Standard Request for Proposals (SRFP) will be used for consultants' contracts. Consulting contracts will as far as possible be awarded under Quality and Cost based Selection (QCBS) procedures. Other methods of selection will be determined for each assignment depending on the type of assignment and the provisions of the Banks Procurement Regulations for IPF for Borrowers and will be indicated in the procurement plan. The procurement and selection methods will be specified in the procurement plans based on assessed procurement risk for each country's PCU.
14. **Risk Assessment by country and overall project procurement risk**
 - a. The overall Project Procurement Risk for Ghana is assessed to be "High". With mitigation measures put in place, the residual risk is expected to reduce to "Substantial".
 - b. **Tanzania / Senegal**

The overall Project Procurement Risk for Tanzania and Senegal is assessed to be "Substantial". With mitigation measures put in place, the residual risk is expected to reduce to "Moderate".
 - c. **Zambia / Kenya**

The overall Project Procurement Risk for Zambia and Kenya is assessed to be "Moderate". With mitigation measures put in place, the residual risk is expected to reduce to "Low".
15. Overall project procurement Risk rating is therefore "**Substantial Risk**" with a residual Risk of Moderate Risk. The PRAMS assessments have identified the specific procurement risk for each implementing agency in each country and has also identified the Risk mitigation measures that will overtime lead to the risk being reduced.
16. **Procurement Post Reviews (PPRs) and Independent Post Reviews (IPRs) by the Supreme Audit Institution (SAI).** Based on the assessed Implementation Agency identified Procurement Risk, which have been indented as High for Ghana, Substantial for Tanzania and Senegal and Moderate for Kenya and Zambia, the Bank will carry pout a Procurement Post Review or allow for the country's own SAI to carry out PPRs or IPRs for all contracts that are based on the approved procurement plan but which not having been subject of prior review by the Bank using a sample of 20 percent for High Risk, 15 percent for Substantial Risk and 10 percent for Moderate Risk. Based on continuing assessment of risk and the success of the implementation of the risk mitigation measures, the sample size will be reduced. In terms of sample size - High Risk requires a sample PPR/ IPR size of 20 percent, Substantial Risk requires a 15 percent sample size, Moderate risk requires a sample size of 10 percent and Low risk requires a sample size of 5 percent. These changes will be communicated to the respective Implementing agencies as they



occur following a PPR/IPR exercise as needed. Such communication will also result in the Bank revising the Prior Review and Procurement Methods thresholds.

17. **Frequency of procurement supervision.** In addition to the prior review to be carried out by the World Bank, implementation support missions will be undertaken at least twice a year. Procurement packages not subject to World Bank prior review will be examined ex post on an annual basis. The PCUs will be responsible for record keeping for ease of retrieval of procurement information and shall be required to upload and archive all procurement related documents and transaction records in STEP for all activities in the Procurement Plan. In addition, the PCUs may also wish to maintain paper records for the procurement, and in this respect, each contract will have its own file that contains all documents on the procurement process.
18. **Procurement Plan.** The PCUs have developed their respective procurement plans specifying the required procurement methods. The procurement plans will be updated as needed in agreement with the project team to reflect the actual project implementation needs.
19. **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 specific country's Government's administrative procedures, acceptable to the Bank.
20. **Strategy and Approach for Program Implementation Support**
21. The strategy for supporting project implementation will focus on successfully mitigating the risks identified at various levels and supporting the risk management; it will consist of (a) implementation support missions carried out and (b) technical assistance in areas of weaknesses and where new approaches/procedures have been introduced.
22. **Implementation support missions.** The supervision strategy will use several instruments to review progress and respond to implementation issues, including:
 - **Implementation support missions.** The World Bank task team will conduct semiannual implementation support missions to review overall EHPMP implementation performance and progress toward the achievement of the PDO. There will be one mission per country as well as one regional mission each year. Support from technical partners will be sought when needed.
 - **MTR.** An MTR will be carried out midway in the implementation phase. It will include a comprehensive assessment of the progress in achieving EHPMP objectives as laid out in the Results Framework. The MTR will also serve as a mechanism for revisiting design issues that may require adjustments to ensure satisfactory achievement of the project's objective.
 - **Implementation completion.** At the close of the project, each Government and the World Bank will carry out separate implementation completion reviews to assess the success of the project and draw lessons from its implementation.
23. **EHPMP task team set up.** There will be a regional Task Team Leader (TTL) as well as the country specific co-TTLs based in client countries. This arrangement will enhance interaction with EHPMP countries and improve monitoring of progress. Support from the grant will allow for engaging additional capacity for project supervision.



24. **Objective of implementation support mission.** The implementation support missions will have the combined aim of reviewing the quality of implementation, providing solutions to implementation problems, and assessing the likelihood of achieving the PDO. More specifically, they will (a) review implementation progress by component, including institutional development aspects; (b) provide solutions to implementation problems as they arise; (c) review with the national PCUs the action plan and disbursement programs for the next six months; (d) review the project's fiduciary aspects, including disbursement and procurement; (e) verify compliance of project activities with the World Bank's environmental and social safeguard policies; (f) review case studies and survey results to measure results indicators to determine progress toward the PDO against the targets set within the Results Framework and the quality of implementation; and (g) review the quality of capacity-building activities, which are crucial for an effective implementation of the program. The missions will combine some field visits (whenever feasible, taking the security situation into account); field-based focus group discussions and interactive workshops with stakeholders for feedback; and regional workshops as well as national workshops to highlight implementation issues, pick up emerging implementation lessons, and share mission recommendations, including agreements on actions moving forward. It will also include reviews of semestrial/annual reports and various studies. 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.

Implementation Support Plan and Resource Requirements

25. **Technical support.** In addition to the World Bank's core supervision team, the additional support from the knowledge platform will provide expertise to provide (a) expert advice on key infrastructure options and (b) technical assistance to implementing agencies in the form of hands-on training and mentoring.
26. **Focus of support.** The first two years of implementation will see more technical support, and later the focus will change to more routine monitoring of progress, troubleshooting, and assessments based on the Results Framework. The implementation support missions to each country will be on a semiannual basis, followed by regional workshops to discuss views on progress and challenges for each country. The support missions may be complemented by short visits by individual specialists to follow up on specific thematic issues as needed.
27. **Fiduciary support.** Fiduciary teams based in World Bank country offices (procurement and financial specialists) will closely supervise the project's fiduciary management. They will participate in implementation support missions and facilitate capacity building for the project's fiduciary.
28. During implementation support missions, the project financial management specialist based in the country office will review the FM systems, including capacity for continued adequacy; evaluate the quality of the budgets and implementing agencies' adherence thereto; review the cycle of transaction recording until the final end of report generation; evaluate the internal control environment, including the internal audit function; review IFRs and/or annual Financial Statements; follow up on ageing of the advance to the Designated Account (DA); follow up on both internal and external audit reports; and periodically assess the project's compliance with the FM Manual as well as the Financing Agreement.
29. On the procurement front, the World Bank will provide implementation support to the client through a combination of prior and post reviews, procurement training to project staff and relevant implementing agencies, and periodic assessment of the project's compliance with the procurement manual. Implementation support missions will be geared toward (a) reviewing procurement documents, (b) providing detailed guidance on the World Bank's Procurement Guidelines, and (c) monitoring procurement progress against the detailed



Procurement Plan. Following the recommendations of the fiduciary assessments of the implementing agencies, and in addition to the prior review supervision to be carried out from World Bank offices, the semiannual supervision missions will include field visits, of which at least one mission will involve post review of procurement actions.

- 30. **Safeguards.** The World Bank specialists in social and environmental safeguards based in Washington or country offices will provide support to the countries to ensure proper implementation of the safeguard instruments. Each year, they will conduct implementation support missions to (a) review safeguards reports on project progress, (b) ensure that procurement arrangements are consistent with the safeguard requirements set out in the project legal agreements, and (c) assess compliance with agreed environmental and social actions (mitigation, monitoring, and management measures). They will also participate in regional meetings to discuss findings, share lessons learned, and propose good practices to help improve safeguards compliance as well as environmental and social sustainability.

Skills Mix Required

- 31. Table 2 summarizes the proposed skill mix and number of staff weeks during project implementation. It is anticipated that this will change over time as demand increases.

Table 2. Skills Mix Needed for Implementation Support

Skills Needed	Number of Staff Weeks (annually)	Number of Trips	Comments
TTL	10	2	HQ based
Operations Officer	10	2	HQ based
Country-TTLs (x5)	5 for each	2 for each	Country office based and HQ based
FM	5	1	Country office based
Procurement	5	1	Country office based
Environment	5	3	Country office based and/or HQ based
Social development	5	3	Country office based and/or HQ based
M&E	1	1	HQ based

Note: HQ = Headquarters.



ANNEX 2: IMPLEMENTATION ARRANGEMENTS PER COUNTRY

Tanzania

Project Institutional and Implementation Arrangements

1. In Tanzania, national project activities will be implemented through collaboration and partnership directly and indirectly with stakeholders in the management of the mining industry. Participatory approaches will be prioritized to help stakeholders participate in project implementation to reduce environmental and health risks related to use of mercury in ASGM.
2. **National Steering Committee (NSC)**, will be comprised of the Permanent Secretaries from the Ministries responsible for Environment; Minerals; Finance; Health; Water; Local Government; and Industry and Trade. A Technical Committee (TC) will be established and will include Chief Executives from the Government Chemist Laboratory Authority (GCLA), Mining Commission, State Mining Corporation (STAMICO), Tanzania Forestry Services (TFS) and Small Industry Development Organization (SIDO). The Federation of Miners Association of Tanzania (FEMATA) will represent ASGM. Functions of the NSC are to: (i) receive progress reports on the implementation of project components 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 to facilitate the smooth handing over at the end of the project; and (iii) coordinate with the Regional Project to facilitate knowledge sharing among 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 NSC. NEMC will be a Secretariat to the NSC which will meet twice a year to facilitate smooth implementation of project activities. The Recipient shall maintain a Technical Committee (TC) to provide technical guidance for this project. The TC constitutes representatives from key project implementers; including Vice President's Office (VPO-Division of Environment), Ministry of Finance and Planning (MoFP), National Environment Management Council (NEMC), Ministry of Water (MoW), Ministry of Minerals (MoM), President's Office Regional Administration and Local Government (PO-RALG), Mining Commission (MC), Ministry of Industry and Trade (MIT), Government Chemist Laboratory Authority (GCLA), Ministry of Health, Community Development, Gender, Elderly, and Children (MoHCDEC), STAMICO, SIDO, University of Dar es Salaam (UDSM-Mining and Mineral Processing Department), and as well as a Representative from FEMATA. Members of the TC 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.
3. **Project Implementation Team (PIT)**. The Project Implementation Team will have a Project Coordinator, who would be sourced within NEMC Staff and be seconded to the PIT to ensure timely and efficient implementation of the project. The Project Coordinator will be assisted by Procurement Officer, Project Accountant, Communication Officer, M&E and Reporting Officer, Environmental and Social safeguards Officer, who will be sourced from the Government Staff. These Officers will constitute the PIT. The Directory of Finance and Administration has adequate qualified and experienced accountants with sufficient experience in managing IDA and other donor funded projects. In addition, NEMC has a well-staffed and experienced Internal Audit Unit. This unit will review project financial affairs as part of their regular internal audit reviews. The PIT will be responsible for overall coordination of the work program and facilitate communication with the regional platform. Within each implementing institution, a focal person will be appointed to coordinate project activities. 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. 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.

4. **Project reporting.** The lead coordinating institution (NEMC), under the Project Coordinator will be responsible for monitoring and evaluation (M&E) and through the Technical Committee will report on project performance to the National Steering Committee (NSC). All implementers of activities are required to submit quarterly reports to the Project Focal Person at the NEMC outlining the following: i) type of activity undertaken; ii) expected outputs; iii) timeline of activities; iv) allocated budget; and v) actual expenditure. 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 Focal Person will 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 will be presented and discussed at bi-annual review meetings.

Financial Management and Disbursement Arrangements

5. 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 Bank Policy and Bank Directive: Investment Project Financing. NEMC has previous experience managing World Bank supported projects, including the previous IDA funded Lower Kihansi Environmental Management Project (LKEMP) P073397 and P105220, the GEF grant for Africa Stockpiles Project (ASP – P075776), the ongoing Kihansi Catchment Conservation and Management Project (KCCMP - P126361), and other projects funded by UNDP, DANIDA, UNEP, and UNESCO.
6. Unqualified (Clean) audit reports have been issued for the above projects throughout their life cycles. This project will mostly use advances, 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 the end of each calendar quarter. The National Audit Office will audit 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 the end of the fiscal year.
7. **FM Implementation Arrangements.** NEMC will be the overall implementing agency responsible for financial management of the project. The PIT under NEMC maintains the financial accounts and provides FM support to World Bank projects and hence will be responsible for the fiduciary aspects of this project. The PIT is headed by a Project Coordinator.
8. **Planning and Budgeting.** Preparation of the Annual Work Plans and Budgets (AWPB) will be participatory and based on the Medium-Term Expenditure Framework (MTEF). Budget preparations starts in December every year and scrutinization is completed by the end of February. Thereafter budget is submitted to Parliament for endorsement and approval. Budgets are approved before the new financial year begins. The project AWPB will be submitted to World Bank by 1st June each year. For project purpose, budget implementation progress will be 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 plans and budget.



NEMC will submit the Project reports for each calendar semester along with the annual work plans and budgets to the World Bank.

9. **Accounting arrangements.** The Project will maintain adequate financial records in accordance with accepted international accounting standards and practices and in accordance with the 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. 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. The directorate of Finance and Administration is headed by the Director of Finance and Administration who is overall in charge of Project Financial affairs and is assisted by Chief Accountant who is the head of Accounts and Finance department. The department of Accounts and Finance have adequate qualified and experienced accountants who have long experience in managing other IDA projects. Overall the accounting arrangements including staffing are adequate to handle this project.
10. **Internal Controls.** 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 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; accounting records, supporting documents, computer files, chart of accounts; accounting processes from the initiation of a transaction to its inclusion in the financial statements; authorization procedures for transactions; and the financial reporting process used to prepare the financial statements.
11. **Internal Audit functions.** The 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 the project management unit and other implementing partners to achieve their objectives through effectively discharging 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. Project management should ensure that internal auditing of the project is included in work plans of the NEMC Internal Audit Unit. The Chief Internal Auditor functionally reports to the Audit Committee and administratively to the Director General. The unit is comprised of three staff who have graduate accounting degrees holders and Internal Audit certification. The unit issues reports on a quarterly basis based on their review of internal control systems of the organization. The Audit Committee is in place and reviews internal audit reports and provide directives to management on 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 other guidelines as issued by Institute of Internal Auditors (IIA) and Internal Auditor General (IAG) respectively.
12. **Periodic financial reporting.** 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 was discussed with the NEMC team during appraisal and agreed upon at 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. The financial statements should



be prepared in accordance with International Public-Sector Accounting Standards (IPSAS) Cash Basis of Accounting. The Financing Agreement will require the submission of audited financial statements to the Bank within six months after the financial year ends. These Financial Statements will be comprised of: (i) a Statement of 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 Financial Position 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; (iv) Comparison of Budget and Actual Amounts. The comparison will include original and final budget amounts, comparable actual amounts by expenditure category and explanations for material/significant differences between budget and actual expenditures; and (v) a Management Assertion that Bank funds have been expended in accordance with the intended purposes as specified in the relevant World Bank legal agreement.

13. **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 tests carried out by the subcontracted firm. The private firms to be sub-contracted should be among those that are acceptable to the World Bank. In case the audit is subcontracted to a firm of private auditors, project funds will be used to pay the cost of the audit. Audits will have to be done in accordance with International Standards on Auditing. The external audit terms of reference will be reviewed by World Bank team before appointment of the audit firm. 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.
14. **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 purposes of implementing the project in Bank of Tanzania (BOT). Transfers from the World Bank 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. In addition, once project is approved, it will be registered to D-Fund Management Information System (Direct to Project funds) hosted by Ministry of Finance and Planning (MOFP) where records of all issues pertaining to project activities, budget, receipts and payments of funds from BOT designated account will be maintained. Withdrawal of funds from WB client connection will be endorsed by MOFP and use of funds from designated account at BOT will obtain approval from MOFP.
15. **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 a 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.

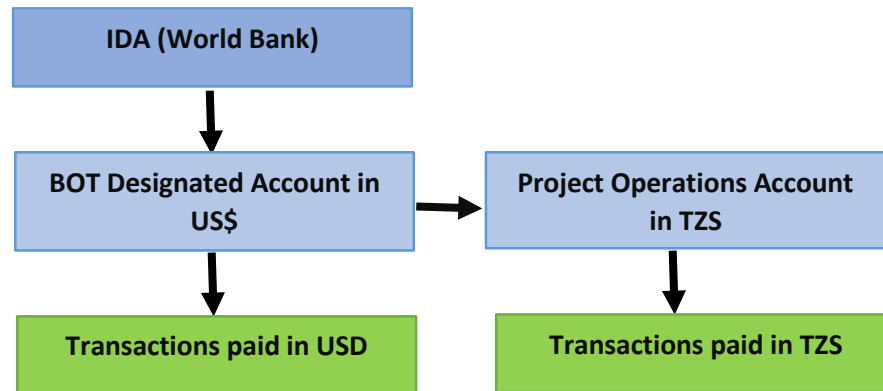


Figure A2. Diagram showing Funds flow arrangements

Procurement

16. **Procurement under the proposed project will be carried out in accordance with the following World Bank procedures:** (a) the World Bank Procurement Regulations for IPF Borrowers (July 2016, revised November 2017 and August 2018), and (b) “Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants”, dated October 15, 2006 and revised in January, 2011 and revised as of July 1, 2016, and other provisions stipulated in the Financing Agreements.
17. **PPSD and Procurement Plan:** As per the requirement of the Regulations, the IA prepared a PPSD, based on which the Procurement Plan (PP) for the first 18 months of project implementation has been developed. . The PPSD market assessments found that there is an adequate number of construction firms (local and foreign) that are likely to bid for the envisaged building construction, to supply goods and services. Similarly, for design and supervision of building works, the market analysis revealed that there is a large pool of consulting firms (local and foreign) who are likely to participate in the selection process for the consulting services opportunities. Based on the market assessment, the PPSD identified optimum procurement strategies for meeting the development objectives of the project, setting the selection methods to be used by the borrower in the procurement of goods, works, non-consulting services, and consulting services. The initial PP was confirmed and agreed during the negotiations and eventually will be disclosed on the World Bank’s external website. The PPs will be updated in agreement with the World Bank annually or as required to reflect the project’s actual implementation needs.
18. **Systematic Tracking of Exchanges in Procurement (STEP).** The World Bank’s STEP approach will be used to prepare, clear, and update Procurement Plans and conduct all procurement transactions for all implementing agencies of the Project.
19. **Procurement Templates.** For international competitive procurement, the recipient shall use the World Bank’s Standard Procurement Documents (SPDs). For procurement involving national competitive Procurement, the Borrower may use its own Procurement Documents, acceptable to the World Bank, subject to country specific exceptions / conditions that may be stipulated in individual textual part of Procurement Plans.



20. **National Open Competitive Procedures (NOCP).** NOCP may also be used, provided that such procedures are consistent with the following requirements as provided in paragraph 5.4 of the Procurement Regulations: (a) open advertising of the procurement opportunity at the national level; (b) the procurement is open to eligible firms from any country; (c) the request for bids/request for proposals document shall require that bidders/proposers submitting bids/proposals present a signed acceptance at the time of bidding, to be incorporated in any resulting contracts, confirming application of, and compliance with, the World Bank's Anticorruption Guidelines, including without limitation the World Bank's right to sanction and the World Bank's inspection and audit rights; (d) Procurement Documents include provisions, as agreed with the Bank, intended to adequately mitigate against environmental, social (including sexual exploitation and abuse and gender-based violence), health and safety ("ESHS") risks and impacts; (e) contracts with an appropriate allocation of responsibilities, risks, and liabilities; (f) publication of contract award information; (g) rights for the World Bank to review procurement documentation and activities; (h) an effective complaints handling mechanism; and (i) maintenance of records of the procurement process. If necessary, the World Bank's SPDs may be used for NOCP, with agreement by the World Bank.
21. **Other national procurement arrangements (other than NOCP)** that may be applied by the recipient (such as limited/restricted competitive bidding, request for quotation/shopping, direct contracting), shall be consistent with the World Bank's core procurement principles set out in paragraph 5.3 of the Regulations and ensure that the World Bank's Anticorruption Guidelines and Sanctions Framework and contractual remedies set out in its Legal Agreement apply.
22. **Publication (Advertising).** The recipient is required to prepare and submit to the World Bank a General Procurement Notice (GPN). The World Bank will arrange for its publication in United Nations Development Business online (UNDB online) and on the World Bank's external website before initiating procurement process. Specific Procurement Notices (SPN) for all procurement under International Competitive Procedures and Requests for Expressions of Interest for all consulting services estimated to equivalent to US\$300,000 and above shall be published in UNDB online and the World Bank's external website and at least one newspaper of national circulation in the borrower's country, or in the official gazette, or on a widely used website or electronic portal with free national and international access.
23. **Public procurement in Tanzania** is governed by the Public Procurement Act, Cap 410 (as amended) and the Public Procurement Regulations, 2013 GN No. 446 of 2013 (as amended in 2016). Under the new Act, procurement functions remain decentralized to procuring entities with the Public Procurement Regulatory Authority (PPRA) continuing to provide oversight functions for public procurement. In addition, the new Act has maintained the definitions of fraud and corruption with regards to coercive practices, collusive practices, and obstructive practices. The new Act has however introduced, among others: (i) mandatory inclusion of local firms and experts in consultancy contracts; (ii) domestic preference to both international and national competitive bidding; (iii) a requirement to set-aside contracts to be used for capacity building of local firms; and (iv) a requirement to set-aside contracts below a set threshold to be awarded to local firms only; (v) Negotiations with the lowest evaluated bidder to reduce price in the case of goods, works and non-consulting services; (vi) fixed budget method for goods, works and non-consulting services; (vii) established and approved procurement standards by the government.
24. **The new Act has been reviewed by the World Bank and found to be satisfactory to a large extent, except for the following provisions:** (i) there will be no preference accorded to domestic suppliers and contractors under NCB for goods, non-consulting services, and works under this Project; (ii) negotiations with the lowest evaluated bidder to reduce price in the case of goods, works and non-consulting services where competitive methods have been used shall not be allowed; (iii) the fixed budget method shall not be used for goods, works and non-consulting services; and (iv) procurement standards established and approved by the Government may be used, provided



that they are not restrictive. Furthermore, in accordance with paragraph 5.4 of the Procurement Regulations, the following shall be observed: (i) the request for bids/request for proposals document shall require that Bidders/Proposers submitting Bids/Proposals present a signed acceptance at the time of bidding, to be incorporated in any resulting contracts, confirming application of, and compliance with, the World Bank's Anti-Corruption Guidelines, including without limitation to the Bank's right to sanction and the Bank's inspection and audit rights; and (ii) rights for the Bank to review Borrower's procurement documentation and activities.

25. **Procurement Implementation Arrangements.** Procurement activities under the Project will be carried out by NEMC as the Implementing Agency. The procurement functions will be mainstreamed in the NEMC's management structure whereby procurement activities will be managed by Procurement Management Unit (PMU). NEMC's PMU will be responsible for the day-to-day running of the procurement activities of the project.
26. **A Procurement Capacity Assessment of NEMC:** The assessment reviewed the organizational structure, functions, staff skills and experiences, and adequacy for implementation of the project. NEMC has a good track record of implementing World Bank-financed projects. NEMC has successfully implemented Africa Stockpiles Project (ASP) – P075776 and Lower Kihansi Environmental Management Project (LKEMP) – P073396. Currently, NEMC is implementing Kihansi Catchment Conservation and Management Project (KCCMP) – P126361 and Energy Sector Capacity Building Project (ESCBP) – P126875. Assessment revealed that NEMC has established all the necessary organs for adjudicating and managing procurement activities in accordance with the provisions of the PPA and its Regulations. The PMU of NEMC has a total of four staff including the Head of PMU.
27. **The assessment revealed that the Procurement Management Unit** (i) staff have inadequate experience of managing procurements of high value and complex for goods, works and services contracts in accordance with the Bank' procurement guidelines/regulations; (ii) inefficiencies in processing procurement activities in terms of delays in preparing terms of reference and specifications, bidding documents and request for proposals and approvals; (iii) inadequate skills in evaluating bids and proposals (iv) inadequate knowledge and skills in contract negotiations and contract management, and (iv) inadequate storage and records management system. One of the major observations according to PPRA's Audit Report of 2011 was poor records filing and management system.
28. **To address capacity gap and mitigate the risks identified, procurement capacity of NEMC needs to be strengthened.** To ensure sustainability, NEMC will prepare Capacity Strengthening Plan for PMU staff, Tender Board and User Department, which will articulate areas to be strengthened, capacity strengthening activities to be undertaken and the duration of each activity.
29. **The overall project procurement risk was assessed to be "Substantial".** The risk is reduced to a residual rating of Moderate in view of the mitigation measures proposed below.



Procurement Risks and Mitigation Measures

Risk	Mitigation Measure	Timeframe	Responsibility
staff have inadequate experience of managing procurements of high value and complex for goods, works and services contracts in accordance with the Bank' procurement guidelines/regulations	Provide training in World Bank procurement procedures and processes. For sustainability reasons, NEMC will prepare Capacity Building Plan for PMU and User Department	Throughout project implementation	NEMC
Inefficiencies in processing, approving, and managing procurement activities	Ensure procurements are processed as per the timelines in the procurement plans, including timely, Tender Board approvals, preparation of bidding documents, ToRs and specifications by User Departments.	Throughout project implementation	NEMC
Inadequate knowledge and skills/experience in negotiations and contract management	Conduct training tailored in contract management for PMU staff and User Departments	Throughout project implementation project	NEMC
Inadequate storage and record management system	Establish a sound filing and records management system.	Throughout project implementation	NEMC

30. **Procurement oversight and monitoring arrangements:** The World Bank exercises its procurement oversight through a risk-based approach comprising prior and post reviews as appropriate. The World Bank sets mandatory thresholds for prior review based on the procurement risk rating of the project. The requirement for a prior or post review shall be specified in the PP. The World Bank will carry out post reviews of procurement activities undertaken by the borrower to determine whether they comply with the requirements of the Legal Agreement. The Bank may also use the services of PPRA for carrying out post reviews for the project. Since the assessed procurement risk rating is 'Substantial', the borrower shall seek the World Bank's prior review for contracts of value equivalent to the thresholds as detailed below.

Thresholds for Prior Review, Procurement Approaches and Methods

A. Goods, Works and Non-Consulting Services				
Category	Prior Review (US\$ millions)	Procurement Approaches and Methods (US\$ millions)		
		Open International	Open National	Request for Quotation (RfQ)
Works	≥ 10	≥ 15	< 15	≤ 0.2
Goods, IT, and non-consulting services	≥ 2	≥ 5	< 5	≤ 0.1



B. Consulting Services			
Category	Prior Review (US\$ millions)	Short List of National Consultants (US\$ million)	
		Consulting Services	Engineering and Construction Supervision
Consultants (Firms)	≥ 1	≤ 0.3	≤ 0.3
Individual Consultants	≥ 0.3	NA.	NA.

31. **Frequency of Procurement Supervision.** In addition to the prior review supervision to be carried out from Bank offices, the capacity assessment of the implementing agencies recommends one supervision mission every six months to visit the field to carry out post review of procurement actions.

32. **Training and Workshops.** The Project will finance training and workshops, if required, based on an annual training plan and budget which shall be submitted to the Bank for its prior review and approval. The annual training plan will identify, inter alia: (i) the training envisaged; (ii) the justification for the training; (iii) the personnel to be trained; (iv) the duration for such training; and (v) the estimated cost of the training. At the time of the actual training, the request shall be submitted to the Bank for review and approval. Upon completion of the training, the trainees shall be required to prepare and submit a report on the training received.



Ghana

Project Institutional and Implementation Arrangements

34. Both the Environmental Protection Agency (EPA) under the Ministry of Environment Science, Technology, and Innovation (MESTI) and the Minerals Commission (MC) under the Ministry of Lands and Natural Resources (MLNR) are responsible for regulating and monitoring mercury use in ASGM in accordance with the country's mining laws. EPA is also responsible for regulating and monitoring e-waste management, following Article 6 of the Stockholm Convention on wastes and relevant guidance. EPA will be the lead implementing agency, in coordination with MESTI and MC, while MESTI will ensure regional coordination. EPA will hold overall fiduciary and safeguards responsibility.
35. **National Steering Committee (NSC).** A Project Liaison Office will be established in the Ministry of Environment Science Technology & Innovation to serve as the Secretariat to the National Steering Committee. The NSC will operate as the primary decision-making body for the Project. It will be co-chaired by the Ministry of Environment Science Technology & Innovation and the Ministry of Lands and Natural Resources. Other members include the Ministry of Finance; Ministry of Health; Ministry of Local Government and Rural Development; Ministry of Trade; Ministry of Gender, Children and Social Protection; Ministry of Water and Sanitation; Ministry of Monitoring and Evaluation; Ministry of Food and Agriculture; Ministry of Chieftaincy; Ministry of Defence; Ministry of National Security; National House of Chiefs; Office of the Attorney General and Ministry of Justice. The NSC will review progress reports and provides guidance on policy matters; review work plan and budget; facilitate coordination across agencies and implementation as needed; and support outreach and resource mobilization. The NSC will meet twice a year, before the Project's report/Work Plan/Budget are submitted to the Bank for review and no objection.
36. **Project Implementation Unit:** A PIU will be mainstreamed in EPA and be responsible for overall project management, facilitation of work programs, fiduciary management, supervision of implementation and project reporting. The PIU will coordinate the Project under the leadership of the Executive Director or Deputy Executive Director (Technical Services) of EPA. EPA will provide dedicated staff for the positions of Project Coordinator and Deputy Coordinator (at Senior level), Monitoring and Evaluation officer, Environmental and Social Management officer, Finance and Accounts officer, Communication officer and Procurement officer. M&E functions will be carried out jointly by EPA and MESTI (Policy, Planning, Monitoring, and Evaluation Directorate). Depending on investments considered under component 3, and their social implications, Social Development Specialists might be further recruited to cover social safeguards aspects. PIU staff resources may be supplemented from time to time as needed with short term consulting expertise for financial management, procurement, environmental and social management, communication, reporting and logistics. The PIU will coordinate closely with the Environmental Protection Agency) and will be responsible for preparing work plans and budgets for implementation. The PIU will coordinate closely with the PCU for the Ghana Landscape Restoration and Small-Scale Mining Project (P171933) and the Project Management Unit (PMU) for the Forest Investment Program (FIP) - Enhancing Natural Forest and Agroforest Landscapes Project (P148183).

Financial Management

37. An FM assessment was carried out for the Environmental Protection Agency (EPA) on January 8, 2019, in accordance with the World Bank's Bank policy on Investment Project Financing. The objective of the assessment was to determine whether (i) EPA has adequate financial management arrangements to ensure funds are used



for the intended purpose; (ii) project financial reports can be prepared in a timely, accurate, and reliable manner; and (iii) the agency’s assets will be safeguarded from fraud, waste, and abuse. FM arrangements were found to be adequate based on the EPA’s following strengths: (1) EPA accounting team, headed by the Director of Finance, supported by three qualified and experienced accountants, can effectively segregate accounting tasks to promote a strong control environment; (2) the appropriate levels of review, authorization, and approval of payment vouchers are in place and functioning as intended; and (3) EPA accounting staff are experienced in managing donor-funded projects and can utilize this knowledge to effectively manage the Project. The assessment concluded that the existing arrangements for the continuing, adequacy and reliance of the financial management systems of the Project are adequate and meet the minimum requirement per Bank policy on Investment Financing. Overall, the FM arrangement for the Project is rated Satisfactory, and the FM risk rating for EPA is considered Moderate.

- 38. The primary executing agency for the project will be EPA with the responsibility of coordinating activities of the various agencies. The Director of Finance at EPA will be responsible for the overall FM of the project components assigned to EPA. The Audit Service will be responsible for the auditing of EPA’s financial statements. Given that there may be capacity constraints, the Auditor General may subcontract the audit to a private firm and such arrangement will be followed subject to the Bank’s necessary procurement and technical clearance of the terms of reference (TOR). The Internal Audit (IA) Unit at EPA will carry out the internal audit of the Project, and the EPA’s audit committee will be responsible for reviewing the Internal Audit units reports and will ensure that the recommendations are implemented. Based on the risk rating of the Project and the current FM arrangements, it is expected that there will be only one on-site supervision mission to ascertain the adequacy of systems supplemented by desk reviews of IFR and audit report.
- 39. The action plan below provides guidance on the next steps to take to ensure that financial management (FM) arrangements are strengthened (i.e., the Director of Finance will ensure that EPA will allocate sufficient internal audit resources to the Project). The first Internal Audit report will be due no later than 6 months after project Effectiveness.

Action Plan	Responsible Party	Timeline
<p>Policies and Procedures</p> <p>EPA is required to finalize and circulate the new accounting manual to prevent a disruption in accounting activities and provide guidance on to ensure that accounting policies and procedures according to the Public Financial Management Act, 2016 (Act 921) and Ghana Integrated Financial and Management Information Systems (GIFMIS) guidelines.</p> <p>EPA should review the manual and ensure that it includes guidelines on data security and back-up procedures.</p>	Director of Finance	August 31, 2020



Ministry of Finance is required to provide the World Bank with the Designated Bank Account Details to be setup in client connection for funds flow purposes. The Bank account should be maintained at a Bank acceptable to GoG and IDA, usually the Bank of Ghana (BoG).	Minister of Finance	Prior to first disbursement
Internal Audit Involvement A copy of the Internal Audit 2020 AWP for EPA has been requested by WB to determine the units planned involvement in this program.	Director of Finance	September 30, 2020

Procurement

- 40. **Institutional arrangement for procurement.** The PIU hosted at EPA will carry out procurement function for the Project.
- 41. **Applicable procurement regulation.** The procurement for the Project will be carried out, per the Procurement Framework, in accordance with the ‘World Bank Procurement Regulations for IPF Borrowers’ dated July 2016 (Procurement Regulations), revised November 2017 and August 2018 and the World Bank’s ‘Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by International Bank for Reconstruction and Development (IBRD) Loans and IDA Credits and Grants’ (revised as of July 1, 2016), as well as the provisions stipulated in the Financing Agreement. The bidding documents to be used will be the Standard Procurement Documents recently enhanced with the Environment, Social Health and Safety.
- 42. **Risk Assessment.** Procurement Capacity Assessment was carried out on November 26, 2018, in accordance with OCSPPR guidelines and Procurement Risk Assessment and Management System (P-RAMS). The assessment reviewed the organizational structure, functions, staff skills and experiences, and adequacy for implementing the Project. The prior review thresholds have been set to reflect the assessment of the procurement risk rating. The summary assessment of the procurement risk is HIGH for the Project and the prior review thresholds have been set to reflect this rating. Procurement post-reviews and technical audits will be carried out annually by the Bank Procurement Specialist and Technical Specialist or independent auditors and based on the findings of the reviews the prior review thresholds will be reviewed. The main risks identified are the following: (i) implementation of procurement transactions by multiple agencies; (ii) the possibility of procurement staff movements; (iii) the use of the Procurement Framework (PF).
- 43. The proposed mitigation measures will include: (i) the Borrower to provide adequate incentives to attract and maintain the existing procurement staff and to ensure effective coordination of procurement activities by the multiple implementing agencies; (ii) WB to organize and deliver training session for the staff on the Procurement Framework with hands-on support to ensure proper and effective application of the Bank’s regulations; (iii) intensify training in Procurement and Contract Management by the Bank; and (iv) Supplement the efforts of the staff by hiring a procurement consultant to support them if the need arises.
- 44. **Methods of procurement of goods and works.** 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). The



Procurement Plan specifies the circumstances under which such methods may be used: (i) National Competitive Bidding (NCB); and (ii) Shopping. Contracts for goods estimated to cost US\$611,000 equivalent and above there is no contracts for works and non-consulting services. Goods procured under this Project would be office motor vehicles, monitoring equipment for air, soil, water and other related aspects, office furniture, and office equipment.

45. **Methods of procurement of Consultants.** Except as otherwise provided in the paragraph below, consultants' services will be procured under contracts awarded based on Quality and Cost-Based Selection (QCBS). The following list specifies selection methods other than QCBS which may be used for consultants' services. The Procurement Plan will specify the circumstances under which such methods may be used: (i) Section based on the Consultant's Qualifications (CQS); (ii) Individual Consultants (IC).
46. **Operating Costs.** Operating expenditures are neither subject to the Procurement Framework nor prior or post reviews mechanism. Operating expenditures are normally verified by TTLs and FM Specialists.
47. **Procurement Plan.** Following the preparation of the PPSD, the Borrower has developed a Procurement Plan for project implementation which provides the basis for specifying the required procurement methods. The final Plan was submitted to the Bank before negotiations. Systematic Tracking of Exchanges in Procurement (STEP) will be the primary software or platform to be used to submit, review, and clear all Procurement Plans as well as post and prior review procurement activities. 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. Details of Contract Packages to be procured under the Project were finalized and submitted to the Bank before Negotiations.
48. **Partner Ministries, Departments and Agencies (MDAs) and other for Implementation:** Relevant Sector Ministries, Agencies, Department/organizations that support ASGM sector and e-waste management in Ghana include:
 - **Ministry of Environment Science Technology & Innovation (MESTI):** MESTI will provide a coordination and monitoring role in the implementation of the project. Generally, the Ministry is mandated to have oversight responsibility to provide leadership and guidance for Environment, Science, Technology and Innovation within the broad sector of the economy through sound policy formulation and implementation. It ensures the establishment of the regulatory framework and setting of standards to govern the activities of science and technology and the management of the environment for sustainable development. MESTI also has the responsibility to analyze and coordinate all planned programs in the environment, science, technology and innovation sector of the economy for purposes of achieving a single integrated management system. MESTI is the sector Ministry to which the Environmental Protection Agency reports to.
 - **Ministry of Lands and Natural Resources (MLNR):** MLNR is the lead implementing agency for the Ghana Forest Investment Program (FIP) - Enhancing Natural Forest and Agroforest Landscapes Project (P163745) has a dedicated team of technical staff responsible for the implementation of the project. MLNR will ensure effective coordination between EHPMP and the FIP project. MLNR has overall responsibility for the land and natural resources sector planning and policy direction and for monitoring sector programs towards the attainment of the national goals. The ministry is thus responsible for the management of Ghana's land, forests, wildlife and mineral resources. MLNR is the sector Ministry to which the Minerals Commission reports to.
 - **Ministry of Local Government and Rural Development (MLGRD):** MLGRD will play a role in the engagement with Metropolitan and Municipal District Assemblies (MMDAs) in the selection of remediation sites and e-waste pilot areas.



- **The Ministry of Trade & Industry (MOTI):** MOTI will support activities as related to the trade of mercury and e-waste. The Ministry is the lead policy advisor to government on trade, industrial and private sector development with responsibility for the formulation and implementation of policies for the promotion, growth and development of domestic and international trade and industry. The Ministry is also the advocate for the private sector within government and is the principal agency responsible for monitoring and implementing the Government's private sector development programmes and activities.
- **Environmental Protection Agency (EPA):** EPA will be the lead Implementing Agency of the Project responsible for overall management, coordination and project reporting. EPA was established under the Environmental Protection Agency Act, 1994 (Act 490) as the leading public body responsible for the protection and improvement of the environment in Ghana. It is responsible for enforcing environmental policy and legislation, prescribing standards and guidelines, inspecting and regulating businesses and responding to emergency incidents. EPA will work closely with the MC, Ghana Health Service (GHS) and University of Mines and Technology (UMaT) on ASGM activities. The EPA will also work closely with the Metropolitan and Municipal District Assemblies (MMDAs) under the Ministry of Local Government and Rural Development (MLGRD), Ministry of Trade and Industry (MOTI), and Ghana Standards Authority (GSA) for regulating and monitoring the country's e-waste management.
- **Minerals Commission (MC):** MC will ensure effective coordination between EHPMP and the Ghana Landscape Restoration and Small-Scale Mining Project (P171933). The Commission was established under Article 269 of the 1992 Constitution and the *Minerals Commission Act, 1993 (Act 450)*. It is the main promotional and regulatory body for the minerals sector in Ghana and responsible for "the regulation and management of the utilization of the mineral resources of Ghana and the coordination and implementation of policies relating to mining". It ensures compliance with Ghana's Mining and Mineral Laws and Regulation through effective monitoring.
- **Forestry Commission (FC):** FC will provide technical support in the selection of pilot sites for remediation. FC is the implementation arm of MLNR responsible for regulation, control and management of forest resources
- **Ghana Health Service (GHS):** GHS will support activities relating to awareness creation on the health effect of mercury and mismanaged e-waste and the development of health sector actions plan.
- **Ghana Standard Authority:** GSA is the agency responsible for the maintenance of acceptable standards for product and services and sound management practices in industries and public institutions in Ghana. The Authority is responsible for the development, maintenance and dissemination of Standards for electrotechnical products.
- **Metropolitan, Municipal and District Assemblies (MMDAs):** The MMDAs have the ultimate role to seek the necessary approvals and implement the district's development plan. MMDAs have the responsibility for ensuring proper waste management, including electronic wastes (i.e. e-wastes).
- **University of Mines and Technology (UMaT):** UMaT is also considered as an implementing agency for the proposed Ghana Landscape Restoration and Small-Scale Mining Project (P171933) that will lead activities on the development of a mining demonstration centre. The demonstration centre will serve for the purpose of training actors of the mining sector and will benefit students of geoscience as well as ASGMs and the general public. The centre will constitute one of the interventions aimed at sustainable and responsible small-scale mining in Ghana.
- **Council for Scientific and Industrial Research (CSIR)-Science and Technology Policy Research Institute (STEPRI):** CSIR-STEPRI conducts research to provide knowledge-based information to contribute to the formulation and implementation of policies and programmes for socio-economic development based on Science, Technology and Innovation (STI).



Zambia

Project Institutional and Implementation Arrangements

50. The Zambia national project will be implemented through collaboration and partnership directly and indirectly with stakeholders of waste management in Zambia, particularly those involved in electronic waste management. Participatory approaches will be prioritized to help stakeholders participate in project implementation to reduce environmental and health risks related to waste management in Zambia. Mobilizing and training beneficiaries will be considered, therefore 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 harmful chemicals and waste exposure.
51. **National Steering Committee (NSC)** will comprise of Permanent Secretaries from the Ministries of Environment, Health, Local Governance, Finance, Mines and Mineral Development, ZMERIP National Coordinator, as well as Director General (DG) of the Zambia Environmental Management Agency (ZEMA). The NSC will be Chaired by the Permanent Secretary of the Water Development Sanitation and Environmental Protection (MWDSEP). Functions of the NSC are to: i) provide overall guidance on policy matters that relate to the e-waste and hazardous material management; ii) assess and provide approval of the annual work plans; and (iii) coordinate with the regional knowledge platform to facilitate knowledge sharing among the participating countries. The NSC will meet twice a year to facilitate smooth implementation of project activities. The NSC in Zambia will be mainly responsible for approval of Annual Work Plans submitted by the ZEMA and will provide guidance and oversight during implementation.
52. **Project Coordination Unit (PCU)**. A PCU set up at ZEMA for ZMERIP will be responsible for overall coordination and facilitation of the work program as described in the annual plans. ZEMA a regulatory agency under MWDSEP will implement this project with technical support from the Directorate of Planning, Information and Research and the Directorate of Operations. ZEMA is a regulatory agency with a mandate that includes 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. The PCU at ZEMA will in collaboration with the Ministry of Mines and Mineral Development (MMMD) and the Ministry of Local Government (MLGH) implement EHPMP activities through the targeted Municipal Councils. Functions of the PCU are: (a) preparation of procurement plans and the management of the designated accounts; (b) accounting, financial management, and reporting on overall project subcomponents; (c) ensuring project audits; (d) preparation of quarterly financial and technical progress reports; (e) managing environmental and social safeguards aspects; (f) undertaking all procurement and contract management activities for all components; and (g) communicating and interacting with partner countries as well as the regional knowledge platform. A senior officer from the PCU core staff will be appointed as Project Coordinator who will report to the Director Planning, Information and Research of ZEMA. Within each implementing institution, a focal person will be appointed to coordinate project activities.
53. **Project reporting.** All implementers are required to submit quarterly reports to the Project Focal Person at ZEMA outlining the following: i) type of activity undertaken; ii) expected outputs; iii) timeline of activities; iv) allocated budget; and v) actual expenditure. The Focal Person will 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 will be presented and discussed at bi-annual review meetings.



Financial Management and Disbursement:

54. A FM assessment was carried out for the ZEMA 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 on Investment Project Financing (IPF). These arrangements would ensure that ZEMA: (i) uses 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) the 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 (ii) ZEMA develops a Project Implementation Manual (PIM), including financial procedures. The conclusion of the assessment is that the financial management arrangements in place meet the World Bank's minimum requirements under Bank Policy and Bank Directive: Investment Project Financing, 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.
55. *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 ZEMA Director of Finance will have overall responsibility for the Project's financial management. The weaknesses identified are as follows: (i) accounting staff are not adequate; (ii) only one accounting staff is trained in the Bank's financial management and disbursement procedures; and (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) the 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 (ii) ZEMA finalizes the Project Implementation Manual (PIM), including financial procedures before signing the grant agreement.
56. **Planning and Budgeting.** ZEMA will prepare its annual budget based on procurement and work plans 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 the 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 an explanation will be required to explain significant variances. These IFRs will be expected to be submitted to the Bank within 45 days after the end of the calendar quarterly period.
57. **Accounting arrangements.** The accounting system is computerized using SAGE Revolution.³⁸ ZEMA will prepare a Project Implementation Manual (PIM), including financial procedures prior to signing the grant agreement. ZEMA has a finance department headed by a Director of Finance who is deputized by a Finance Manager. The Finance Manager is also assisted by an Accountant and 3 Assistant Accountants. The Project has a Project Accountant who reports to the Director Finance. All accounting staff and internal auditors of ZEMA will be trained in the Bank's financial management and disbursement procedures during project implementation. Regarding Accounting Information Systems and Standards, ZEMA will use the existing Sage Revolution Accounting System to

³⁸ The Sage Revolution System is a reliable and tested accounting software.



record and report on the project transactions. ZEMA uses International Financial Reporting Standards (IFRs) that will apply to the project.

58. **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 also has an internal audit department that is staffed with two qualified staff. However, they 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, the Project should comply with World Bank Anti-Corruption Guidelines.
59. **Periodic Financial Reporting.** 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 methods 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. 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.
60. **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 covered 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 incorporated in the PIM before signing the Grant Agreement . 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.
61. **Funds Flow Arrangement.** ZEMA will open a Designated Account (DA) denominated in United States Dollars and a Project Account denominated in local currency which 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 submitted to the Bank between the signing of the Project and its effectiveness.

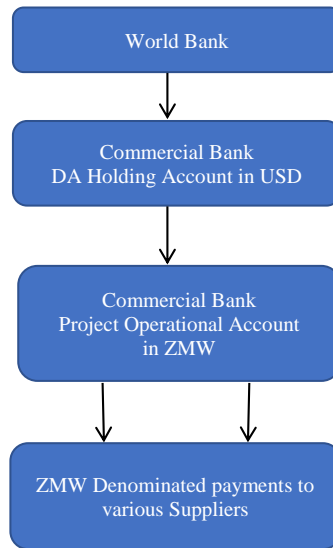


Figure A3: Flow of Funds to the Zambia country project.

62. **Disbursement Arrangement.** 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.
63. **Designated and Project Accounts:** Funds will flow from the IDA account to a Designated Account (DA) to be opened at a commercial bank acceptable to the Bank and 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.
64. **Designated and Project Accounts:** Funds will flow from the IDA account to a Designated Account (DA) to be opened at a commercial bank acceptable to the Bank and 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.
65. **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.

Procurement

66. **Institutional arrangement for procurement.** ZEMA will be responsible for the procurement implementation of the Project. The Project will make use of existing arrangements under the ZMERIP Project. 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.

67. **Applicable procurement regulation.** Procurement under the proposed project will be carried out in accordance with “The World Bank Procurement Regulations for IPF Borrowers” dated July 2016 and revised in November 2017 and August 2018, hereafter referred to as “Procurement Regulations”. The project will also be subject to the World Bank’s Anti-Corruption Guidelines, dated July 1, 2016 and the provisions stipulated in the legal agreement.. The procurement procedure to be followed for National Competitive Bidding (“NCB”) will 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 will 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.
68. **Project Procurement Profile:** There are no high value and complex contracts anticipated under this project. The procurement profile is a mix of low to high value, procured centrally at the National level by NEMA. Majority of the procurement transactions are consultancy services and the works contracts are covering pilot e-waste management, which may include e-waste processing equipment and supporting infrastructure, such as shelter and utility connections.
69. **Methods of procurement of goods and works** Procurement of goods, non-consultant services and works will be procured under procurement methods and market approach as will be provided in the approved procurement plans online in STEP.
70. **Methods of procurement of Consultants:** procurement of consultants’ services will be procured under contracts awarded on the basis of the procurement methods and market approach as will be provided in the approved procurement plan online in STEP.
71. **PPSD and Procurement Plan:** ZEMA prepared a Project Procurement Strategy for Development (PPSD) identifying optimum procurement strategies for meeting the development objectives of the project. The PPSD is a living document that should be regularly updated during project implementation to provide necessary justifications for procurement arrangements, procurement plans, and their updates. Based on the PPSD, ZEMA has prepared a procurement plan (PP) for the first 18 months which provides the basis for specifying the required procurement methods. The PPSD market assessments found that there is an adequate number of construction firms (local and foreign) that are likely to bid for the envisaged builds construction, to supply goods and services. Similarly, for design and supervision building works, the market analysis revealed that there is a large pool of consulting firms (local and foreign) who are likely to participate in the selection process for the consulting services opportunities. Based on the market assessment, the PPSD identified optimum procurement strategies for meeting the development objectives of the project, setting the selection methods to be used by the borrower in the procurement of goods, works, non-consulting services, and consulting services. The procurement plan will be updated at least every 12 months, or as required, to reflect the actual project implementation needs. Each update shall require World Bank approval and will be publicly disclosed. The project will use the World Bank’s Systematic Tracking of Exchanges in Procurement (STEP) as a primary tool to submit, review, and clear all procurement plans and conduct all procurement transactions for the project.



72. **Market approach.** When approaching the international market, procurement will be carried out following the Bank's Procurement Regulations and will use the Bank's Standard Procurement Documents (SPD). Procurements while approaching the national market will follow the National Procurement Procedures and may use the National Standard Bidding Documents with appropriate modifications and additional annexes to incorporate the Bank's Anti-Corruption Guidelines, universal eligibility, and the Bank's right to inspection and audit.

73. **Procurement Capacity Assessment.** A Procurement capacity assessment conducted revealed that ZEMA has experience in the implementation of Bank-financed projects using the World Bank's old Procurement Guidelines and recently transitioned to use the World Bank's Procurement Regulations. Risks have been identified including the need to enhance efficiency of procurement implementation, improvements in evaluations and carrying out due diligence and enhanced use of the Banks Systematic Tracking of Exchanges in Procurement (STEP). Risk mitigation measures include use of Bank's SPDs for all contracts and capacity building on Bank Regulations and use of STEP prior to project effectiveness. Procurement risk is rated "Moderate" with a low residual risk after implementing the identified risk mitigation measure.



Kenya

Project Institutional and Implementation Arrangements

74. **National Steering Committee (NSC):** An NSC will comprise among other representatives of the key national level stakeholders including, but not limited to, Principal Secretary from the Ministries of Environment and Forestry, Principal Secretary of the National Treasury, representative from the Kenya Revenue Authority (Kenya Customs) as well as Director General (DG) of the National Environmental Management Agency (NEMA). Functions of the NSC are to: i) provide overall guidance on policy matters that relate to the e-waste and hazardous material management; ii) assess and provide approval of annual work plans; and iii) coordinate with the regional knowledge platform to facilitate knowledge sharing among participating countries. The committee will meet twice a year to facilitate smooth implementation of project activities.
75. **Project Coordination Unit (PCU):** National Management Agency (NEMA) will be the leading project implementation, as designated by the GEF Operational Focal Point for Kenya in his official endorsement letter. NEMA has a legislative mandate that provides authority with regards to management and control of e-waste. A PCU set up within NEMA will be responsible for overall coordination and facilitation of the work program as described in the annual plans. The PCU will implement county-level Component 3 Project activities through the targeted counties. Functions of the PCU are: (a) preparation of procurement plans and the management of the designated accounts; (b) accounting, financial management, and reporting on overall project subcomponents; (c) ensuring project audits; (d) preparing quarterly financial and technical progress reports; (e) managing environmental and social safeguards aspects; (f) undertaking all procurement and contract management activities for all components; and (g) communicating and interacting with partner countries as well as the regional knowledge platform. A senior officer was appointed as Project Coordinator who reports to the Director General of NEMA. Within each implementing institution, a focal person will be appointed to coordinate project activities. NEMA will seek World Bank approval to recruit additional staff with relevant expertise from within or outside the National Government as needed for successful project implementation and to maximize expertise within NEMA.
76. **Project reporting.** All implementers are required to submit quarterly reports to the Project Focal Person at NEMA outlining the following: i) Type of activity undertaken; ii) Expected outputs; iii) Timeline of activities; iv) Allocated budget; and v) Actual expenditure. The Focal Person will 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 will be presented and discussed at bi-annual review meetings.
77. **Financial Management and Disbursement:**
78. An FM assessment for NEMA was conducted in May 2019 which revealed that NEMA has adequate capacity to effectively implement the project. The Finance department is headed by a qualified Finance Director support by 10 qualified accountants. The budgeting, funds flow, accounting, internal control, financial reporting and audit arrangements are deemed to be satisfactory. *NEMA will enhance the FM capacity by hiring a full-time project accountant to manage the project. NEMA will also develop an FM procedures manual.*
79. **Funds Flow Arrangement.** On disbursement arrangements, the National Treasury (NT) will open a Designated Account (DA), denominated in USD, in the Central Bank of Kenya (CBK), into which the Bank will disburse the funds. NEMA will open a project account in local currency in a commercial bank acceptable to the World Bank. Funds will be transferred from the DA through the MoEF ministry development bank account, to the PA in NEMA.



All eligible project payments will be made out of the PA. Payments may also be made using the direct payment method of disbursement. The Project will have county-level activities, which will be managed by PCU at NEMA.

- 80. **Planning and Budgeting.** The Kenya Portfolio has been experiencing challenges of inadequate budget allocation, non-allocation of budget in first year of implementation, slow exchequer releases, insufficient government counterpart funds, in-country funds flow delays in transfer of funds from the Designated Account (DA) in NT to the Project Account (PA) in implementing agencies. These bottlenecks could adversely affect disbursement and overall Project implementation. These challenges are being addressed as part of the financial management policy dialogue between the World Bank and NT.
- 81. **Disbursement Arrangement.** The Project will adopt the transaction based SOE disbursement method.
- 82. **Financial Reporting.** On financial reporting and audit, NEMA will submit semi-annual unaudited interim financial reports (IFR) to the Bank within 45 days after the end of the calendar semester, in form and content satisfactory to the Bank. NEMA will also prepare and submit to the Bank annual project-specific audit reports and management letter, within 6 months after the end of each financial year.
- 83. The conclusion of the assessment for NEMA is that the financial management arrangements are adequate to support Project implementation. NEMA is assessed as having an initial FM risk rating of Substantial, and overall residual risk of **Moderate** (after implementation of the mitigation measures), which satisfies the Bank’s minimum requirements under the **Bank Directive** and therefore is adequate to provide, with reasonable assurance, accurate and timely information on the status of the project required by the World Bank.

Kenya FM Action Plan

	Action	By whom	Due date
1.	Development of FM procedures manual	NEMA	August 15, 2020
2.	Designation of full-time project accountant	NEMA	Upon project effectiveness
3.	Opening of project DA and PA accounts	NEMA	Within 3 months of effectiveness

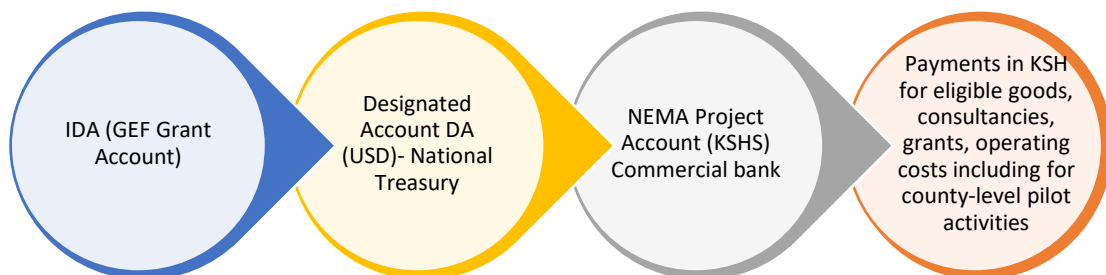


Figure A4. Kenya Funds Flow Chart.



Procurement

84. **Procurement Framework.** Procurement under the proposed project will be carried out in accordance with “The World Bank Procurement Regulations for IPF Borrowers” dated July 2016 and revised in November 2017 and August 2018, hereafter referred to as “Procurement Regulations”. The project will also be subject to the World Bank’s Anti-Corruption Guidelines, dated July 1, 2016 and the provisions stipulated in the legal agreement.
85. **Institutional Arrangements for Procurement:** NEMA Kenya in the Ministry of Environment and Forestry as the implementing Agency will serve as the Project Coordination Unit (PCU). The PCU supports the implementation at the national level and coordination with the EHPMP and other regional entities. The PCU will prepare annual work plans and budgets (AWPBs), procurement plans, procures envisaged procurement transactions as per agreed Bank’s New Procurement Framework, manages the contracts during the implementation, and provide support to counterpart institutions in the implementation of activities. The PCU comprises of the following key staff: (a) Project Coordinator; (b) Institutional Development Specialist; (c) Communication Specialist; (d) M&E and Reporting Specialist; (e) Environmental and Social Safeguards Specialists; (f) Procurement Specialist; and (g) FM Specialist.
86. **Project Procurement Profile:** There are no high value and complex contracts anticipated under this project. The procurement profile is a mix of low to high value, procured centrally at the National level by NEMA. Majority of the procurement transactions are consultancy services and the works contracts are covering pilot e-waste management, which may include e-waste processing equipment and supporting infrastructure, such as shelter and utility connections.
87. **Procurement of Goods and Non-Consulting Services:** These comprise the procurement of motor vehicles, office and IT equipment, IT software & information systems, office furniture, conferencing facilities, and printing services.
88. **Procurement of Works:** These will include the construction of any infrastructure related to the pilot e-waste management Component and/or rehabilitation related infrastructure, such as offices.
89. **Procurement of consultancy services:** These include, i) technical and financial feasibility studies and analysis for the pilot project under Component 3; ii) needs assessment of existing systems; iii) strengthening capacity to monitor, screen and evaluate, health risks; iv) review current environmental policies and develop strategy; and v) environmental and Social due diligence for pilot site.**Project Procurement Strategy for Development (PPSD).** A PPSD has been developed and the Procurement Plan (PP) for the first 18 months of project implementation. The aim of PPSD is to improve implementation of the Project and help achieve results. In terms of the Spend Profile and Key Procurement Activities, the PPSD identified two key procurement transactions (i) Infrastructure for e-waste management [pilot] (US \$ 2.95 m) and (ii) Development of national integrated framework for monitoring and evaluation of e-waste using IT platform with GIS applications (US \$ 0.6 million) uses the major portion of the project spend envelope (US \$ 8.073 m) in % 47%. For implementation of the EHMP, envisaged project procurements are articulated by adhering to the following Procurement arrangements: (a) Carry out the project procurement activities in accordance with the World Bank Procurement Regulations for IPF Borrowers [Procurement Regulations] – July 2016, updated in November 2017 and August 2018; (b) Initiate the procurement process only after obtaining no objection from the World Bank to Procurement Plan [PP]. Enter the PP through World Bank’s portal Systematic Tracking of Exchanges in Procurement [STEP] and update the PP at least annually; (c) Update the PPSD, at least annually or whenever substantial changes in the PP; Submit updated PPSD to the



Bank for seeking concurrence before changing the PP in the STEP. (c) Use the Bank's SPDs for Goods, Non-Consultancy Service and Works and Bank's SRFP for Consultancy services [Open International]; (d) Disclose the contract award details in the suppliers.go.ke or eProcurement platform and in the IAs official websites; (e) Adhere to the Prior / Post Review thresholds are prescribed in the Procurement Plan for first 18 months and subsequent revisions as per the Bank's instructions ; (f) Extend the necessary cooperation for conducting Bank's post procurement review or any other reviews desired by the Bank including complaints cases if any. The IAs uploads all relevant procurement documents to the STEP portal; and (g) Maintain a separate complaint registers and procedure for redressing grievances and complaints, if any. The PPSD has informed the preparation of a Procurement Plan setting forth the selection methods to be followed by the GoK during project implementation in the procurement of goods, works, and non-consulting and consulting services financed by the Bank. The Procurement Plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

90. **Market approach.** When approaching the international market, procurement will be carried out following the Bank's Procurement Regulations and will use the Bank's Standard Procurement Documents (SPD). Procurements while approaching the national market will follow the National Procurement Procedures and may use the National Standard Bidding Documents with appropriate modifications and additional annexes to incorporate the Bank's Anti-Corruption Guidelines, universal eligibility, and the Bank's right to inspection and audit.
91. **Procurement Capacity Assessment.** A Procurement capacity assessment conducted revealed that NEMA has previous experience in the implementation of Bank financed projects using the Procurement Guidelines and has the requisite staffing and capacity to undertake the project. However, some key risks identified include, application and use of the Bank Procurement Regulations and the Systematic Tracking of Exchanges in Procurement (STEP), lack of updated national procurement regulations and national Standard Bidding Documents to be consistent with the national procurement law. Risk mitigation measures would include use of Bank's SPDs for all contracts and capacity building on Bank Regulations and use of STEP prior to project effectiveness. Procurement risk is rated "Moderate".



Senegal

92. The Direction de l'Environnement et des Etablissements Classés (DEEC, Environment and Classified Establishments Directorate) under the Ministry of the Environment and Sustainable Development 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 lead project coordination and hosts the Project Coordination Unit. A Project Coordinator will be recruited and will report to the Director of DEEC. DEEC will have the overall Fiduciary responsibility. Component 3 activities will be implemented in close coordination with local municipalities with the help of Facilitating NGOs.
93. **National Steering Committee (NSC).** Policy guidance and overall project oversight and supervision will be provided by the NSC. The NSC will be Chaired by the Minister of Environment and Sustainable Development or his/her Representative and will comprise representatives from the Recipient's ministries responsible for finance, for urbanism, housing, public hygiene (UCG, Coordination Unit for Solid Waste Management), for local government, and for health. It will also include representatives from the Mayors of Hann-Bel Air, Dalifort, and other zones in Dakar. Functions of the NSC are to: (i) review progress reports on the implementation of project components to provide overall guidance on policy matters related to the decrease of environmental health risks from the release of uPOPs and other toxic chemicals; and (ii) ensure project activities 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 participating countries. The Director of DEEC will be the secretary to the NSC. The Committee will meet twice a year to facilitate smooth implementation of the project activities.
94. **Technical Committee (TC).** The TC will provide technical guidance for this project. The TC will be comprised of representatives from key project implementers, including representatives from DEEC, Municipalities of Hann-Bel Air, Dalifort, and other municipalities in Dakar, as appropriate, UCG, National Committee of Chemicals products, ADM ("Agence de Developpement Municipal"), and NGOs. Members of the TC will also have key project implementation responsibilities and provide technical advice to support decision-making at Steering Committee level. The Director of DEEC will be the Chairperson of the TC. The Committee will meet twice a year prior to the Steering Committee meetings. The functions of the TC are to: a) advise DEEC 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 project activities are integrated in sector plans and budgets; e) assess and recommend technical expertise needed to implement various project activities; and f) closely follow up activities to ensure compliance with the Stockholm Convention.
95. **Project coordination.** Project coordination will be under the Minister of Environment and Sustainable Development. At implementation level, the DEEC will serve as the lead coordinating institution, given its demonstrated experience in the coordination of multi-sectoral projects. A Project Coordinator will be recruited and report to the Director of DEEC. The Project Coordinating Unit (PCU) will be responsible for overall coordination and facilitation of the work program of participating countries and provide communication channels between them. Within each implementing institution, a focal point will be appointed to coordinate project activities.
96. **Project reporting.** All implementers are required to submit quarterly reports to the Project Coordinator at DEEC outlining the following: i) Type of activity undertaken; ii) Expected outputs; iii) Timeline of activities; iv) Allocated budget; and v) Actual expenditure. The Coordinator will 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 will be presented and discussed at bi-annual review meetings.

Financial Management

- 97. The main implementing agency will be the Direction de l’Environnement et des Etablissements Classés (DEEC, Environment and Classified Establishments Directorate) under the Ministry of the Environment and Sustainable Development. The DEEC will have the financial management responsibility for the grant. DEEC is already implementing the Senegal-West Africa Coastal Areas Resilience Investment Program (WACA P162337), an ongoing Bank-financed project.
- 98. The Financial Management (FM) assessments 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 agencies have acceptable financial management arrangements in place. 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.
- 99. The DEEC has experience in implementing IDA-financed projects. The Financial Management system in place will be reinforced and used for the present grant activities. The existing administrative and financial manual of procedures is adequate; however, it will be updated to include an annex for this new Project’s activities (no later than four months following effectiveness). The accounting system in place is adequate and will be customized to allow for a separate accounting ledger for this new Project’s activities. However, the current FM team, which consists of a Financial Director and one Accountant, will be strengthened by recruiting another qualified accountant. In addition, the Internal Inspection in charge of the internal control is not yet fully strengthened in order to undertake appropriate internal control activities. The Internal Inspection’s reinforcement’ action plan has not been implemented yet. As a result of the assessment, the DEEC will be required, no later than four (4) months after Effectiveness, to:
 - a. Recruit an accountant with experience and qualification satisfactory to the Association;
 - b. Implement the internal inspection reinforcement’ action plan;
 - c. Update the existing project financial and administrative manual in order to include this new Project specifications;
 - d. Recruit an external auditor with qualification and experience satisfactory to the Bank.
- 100. Conclusion of the FM assessment: The conclusion of the assessment is that the financial management arrangements in DEEC are adequate and satisfy the Bank’s minimum requirements under Bank Policy and Directive on Investment Project Financing (IPF) effective in 2017. The overall risk for the project is rated *Moderate*. A financial management action plan including proposed mitigation measures will be put in place focusing on actions listed above.

Financial Management Action Plan

	Action	Date due by	Responsible
1	Prepare and agree with the Bank on the format of the IFRs.	Completed by Negotiations	DEEC



2	<ul style="list-style-type: none"> - Develop the annex project manual - Implement the internal inspection reinforcement' action plan - Recruitment of an accountant officer with experience and qualification satisfactory to the Association 	No later than four months after Effectiveness	DEEC
3	<p>Draft the ToRs for financial audits of the Project</p> <p>Selection of the auditor</p>	Not later than four months after Effectiveness	DEEC

Procurement

101. The Borrowers will carry out procurement under the proposed project in accordance with the World Bank’s “Procurement Regulations for IPF Borrowers” (Procurement Regulations) dated July 2016 and revised in November 2017 and August 2018 under the “New Procurement Framework” (NPF), and the “Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants”, dated October 2006 and revised in January 2011 and July 2016, and other provisions stipulated in the Financing Agreements. All procuring entities as well as bidders, and service providers, i.e., suppliers, contractors, and consultants shall observe the highest standards of ethics during the procurement and execution of contracts financed under the Project in accordance with paragraph 3.32 and Annex IV of the Procurement Regulations.
102. The Borrowers shall prepare and submit to the Bank a General Procurement Notice (GPN) and the Bank will arrange for publication of GPN in United Nations Development Business (UNDB) online and on the Bank’s external website. The Borrowers may also publish it in at least one national newspaper.
103. The Borrowers shall publish the Specific Procurement Notices (SPN) for all goods, works, non-consulting services, and the Requests for Expressions of Interest (REOIs) on their free-access websites, if available, and in at least one newspaper of national circulation in the Borrower’s country, and in the official gazette. For open international procurement selection of consultants using an international shortlist, the Borrower shall also publish the SPN in UNDB online and, if possible, in an international newspaper of wide circulation; and the Bank arranges for the simultaneous publication of the SPN on its external website.
104. **Institutional Arrangements for Procurement.** The procurement activities for the Project will be conducted using the existing institutional arrangements under West Africa Coastal Areas Resilience Investment Project (WACA, P162337). The DEEC, responsible for the implementation of the procurement of WACA, will be also the implementing unit of this grant. The DEEC has designated the WACA Procurement Specialist as also responsible for the procurement activities of the Project and this specialist will work closely with the World Bank Office Procurement Officer. The consultant supporting the WACA Procurement Specialist will also continue his mission in the context of the implementation of this grant.
105. **Filing and record keeping:** The Procurement Procedures Manual (to be prepared not later than four months after Effectiveness) will set out the detailed procedures for maintaining and providing readily available access to project procurement records, in compliance with the Loan Agreement.
106. **Project Procurement Strategy for Development:** As part of project preparation, a Project Procurement Strategy for Development (PPSD) has been prepared, which describes how fit-for-purpose procurement activities will support project operations for the achievement of project development objectives and deliver Value for Money



(VfM). The PPSD is linked to the project implementation strategy at the regional and national levels, ensuring proper sequencing of the activities. It considers institutional arrangements for procurement; roles and responsibilities; thresholds, procurement methods, and prior review, and the requirements for carrying out procurement. It also includes a detailed assessment and description of state government capacity for carrying out procurement and managing contract implementation, within an acceptable governance structure and accountability framework. Other issues considered include the behaviors, trends and capabilities of the market (i.e., Market Analysis) to inform the procurement plan. The activities also require strong technical capability to prepare proper technical specifications to avert lack of, or inadequate, market response. This capability – or a plan to enhance is considered in the strategies. Also, special arrangements like direct contracting, use of SOEs, UN Agencies, third party monitors, local NGOs, Force Account, or civil servants needs, results-based arrangements, need for prequalification, if any, are considered and addressed.

107. **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 was submitted to the Bank before negotiations. 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. Details of Contract Packages to be procured under the project were finalized and submitted to the Bank before negotiations.

108. The contracts for works (US\$1,250,000) consist mainly of “Development of the Marist lakes and around the Dalifort basins “– request for bids and national market approach. Smaller works and purchases using request for quotation (RFQ) method will be conducted for “Construction of Standardized Grouping Points (PRN)”, etc.) with equipment and consumables, the supply of accountant software and of materials and equipment (office equipment and furniture, etc.). Main consulting activities requiring the use of the Consultants qualification Selection (CQS) with an national approach to the market are : (i) Selection of a firm for Selection for studies Design and supervision of the “Development of Marist lakes and around the Dalifort basins” estimated to US\$125,000; (ii) Selection of a firm for Selection of a Cabinet for “the realization of the Air Quality Reference Situation and the inventory of POPNI sources in the project area estimated to US\$55,000; (iii) Selection of a Cabinet for environmental and health impact assessment / Analysis of the health impact of chemicals including POPNI (US\$60,000); (iv) Recruitment of a firm for Selection of a Cabinet for the updating of a national plan on the management of hazardous waste and development and categorization (Nomenclature) of waste (US\$50,000). Others smaller contracts for firms and individual consultants will be procured using the most appropriate methods.

109. Based on the initial risk rating (Substantial), PCUs of the proposed project shall seek the World Bank’s prior review for equivalent value of contracts as detailed below.

Thresholds for Procurement Approaches and Methods (US\$, millions)

Category	Prior Review (US\$ millions)					
		Open International	Open National	RFQ	Short List of National Consultants	
					Consulting Services	Engineering and Construction Supervision
Works	≥10.0	≥7.0	<7.0	≤0.2	n.a.	n.a.
Goods, IT, and non-consulting	≥ 2.0	≥1.0	<1.0	≤0.1	n.a.	n.a.



services						
Consultants (Firms)	≥1.0	n.a.	n.a.	n.a.	0.2	0.3
Individual Consultants	≥0.3	n.a.	n.a.	n.a.	n.a.	n.a.

110. **Assessment of the Agency’ Capacity to Implement Procurement.** A procurement capacity assessment of the implementing agencies was updated by the World Bank using the new PRAMS. Procurement Risk Rating: The project procurement risk prior to the mitigation measures is “**Substantial**”. The risk can be reduced to a residual rating of “**Moderate**” upon consideration of successful implementation of the mitigation measures. The risks and mitigation measures are provided below.

Procurement Risk Assessment and Mitigation Action Plan

Procurement Risk	Mitigation measure	Responsibility and Deadline	Risk level Initial/residual
Delay in the elaboration of TORs Lack of implication of the stakeholders.	Hire a consultant firm to draft the TOR with the commitment of the beneficiaries	DEEC/ Immediately	Substantial/ Moderate
Discrepancies on technical specifications (BID); TOR (RFP)	Improve the technical specification on the draft Bidding Document Improve the preparation of draft TOR (RFP) Harmonize the draft Contract (BID) and the signed contract. Reinforce the Capacity of the entire Team on Procurement particularly on contract management	DEEC/ World Bank Procurement TEAM/Immediately	Substantial/ Moderate
Selection qualification criteria (Bid) are not fit on purpose vis-à-vis the market.	Optimize the qualification criteria considering the capacity of the market.	DEEC/ Immediately	Substantial/ Moderate
Delay on the procurement Process and contract execution	Involve the participation of the project Team in the Procurement Board Committee. Request a special authorization to ARMP Senegal to create a specific Commission dedicated to WACA Project.	DEEC/IDA/Immediately	Substantial/ Moderate



	Provide due diligence for IDA No objection. Ensure an effective contract Management monitoring. Hire qualified consultants for engineering and contract supervision		
Virtual risk collusion between bidders during the procurement process	Process to a broad advertisement Avoid restricted and discriminatory criteria.	DEEC/Immediately	Substantial/ Moderate
Contracts wrongly awarded/falsified submitted documents.	Ensure the control of authenticity document provided by the selected bidder/consultant.	DECC/ Immediately	Substantial/ Moderate
Abnormally low bid /proposal	Seek written clarification from Bidder/Proposal (ref provision 5.66 from Procurement Regulation...)	DEEC /Immediately	Substantial/ Moderate



ANNEX 3: DETAILED PROJECT DESCRIPTION BY COUNTRY

Regional Project (P167788)

Country	GEF Amount (\$) Project
Tanzania	7,339,450
Ghana	8,715,596
Zambia	8,256,881
Kenya	8,073,395
Senegal	5,504,587
Total Project Cost	37,889,909

Regional Coordination (P166233)³⁹

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	

³⁹ Refer to Project document (P166233) for detailed project description.



Tanzania

1. **Component 1: Institutional strengthening, knowledge and capacity building (US\$1.5 million GEF).** This component will provide assistance to strengthen the knowledge and capacity building for sound management of mining in Tanzania, focusing on the Artisanal Small-scale Gold Mining (ASGM) sector. Project activities build on the concluded UNEP Integrated Health and Environment Observatories and Legal and Institutional Strengthening for the Sound Management of Chemicals in Africa (African ChemObs) Project.
2. The component will enhance institutional strengthening and capacity building for agencies that manage ASGM, including institutional players involved in regulating mercury trade such as the Government Chemist Laboratory Authority (GCLA), customs/border control tax officials, and business community. 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; support participation of stakeholders and coordination of stakeholders at national and regional level in the learning and knowledge sharing activities; and maintaining an inventory consistent with requirements of the Minamata Convention.
3. A country-level inventory and tracking of mercury import and use in the ASGM sector will be implemented to better understand trade-related issues of importance. This will include training for artisanal miners to understand the cost-benefit analysis of procuring mercury from illegal traders versus associated environmental health costs that are unaddressed due to non-transparent transactions. The policy and regulatory aspects of mining will be strengthened to include provisions for recognition of legal import of mercury.
4. This component will also promote transparency along the entire value chain. This will include facilitating direct access of miners to the market leading to increased price awareness and bargaining power, allowing for a price in line with the global market rate, and greater economic and social stability. Furthermore, improvements to the supply chain of mercury and gold will include procurement of cheap and reliable sources of mercury, access to credit and technical know-how, licensing, extraction and amalgamation, final gold sales, and pricing. Artisanal miners are expected to use the benefits of increased transparency 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. The recently completed Mercury Trade Diagnostic study revealed the lack of transparency in import, use, and disposal of mercury in the ASGM sector. The component will also assist in facilitating procurement of simple equipment for air, water, and soil monitoring to comply with necessary steps required to implement the Minamata Convention.
5. To strengthen stakeholder coordination and participation in ASGM efforts, this component will support workshops and other fora to engage national level stakeholders as part of regional learning and knowledge sharing activities on chemicals management.

Expected outputs of Component 1:

- a. Regional forum for monitoring and decision-making on use and trade of mercury.
- b. Strengthened capacity for monitoring of mercury data (usage and trade).
- c. Established inventory of mercury import data at country level.
- d. Participation by stakeholders in regional platform events undertaken for coordination and knowledge sharing.
- e. Training materials developed, and training delivered to different stakeholder groups on importation,



- transportation, use and disposal of mercury.
- f. Procurement of equipment for air, water and soil monitoring.

Component 2: Policy dialogue and regulatory enhancements (U \$1.5 million GEF)

6. Following amendments to the Mining Act, 2010 in 2017, the Environmental Protection Plan (EPP) must be submitted to the Mining Commission ahead of the granting of a Primary Mining License. License holders are instructed to conduct baseline environmental investigations and propose mitigation measures of the environmental impacts as necessary, whereas NEMC will participate in the approval process of the EPP and ensure that the proposed mitigation measures are adequate and conform with requirements of the EMA (2004). This component will support the Government's efforts in strengthening current environmental policies and regulations, and capacity to monitor, screen, and evaluate health and environmental risks associated with ASGM.
7. The component will assist in developing a strategy for promoting the reduction of emissions and releases of, and exposure to, mercury in ASGM 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 ASGM 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; designate special areas for processing, washing of gold ores (Panning) and heating of the amalgam; Involving stakeholders in the implementation and continuing development of the national action plan; and more localized training of artisanal miners and stakeholders.
8. The component will support the development of a public health and communication strategy on the exposure of artisanal and small-scale gold miners and their communities to mercury. Such a strategy would include gathering of health data, training for health-care workers, and awareness-raising through health facilities.
9. Assistance will 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 ASGM, and dissemination of information to ASG miners and affected communities, in support of implementation of the National Action Plan.

Component 3: Demonstrating application of technological tools and economic approaches (US\$3.99 million GEF)

10. This component will support the efforts of the Government 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.
11. Project technical assistance will help improve working conditions for the local mining community by leveraging planned investment activities under the existing SMMRP-II Project to promote mercury abatement.
12. The objective of this component is to collaborate with Small Enterprise Development Corporation (SEDCO/SIDO) or local manufacturers to conduct researches on alternative technologies, prepare prototypes and manufacture/replicate low cost centralized gold extraction equipment to enable moving away from using mercury, and towards adopting alternative mercury-free technologies (e.g., vat leaching). Component activities are expected to greatly reduce the amount of mercury to be procured and used, and consequently reduce the amount of mercury emissions in the environment. 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.

13. The demonstrative investments will be selected and designed based on environmental health risks and cost effectiveness of interventions. The project will consider opportunities 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. In regard to forests/afforestation measures, ASGM will be sensitized to plant trees to mined out areas through progressive rehabilitation as well as total rehabilitation during mine closure. Furthermore, the project will finance a pilot program to rehabilitate selected abandoned mining sites by ASGM to address the past legacies and improve environmental conditions of these areas including planting trees. This can be done through use of available technology such as bioremediation or chemo -remediation of the contaminated soil, backfilling the dug shafts with the bio -remediated soil and planting of indigenous trees.
14. 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 the Minamata Convention.
15. The demonstration investments will be linked to the Resilient Natural Resources Management for Tourism and Growth Project (REGROW) and aim to enhance rehabilitation of degraded land and promote interventions, which sustain biodiversity.
16. The project will benefit from the natural resources-based livelihoods support from REGROW, such as participatory forest management and conservation of landscapes. It is envisaged that apart from mitigating environmental health risks from emissions, mercury abatement will reduce use of trees for fuel wood, and consequently the rate of deforestation land degradation.
17. **Component 4: Project Coordination and Management (GEF US\$349,498).** This component focuses on project coordination at national, district, and community levels. It will support 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.



Ghana

18. **Component 1: Institutional strengthening, capacity building and knowledge sharing (US\$1.9 million).** The component will strengthen the knowledge and capacity base of public institutions and private stakeholders to address environmental health risks associated with mercury use in ASGM sector and POPs/uPOPs releases from e-waste.

Sub-component 1.1: Mercury management in ASGM

19. The component will enhance the capacity of institutions and other mercury stakeholders in Ghana to address environmental health risks associated with mercury use in ASGM sector and support the successful implementation of the Minamata Convention. Key beneficiary institutions will include the Environmental Protection Agency (EPA), Ministry of Environment, Science, Technology and Innovation (MESTI), the Ministry of Lands and Natural Resources (MLNR), Minerals Commission (MC), Ministry of Health, Ghana Health Service (GHS), Ministry of Trade and Industry (MOTI), Ministry of Information, and Information Services Department, as well as the national Minamata Convention Steering Committee. The component will also engage with small-scale miner associations to raise awareness on environmental health risks and how to address them via safer mercury handling and cleaner technologies in ASGM.
20. Capacity for monitoring and decision-making for mercury management: The *Minamata Convention on Mercury Initial Assessment for Ghana*, completed in 2018, identified institutional capacity gaps on mercury inventory and identification. The Project will support MESTI, EPA, and MC and finance the compilation of a National Mercury Inventory (NMI) database for Ghana. The NMI will cover import and export, trade, stockpiles and supply, production and uses, releases and emissions, and allow for tracking of mercury material flow. Alongside the NMI, other data will be collected, including the list of mercury import permits, to facilitate at all time compliance monitoring and enforcement. This will constitute the preliminary version of a National Mercury Management Information System (NMMIS), which could, in future, aggregate more information and facilitate data visualization and interpretation (e.g., production of hotspot maps). The Project will also strengthen capacity for updating the NMI (e.g., expand information quality and coverage, regular monitoring) and exploiting the database (e.g., setting priorities and reduction targets, understanding illegal trade, or reporting to the Convention).
21. Citizen engagement: The Project will support a comprehensive mapping of the mercury ecosystem in Ghana, to assess the stakeholders along the mercury supply-demand value-chain. For each stakeholder category, this assessment will describe its role and determine at what level (local, regional, national, international) it interacts with the supply-demand value-chain. This assessment will also identify the barriers and needed interventions to encourage stakeholders reducing use and release of mercury, and exposure to, as well as transitioning to mercury-free techniques. Based on this assessment, an outreach/communication strategy will be designed to raise awareness on the environmental health risk of mercury mismanagement, change mindset towards cleaner practices and technologies, and build consensus on the Government's program. The Project will also support the implementation of this outreach/communication strategy, in particular with respect to (i) raising awareness of health impacts and solutions in mining communities; (ii) engaging with local governments, to support and guide project implementation on the ground and collect feedback; and (iii) training media on health risks but also positive developments and successful pilots in addressing mercury management in ASGM.
22. Capacity enhancement for artisanal and small-scale miner associations: The Project will engage actively with artisanal and small-scale miner associations on environmental health risks and cleaner technologies. The Project will raise awareness on environmental health risks and build capacity on best practices in mining and mineral processing, including mercury-free methods as well as environmental and social due diligence before mining and



environment plans for rehabilitating mines after closure. In conjunction with the World Bank-financed GLRSSMP Project (P171933), the Project will contribute to the development of a training program for small-scale miner associations, on such topics as (i) alternative methods for gold recovery and (ii) improved methods for capture and management of mercury. This could be through the updating of an existing course by the University of Mines and Technology (UMaT). The Project will also support the participation of affected communities (e.g., travel, accommodation). Regions and communities will be chosen in coordination with the other capacity building initiatives on-going in Ghana as well as in line with Sub-component 3.1 (cleaner technologies demonstration sites).

23. Strengthening national coordination mechanism for mercury management: The Project will support MESTI and EPA in facilitating liaison with, and improving coordination among, the following bodies, at senior or operational level: Ministry of Trade & Industry (MOTI), Ghana Atomic Energy Commission, Council for Scientific and Industrial Research (CSIR), Science and Technology Policy Research Institute (STEPRI), University of Mines and Technology (UMaT), Ministry of Health (MOH), Inter-Ministerial Committee on Illegal Mining, artisanal mining associations, development partners, donor-funded projects, and non-governmental organizations. This coordination is particularly relevant given the myriad of initiatives around mercury-free technologies, creating the need to map them out and capture lessons learned. The Project will also strengthen Ghana's Minamata Convention Steering Committee as a platform for national coordination on mercury management. Finally, the Project will support knowledge and experience sharing among participating countries (e.g., participation in regional forum, study tours etc.) through the regional knowledge exchange platform.
24. Expected Results of Sub-component 1.1
- National Mercury Inventory (NMI) database for Ghana developed
 - Capacity for monitoring of and reporting on mercury uses and flows strengthened
 - Outreach/communication strategy for improved mercury management developed
 - Higher awareness of vulnerable populations and populations with high exposure to mercury
 - 10 miner communities trained in safe handling of mercury and cleaner mining practices
 - Minamata Convention Steering Committee strengthened

Sub-component 1.2: e-waste management

25. The sub-component will enhance the capacity of institutions and other stakeholders in Ghana to ensure environmentally-sound disposal and recycling of e-waste in Ghana. Key beneficiary institutions will include EPA, MESTI and the Customs Division of the Ghana Revenue Authority. The Project will in particular support capacity building efforts of the EPA and MESTI to successfully implement and enforce the *Hazardous and Electronic Waste control and Management Act, 2016 (Act 917)* and the *Hazardous, Electronic and other wastes control and management regulations, 2016 (LI 2250)*. The Project will also work with e-waste associations/cooperatives, to raise their awareness and build their capacity to grow and manage their business in environmentally- and socially-sound ways.
26. e-waste inventory: The Project will support EPA to undertake a country-wide situation analysis on e-waste to understand the physical flow of e-waste, by provenance and type, and assess the economic and social weight of the sector. This analysis will build on a previous assessment, undertaken in 2009 and released in 2011, and will include an inventory of e-waste by origin and type, trade routes and hubs, as well as a review of major toxic pollutants, including an assessment of environmental health implications of harmful chemicals and waste and options for risk management. This situation analysis will also look at socio-economic considerations, to measure the contribution of the e-waste sector to the economy. It will seek to assess the dimension of the sector, including the different value-chains, their economic value, their employment level, and their degree of formalization, as



well as ways to increase the formalization of the sector and boost value addition and job creation. This situation analysis can become the foundation of an e-waste management information system in Ghana. The system would serve as a platform to guide the Government on initiatives related to the development of infrastructure for e-waste management, resource mobilization, awareness creation, capacity building, education and research, and monitoring and evaluation.

27. Citizen engagement: Drawing on the socio-economic component of the e-waste inventory, a comprehensive stakeholder mapping of the e-waste ecosystem in Ghana will be prepared. It will serve as a basis to design an outreach/communication strategy to raise awareness on the environmental health risk of e-waste, change mindsets towards cleaner practices and technologies for handling and recycling, and build consensus on the Government's program. The outreach/communication strategy will in particular target two groups: (i) the general public (e.g., on the recent national e-waste policy, how to manage e-waste properly, and the hazardous health and environmental impacts of improper e-waste management); and (ii) those companies who pay the levy (e.g., to explain its rationale and how funding mobilized is used); and (iii) potential beneficiaries from the E-waste Fund, once it becomes operational and disbursing (e.g., explain how some operators along the value-chain can benefit from support, if eligible).

28. Capacity enhancement: The Project will deliver capacity enhancement for targeted actors in the e-waste ecosystem:
 - The Project will engage with e-waste associations/cooperatives to build their members' capacity on safe handling and recycling of e-waste as well as to provide technical assistance for business development (e.g., how to increase value addition in the recycling process, how and why to formalize their business, how to become certified for recycling and dismantling of e-waste with EPA). These activities will be undertaken in line with that of sub-component 3.2 to support its implementation and reinforce likelihood of success;
 - The Project will enhance the capacity of Customs Officers with appropriate training to streamline Customs Coding, strengthen Borders Inspectorate to curtail entry of illicit e-waste into Ghana, and the collection of the appropriate taxes and levies;
 - The Project will build the capacity of EPA/MESTI to strengthen accountability and oversight on e-waste management. Aspects covered include the recent regulation and related permitting/monitoring process; best practices on e-waste management along the value-chain; data collection and management, and monitoring as related to environmental and health hazards of e-waste. About 120 individuals would benefit as follows: 100 EPA staff in head office as well as in regional and district offices, will be trained primarily on regulation, monitoring and enforcement; as well as 20 MESTI staff in head office to be trained primarily in relation to policy formulation and monitoring and evaluation (e.g., inform policy development and guide management of the E-waste Fund).

29. Strengthening national coordination mechanism for e-waste management: Addressing the e-waste challenge requires collaboration and coordination among all stakeholders and the Project will support EPA and MESTI (PPME) to effectively coordinate all on-going Initiatives on e-waste management in Ghana. The Project will support the operationalization of the Hazardous Waste and Electronic Wastes Management Committee as a platform for national coordination on e-waste management. It will also support EPA and MESTI in their effort to coordinate the growing initiatives of development partners, via an e-waste platform for information sharing and strategic alignment. More broadly, the component will also support EPA and MESTI collaboration with MOTI,



MOH – GHS, Ministry of Communications, Customs Division of the Ghana Revenue Authority, Ghana Immigration Service, Ghana Standards Authority and Ghana Ports and Harbours Authority. Finally, the Project will also support knowledge and experience sharing among participating countries (e.g., participation in regional forum, study tours etc.) through the regional knowledge exchange platform.

30. *Expected Results of Sub-component 1.2*

- A country-wide situation analysis on e-waste available, covering environmental, economic, and social dimensions
- Capacity of public institutions (EPA/MESTI and Customs) strengthened to support implementation and enforcement of e-waste management regulations and laws
- Increased capacity of 5 e-waste associations/cooperatives on safer practices and on business development
- Hazardous Waste and Electronic Wastes Management Committee operational

31. **Component 2: Policy dialogue and regulatory enhancements (US\$1.9 million).** The component seeks to address current policy challenges as well as to strengthen regulatory frameworks and facilitate their implementation, to better address environmental health risks associated with mercury use in ASGM sector and POPs/uPOPs releases from e-waste. It complements activities under component 3, focused on operational-level approaches to incentivize practices and technologies less harmful to human health and the environment.

Sub-component 2.1: Mercury management in ASGM

32. Strengthening the regulatory framework: Ghana's Initial Assessment finds that there is no single law that comprehensively covers all the provisions of the Minamata Convention and rather that some existing laws seek to address some of the challenges posed by mercury that the Convention also seeks to address. The Initial Assessment for Ghana thus recommends the development and enactment of a new legislation and regulations that will ensure compliance with the provisions of the Convention, taking into account other existing laws. The Project will support assessment and analysis of national institutional, policy, and legislative gaps in mercury management in Ghana to meet the requirements of the Minamata Convention. It will also support the development of a legal framework that incorporates the obligations under the Minamata Convention as well as an administrative structure for its full and effective implementation. In addition, the Project will support the development of interim standards for mercury management along the value-chain (e.g., for transport, storage) while the Government works towards phasing out. Information from the National Mercury Inventory (NMI) will guide the development of these interim standards by indicating which segments of the value-chain should be priority focus of intervention.

33. Development of technology and finance roadmaps: The Project will support the preparation of technology roadmaps for a few, promising options, which will consider, for each of them, the information, capacity, policy, and finance levers that must be triggered for their adoption at scale. Preparation of these roadmaps will involve gathering of data, engagement and consultation with stakeholders. Feasibility studies for various technologies might also be undertaken, in particular to consider affordability (both in terms of CAPEX but also OPEX), environmental impact (e.g., on land contamination as in the case of retorts), as well as suitability (types of ore/geology), complexity (including in getting spare parts), and social dimensions (e.g., impact on livelihood and employment opportunities). The Project will also support a detailed assessment on access to finance for artisanal and small-scale miners, as that is one of the limiting factors for the adoption of new practices and technologies,



more respectful of the environment. Findings from the assessment could also inform some capacity enhancement activities (to be financed under Sub-component 1.1) such as helping miners to prepare business plans and loan applications for cleaner mining technologies and practices.

Expected Results of Sub-component 2.1

- Strengthened policy and regulations for mercury management developed as per Minamata Assessment
- Technology roadmaps developed for promising mercury-free technologies
- Capacity enhancement working sessions with ASMG associations to prepare business plans and loan applications

Sub-component 2.2: e-waste management

34. This component will support the Government's efforts in strengthening the current environmental policies and regulations related to health and environmental risks associated with e-waste management and hazardous waste.
35. Strengthening the regulatory framework: MESTI, with GIZ support, is developing an e-waste policy, but an implementation plan, monitoring and evaluation plan, and communication strategy are lacking. The Project will help prepare an implementation plan, monitoring and evaluation plan, and communication strategy in support of the national integrated e-waste management scheme, that will look at the information, capacity, policy, and finance gaps and needs, at very practical levels to support straight-forward operational implementation.
36. Identifying economic opportunities: This sub-component will also support economic assessments to further inform the environmental regulator, including:
 - An assessment of the plastics that come with e-waste (e.g., computer casing, etc.), with a view to explore possible valorization and what it takes to turn it into a viable proposition;
 - An assessment to understand the economics of the eco-levy, and answer in particular those questions: (i) at which step(s) in the circular economy it could play the largest role (e.g., upstream to encourage scrap dealers, downstream to cover cost of treatment and handling of final products, etc.); (ii) how to combine the eco-levy with an Extended Producer Responsibility (EPR) scheme?; and (iii) should electronic manufacturing be develop in Ghana?; among other emerging and topical questions.
37. Both could help assess the private sector's interest and viability of further engaging into e-waste processing and the parameters required for Public Private Partnership Project (PPP) to work in Ghana.
38. *Expected Results of Sub-component 2.2*
 - Strengthened policy and regulations for e-waste management with a clear implementation plan
 - Better understanding of economic opportunities in e-waste management

39. **Component 3: Demonstrating the application of technological tools and economic approaches (US\$ 4.5 million).** The component will finance specific community-focused cleaner technology demonstration activities in contaminated areas, selected and designed based on environmental health risks and cost-effectiveness of interventions. The objective is to address technical and methodological challenges to the adoption and deployment of cleaner technologies and practices in complement to activities under component 2, which focuses on challenges and policy incentives to reduce environmental and health pressures.

Sub-component 3.1: Mercury management in ASGM



40. *Establishment of clean mining demonstration centers:* The Project will focus on demonstrating best practices in ASGM processes through the establishment of demonstration centers for training and promotion of alternative mercury-free technologies in the ASGM sector. Based on the funding envelope available, about ten centers are under consideration. They are expected, through their best practice dissemination mandate, to contribute to not only reducing the amount of mercury to be procured and used but also reducing the amount of mercury emissions and wastage. They are also expected to generate concrete lessons on cleaner technologies cost, impact, and application that can be applied nationally to inform scaled-up deployment of mercury-free technologies in ASGM as well as shared regionally for the same purpose. The demonstrative investments will be selected in line with the technology roadmaps developed under sub-component 2.1, taking into account considerations such as affordability (both in terms of CAPEX but also OPEX), environmental impact (e.g., on land contamination as in the case of retorts), as well as suitability (types of ore/geology), complexity (including in getting spare parts) and social dimensions (e.g., impact on livelihood and employment opportunities). Sites and communities for these demonstrative investments will be chosen so as to maximize the learning potential. Site selection criteria include: size of mining activities (seeking locations with larger number of potential beneficiaries); geology (looking for diverse sites, which together represent the full range of geological conditions for gold mining in Ghana); regional balance (providing a balanced overview of responsiveness to interventions in different cultural contexts); and coordination (taking into account the other cleaner technologies demonstration initiatives on-going in Ghana, such as the IDA- and GEF-funded *Ghana Landscape Restoration and Small-Scale Mining Project* (under preparation) and the GEF-funded GOLD+ Ghana Project, also under preparation. There could be overall 10 sites, spanning the 10 mining regions of Ghana (Western, Western North, Ashanti, Ahafo, Central, Bono, Savannah, North East, Upper East, Upper West). These sites and beneficiaries will be the prime beneficiaries of the technical assistance envisage under sub-component 1.1. The demonstration investments will be linked with the Ghana Landscape Restoration and Small-Scale Mining Project (P171933), in terms of site selection (as mentioned above) and experience sharing.
41. *Expected Results of Sub-component 3.1*
- Mercury abatement techniques tested/promoted

Sub-component 3.2: e-waste management

42. *Development of pilot investments and approaches for sustainable e-waste management:* This sub-component will support the EPA / MESTI in designing and implementing pilot investments and approaches related to Agbogbloshie and other e-waste contaminated sites located outside of the capital, such as Kumasi, Ashaiman, Tamale, Koforidua, Paga, Aflao, Sunyani, and Techiman, on the implementation of integrated and environmentally-sound management solutions to improve the collection, transportation, and safe disposal/recycling of e-waste, following Article 6 of the Stockholm Convention on wastes, and relevant guidance. Some of these pilots will also explore the development or strengthening of value chains, to demonstrate solutions for larger private sector engagement in e-waste management.
43. The Project will directly support the Government's vision for e-waste management (as recently detailed for instance in EPA's 2018 *National Integrated e-waste Management Scheme*) with two interventions at different steps of the e-waste management cycle, working, upstream, on formalizing collection, and downstream, on managing safe disposal. This approach has been adopted for two key reasons: (i) foremost, the primary objective of this project to prevent mercury and uPOPs releases into the environment from current e-waste dismantling practices in the informal sector (i.e. establish EPA-approved collection and dismantling centers) and (ii) to support



the formalization of the e-waste sector and the achievement of the national e-waste integrated strategy (i.e. establish buy-back centers to channel e-waste from the informal sector into the formal sector without jeopardizing livelihoods). The siting of the pilot investments on e-waste management foreseen under this sub-component shall not involve any land acquisition and nor result in relocation of individuals and/or economic relocation.

44. *Establish collection and dismantling centers in at least 5 to 10 e-waste hotspots outside of Accra* (potential locations include: Kumasi, Tamale, Koforidua, Ashaiman, Paga, Aflao, Sunyani, Techiman, etc.). EPA's 2018 *National Integrated E-waste Management Scheme* promotes the establishment of collection centers in every district assembly. These collection centers must be permitted by the EPA and should be operated by the private sector and/or scrap dealer associations. Permitted dismantling centers require additional facilities and safeguard measures for environmentally-sound e-waste dismantling practices than what is currently occurring in the informal sector. However, it is understood that the existing scrap dealers do not have the means to improve their operations to a level that can be permitted by the EPA. Therefore, this component will provide facilities and training to major e-waste hotspots as an immediate solution to reduce the major sources of mercury and uPOPs pollution into the environment from the e-waste sector. While much attention is given to Agbogboshie as a major e-waste hotspot in Accra, several other hotspots exist in the country, such as Kumasi, Koforidura, Ashaiman, and Tamale, among others. Further, Paga, Aflao, Sunyani and Techiman are major inter-regional trading routes where much e-waste is moved from surrounding countries into Ghana, which has a more advanced scrap materials industry. These collection and dismantling centres would be built according to EPA requirements as detailed in L.I. 2250 (waterproofed facility, access to sanitary facilities, secured site) and following the design promoted by EPA (i.e., modular assemblage of 40-foot shipping containers). There are value-addition activities that could be integrated into the operations of a collection center, which would then require additional EPA permitting as a dismantling center. Activities such as removing plastics casing, degassing refrigerators, compressing metals to increase bulk density to increase economic efficiency of transport have varying degrees of complexity but can be readily trained to low-skilled workers provided oversight by a higher-skilled supervisor. Continued capacity building may be required to ensure efficiency of operations and maintenance of the investment. This investment is particularly relevant as EPA's vision for e-waste management anticipates collection centers operating in every district assembly (i.e., 276 centers nation-wide) while currently, no known plan exists to fund and/or deploy these centers. In practice, sites will be chosen targeting the largest pollution centers. Technical assistance would then be deployed to alert and assist interested private operators and scrap dealers (including scrap dealers associations) to prepare their proposals for the operation of the collection centers. The centers would be leased, for a term (e.g., 5 yrs), to the applicants with the best proposals (e.g., reflecting experience, financial backing, job creation potential, vision). Construction would commence with handover to local assemblies and lease to selected operators.
45. *Build at least 1 and up-to 2 National Buy-back/Holding Centers* to facilitate the recovery of e-waste and move the hazardous material out of the informal sector into the formal sector where recycling activities can be monitored for best environmental practices. The *National Integrated E-waste Management Scheme* envisions a central Buy-Back/Holding Centre in all regions of Ghana (i.e. 1), which will have access to funds accrued by the Advanced Eco-levy (Act 917) for the purchasing of e-waste from collectors to concentrate e-waste streams from dispersed collection centers and certified collectors and ensure a supply of certified e-waste material for the recycling industry. These centers would include storage space for raw e-waste or dismantled e-waste and possibly sites for dismantling and other e-waste transformation. Possible sites include largest pollution centers: Kumasi, Koforidua/Tamale. These centers would be owned by Local Assemblies and operated by a 3rd party, selected through competitive bidding. Financing made available from the E-waste Fund/Advanced Eco-levy would support their operations. Design (e.g., technical specifications) and operation (e.g., operations contract) would be



informed by lessons learned from GIZ⁴⁰ and KfW⁴¹ work (which should be completed by mid 2021). The centers would be established on land made available by the Local Assemblies. No economic displacement is expected.

46. *Expected Results of Sub-component 3.2*

- Private stakeholders engaged in formalization of e-waste management
- Immediate reduction in mercury and uPOPs releases into the environment from e-waste processing activities in the informal sector
- Strengthening the bridge between the current informal practices and the national strategy for environmentally sound management of e-waste

47. **Component 4: Project coordination and management (US\$ 415,028).** 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 in particular the cost of the Project Implementation Unit (PIU) within the EPA and the Project Liaison Office within MESTI.

48. **Incremental/additional cost reasoning and co-financing.** The project will provide incremental funding across the suite of project interventions financed by IDA in the urban, and mining sectors 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 sharing, policy dialogue, and regulatory enhancement to generate greater awareness of the impacts, including the health impacts related to the release of uPOPs and mercury. The co-financing from the WB through IDA funding, as well as contributions from participating countries will focus on investment to demonstrate application of technological tools and economic approaches for reduced environmental health risks associated with these harmful chemicals and wastes.

⁴⁰ Namely the Environmentally Sound Disposal and Recycling of E-waste in Ghana project (E-Waste project)
<https://www.giz.de/en/worldwide/63039.html>

⁴¹ Namely the Recycling and disposal of waste of electrical and electronic equipment in an environmentally sound way project
<https://www.gopa-infra.de/projects/recycling-and-disposal-waste-electrical-and-electronic-equipment-environmentally-sound-way>



Zambia

49. **Component 1: Institutional strengthening, knowledge and capacity building (US\$ 1.8 million GEF).** This component aims to strengthen the institutional, legislative, monitoring, and enforcement capabilities of the Government 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.
50. Specifically, the component 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) are treated separately. The municipalities will establish linkages for improved livelihoods opportunities in collaboration with the private sector. This will include providing recommendations for improving collection and recycling systems, and training recyclers and rag pickers, as well as on recovery efforts, on occupational health and safer practices. The component will support the strengthening of national and municipal coordination through establishing a national project steering committee (including key stakeholders such as government, local authorities, health authorities, private sector, and NGOs) and hold regular meetings.
51. The component will also support initiatives taken by the 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 solid waste management. This will include conducting a national waste characterization study to determine the volumes and types of waste and ascertain the economic viability of the e-waste recycling and waste recycling potential and private sector collaboration. This component will also screen and evaluate health and environmental risks associated with POPs and other hazardous chemicals (e.g., PBDEs, Hg) and disseminate information to different actors and affected communities.
52. The component will also build awareness on sound management of waste and its impact on human health and the environment. It will ensure both national level stakeholders' coordination and participation in regional learning and knowledge sharing activities on the harmful chemicals' agenda. This will contribute to strengthening regional partnerships and collaboration, including with SADEC, UNITAR, and other regional and national actors contributing to the improvement of waste management.
53. **Component 2: Policy dialogue and regulatory enhancements (US\$ 1.8 million GEF).** This component will support the Government of Zambia'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.
54. This component will 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 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; and undertake an identification and analysis of appropriate BAT/BEP for strengthened waste management. Particular attention will



be given to prevent the exposure of vulnerable populations, particularly children and women of child-bearing age, especially pregnant women, to POPs and hazardous chemicals, as well as dissemination of information to different actors and affected communities.

55. The component will also assess national and municipal learning needs. This includes conducting a national and municipal level learning needs assessment on waste management and developing a learning strategy; identifying national and municipal institutions and other stakeholders to be trained; and identifying national and municipal institutions (such as tertiary and vocational training institutions) to conduct training to ensure sustainability and replicability.
56. This component will also strengthen current environmental policies and regulations and monitoring capacity. This will be through conducting a comprehensive gap assessment of the national policy and legislative framework and relevant municipal bylaws regarding municipal, POPs, and Hg waste and e-waste; developing 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 line with the Stockholm Convention; identifying indicators and end points for inspection officers to monitor the effectiveness of emission and release reductions; and assessing capacity gaps. In addition, the component will support the development of guidelines and ensure robust monitoring systems are in place.
57. **Component 3: Demonstrating application of technological tools and economic approaches: Zambia (US\$ 4.26 million GEF).** The project will focus on improving the waste value chain and reducing environmental health risks to workers and surrounding communities.
58. 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.
59. The current dumpsite will be upgraded into a sanitary landfill (through IDA financing under the ZMERIP), and a feasibility study of short- and long-term BAT/BEP actions will be supported to determine the volumes and types of waste and economic viability for private sector collaboration. Following a waste characterization study in the target area (initiated under the IDA project), this component will support the improvement of the landfill to enhance the recycling of additional waste streams and value generation for sustainable growth of the sector. The component will also ensure segregation between hazardous contaminated wastes from other non-hazardous waste streams. Due to the limited scope of the IDA financed waste characterization study, this component will support a nationwide waste characterization study.
60. This component will explore ways to reduce the impact of chemical pollution emanating from unregulated landfills in an economic and socially acceptable manner and support the development of communication tools to raise awareness on health costs and benefits of pollution management. This includes community outreach to increase public understanding and visibility of the scale and environmental health impacts.
61. The component will support training and community awareness promotion, especially training existing rag-pickers and providing them with occupational health and safety training and personal protective equipment. The rag-pickers, the Local Authority and ZEMA will also be provided with appropriate waste collection and management equipment to improve environmental health.
62. This component 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).

63. The component will support the preparation and implementation of demonstration pilot projects in identified facilities which have experience, and are already involved, in e-waste and waste recycling business. The criteria for selection of the Component 3 demonstration sites will be further detailed in the Project Implementation Manual and will meet eligibility criteria as per the EHPM Project ESMF. The component will also finance the evaluation of the pilot projects and technologies as well as the assessment of their economic viability in the Zambian context. This component will co-finance two successful pilot projects and demonstrated technologies.
64. **Component 4: Project coordination and management (US\$393,185 GEF).** This component will provide the resources necessary for effective project coordination and management and monitoring and evaluation at the regional, national, and local levels. It will cover the cost for project management, implementation, and supervision of project activities, administration of procurement and financial management, monitoring and evaluation, as well as monitoring of safeguards compliance. The component will cover the cost of the Project Coordination Unit (PCU) set up under ZEMA. It will strengthen the existing PCU 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.



Kenya

Component 1: Institutional strengthening, knowledge and capacity building (US\$ 1.9 million GEF).

65. Capacity building activities will include benchmarking of key NEMA staff to acquire best practices on waste management. It will include disseminating best available technologies for reduction of releases of POPs from unsound e-waste management practices and ensure appropriate skills and knowledge transfer. Institutional strengthening of the Ministry of Environment and Forests, NEMA, customs services (at the national and county level) will transpire to support implementation and enforcement of e-waste management regulations and laws, including at the port of entry.
66. Sensitization workshops on waste management, including e-waste, with EEE and E-waste management stakeholders in the value chain will be supported country-wide and include relevant national and county government agencies, NGOs, civil society and affected local communities. Primary stakeholders include MEF, NEMA, Ministries of ICT, Industries, Health, Kenya Revenue Authority (KRA), Kenya Bureau of Standards (KBS), equipment manufacturers, recycling companies and relevant SMEs and CSOs. Support will be provided to NEMA staff supporting waste and e-waste management regulations. Customs coding will also be reviewed and streamlined with appropriate training of the Customs and borders inspectorate to curtail entry of illicit e-waste as provided in the Basel Convention on Transboundary movement of hazardous and other waste.
67. The component will review existing documentation and efforts and undertake a country-wide situation analysis on waste. This includes a national e-waste inventory covering amounts of e-waste, characterization of major toxic pollutants and products and IT vendors. The review will commence with stakeholder mapping, including private sector and informal recycling sector stakeholders and e-waste generation. Subsequently a robust solution will be identified to support sustainable management of e-waste from collection to disassembly to waste reduction and reuse.
68. The component will support strengthening of environmentally sound management and development of guidelines and monitoring protocols on waste management. This includes e-waste and hazardous waste resulting from electronic waste for EEE and E-waste management stakeholders in the value chain country wide. Systems for monitoring and enforcement will also be developed, to support mandates of NEMA and Kenya Revenue Authority. An assessment of environmental health implications of harmful chemicals and waste and options for risk management will be carried out, as well as an economic analysis of the e-waste management sector for the national economy.
69. In addition, capacity building will include strengthening the current environmental policies and regulations and capacity to monitor, and screen and evaluate health and environmental risks associated with e-waste and related uPOPs releases. The project will leverage existing regional entities to further enhance 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. This will strengthen national and regional systems to enforce regulations and manage illegal trade flows. Based on sustainability commitments, RECs provide an opportune platform to promote experience-sharing and harmonization of appropriate policies, dissemination of good practices, and lessons learned through development of environmental management systems that address production processes and promote waste minimization, treatment, and disposal.



70. To strengthen stakeholders' coordination and participation in e-waste efforts, this component will engage national level stakeholders as part of regional learning and knowledge sharing activities on sound e-waste management. This will contribute to strengthening regional partnerships and collaboration.
71. **Component 2: Policy dialogue and regulatory enhancements (US\$ 1.8 million GEF).** The component will support the Government of Kenya'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.
72. The component will assist development of strategies for promoting the reduction of emissions and releases of, and exposure to, harmful chemicals and hazardous waste. Kenya developed an overall solid waste management strategy in 2015 and a draft national strategy for e-waste (updated in April 2019), however, further effort is required to develop a comprehensive approach to management of hazardous waste in the country. Support to strategy development 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.
73. Activities to be financed include supporting the finalization of e-waste management regulation and its subsequent dissemination for adoption by selected county governments. This component will also review the current environmental policies and regulations and capacity to identify measures to strengthen the monitoring of e-waste flow throughout its life cycle. Regulatory enhancements for Environmental and Social management will include assistance to strengthen existing legislations with respect to recycling and disposal; a 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 a communication strategy for awareness raising and information dissemination. This component will also develop a 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.
74. 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 government policies related to waste. Based on assessment outcomes, this component will develop suitable mechanisms and specific policy level measures to prevent the exposure of vulnerable populations to harmful chemicals, as well as dissemination of information to different actors and affected communities.
75. The project will support the development of a national integrated framework for monitoring and evaluation of e-waste for sustainable management to facilitate implementation of e-waste policy provisions at the county government level.
76. **Component 3: Demonstrating application of technological tools and economic approaches (US\$ 3.9 million GEF).** This component will support the initiation of 1 to 3 pilot projects in selected counties in Kenya on the implementation of an integrated waste management approach to reduce releases of POPs from e-waste through improving source reduction/reuse, collection, transportation, and disposal/recycling. This will follow Articles 5 and 6 of the Stockholm Convention and related COP guidelines and guidance.
77. These pilot activities will contribute to the post-COVID recovery process in Kenya, with measures including short-term jobs for youth, women and other vulnerable groups within densely populated areas, which are mostly affected by COVID. These activities are aligned with the objectives of the National Hygiene Program (NHP) and



respond to the focus on environmental sustainability, as one of the 8 priorities stated in the President Kenyatta's economic recovery speech from May 23, 2020.

78. This will include (a) analysis of current national and county 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.
79. 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. It will focus on establishing a treatment/recycling facility at the site of an already existing waste management facility. The criteria for selection of the Component 3 demonstration sites will be further detailed in the Project Implementation Manual and will be aligned with KUSP Minimum Conditions (as outlined in the KUSP POM) and will meet eligibility criteria, as per the EHPM Project ESMF.
80. Based on the identified priorities, infrastructure investments will be designed and implemented, focusing on addressing gaps e-waste flow i.e. in the collection and disposal system. The pilots will support capacity building for all relevant stakeholders in the selected counties (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 the assessment of environmental health risks associated with e-waste based on health and environmental data, knowledge, risks, and impacts. The program envisions engaging stakeholders already working in the field of e-waste management, including CFSK, WEEE, HP, and others to leverage and eventually mainstream existing good practices.
81. **Component 4: Project coordination and management (US\$ 384,447 GEF).** This component will provide the resources necessary for effective project coordination and management, as well as monitoring and evaluation at the national, local and regional levels. NEMA will function as the main implementing agency for this project.



Senegal

82. **Component 1: Institutional strengthening, knowledge and capacity building (US\$ 1.5 million GEF).** There is an urgent need to build relevant capacities and to reform the legal and institutional framework 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. 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.
83. This component will support initiatives taken by the Government, and the municipalities of Hann-Bel Air and Dalifort, as initial targeted areas, and potentially other municipalities in Dakar, to establish legal and institutional tools to formalize waste management systems 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.
84. Operating an efficient, effective, environmentally-sound municipal solid waste management program requires building institutional capacity for relevant government agencies, including DEEC and UCG, and private sector players and technical capacity for designing, operating, maintaining, and monitoring each part of the process.
85. The Component will ensure national level stakeholder coordination and participation of relevant agencies in the regional learning and knowledge sharing activities on the harmful chemicals' agenda, to be carried out jointly with the PROMOGED to ensure no duplication of activities. This will contribute to strengthening regional partnerships and collaboration.
86. *Expected component outputs:*
- Training delivered to different stakeholder groups on 1) 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)
 - Targeted study tours organized to share knowledge and expertise and contribute to regional framework of action
 - Stakeholder Mapping (including private and informal sectors)
 - Communication strategy developed and implemented



- National Steering Committee established, and regional partnerships strengthened
 - Awareness of sound waste management and its benefits for human health and the environment built in Hann Bel Air, Dalifort, and potentially other municipalities in Dakar.
 - Best Available Techniques (BAT) and Best Environmental Practices (BEP) to reduce uPOPs from waste management disseminated to key stakeholders (municipalities, UCG and UCP/DEEC)
87. **Component 2: Policy dialogue and regulatory enhancements (US\$ 1 million GEF).** 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 chemicals.
88. The component will support the assessment of air quality in the municipalities of Hann-Bel Air and Dalifort (and other locations, possibly). This will reinforce the existing system for air quality monitoring (which does not cover POPs and uPOPs) and strengthen the assessment of the impacts of air pollution on human health (e.g., for epidemiologic studies). Such a monitoring (through campaigns) would include uPOPs and conventional pollutants, which are monitored in ambient air such as particulate matters (PM10 and PM2.5), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone (O₃) and carbon monoxide (CO). A strategy of monitoring and an emission inventories for uPOPs will be developed in accordance with the Stockholm Convention. As a first step, potential main industrial emitters, activities related to open burning of waste, population concentrations, in the municipalities of Hann Bel Air and Dalifort will be identified. An additional reference background site will also be determined. through a baseline characterization.
89. 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 to harmful chemicals of vulnerable populations, particularly children and women of child-bearing age or pregnant.
90. 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.
91. 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.
92. The project intervention will be well monitored and reported to ensure a successful implementation; project activities will complement those carried out under the PROMOGED, which is setting up a committee to reform the solid waste sector as a whole. 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.



93. *Expected component outputs:*

- Assessment and updating of the legal and institutional frameworks, as well as guidelines
- An update of the national strategy and implementation plan for promoting the reduction of emissions and releases of, and exposure to, POPs and priority chemicals developed
- A methodology for screening and evaluating health and environment risks associated with POPs releases and other hazardous chemicals developed
- A strategy and guidelines for screening and evaluating health and environment risks developed

94. **Component 3: Demonstrating application of technological tools and economic approaches (US\$ 2.7 million GEF).** 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 uPOPs and other toxic chemicals through environmentally-sound management of urban waste in Hann-Bel Air, Dalifort, and potentially other municipalities in Dakar, which can later be replicated and scaled-up nationally, including through the PROMOGED, 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 removing uncontrolled dump sites through separation, segregation, recycling, stocking, collecting and transporting 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.

95. First, the beneficiary municipalities, together with the relevant authorities, will mobilize the communities and the necessary logistical resources to eradicate the recurrent and illegal waste dump sites in their areas in order to permanently eliminate the sources of pollution. This will lead to citizen engagement and have the advantage of raising people's awareness of their responsibilities in terms of preservation of their living environment and prevention of environmental health risks.

96. Concurrently with improving the sanitary status, strategies to ensure long-term sustainability will be initiated by setting up a system adapted to local realities and accessible to the population. To this end, a comprehensive urban solid waste management system will be implemented by: (i) promoting the regulatory framework around the Community Based Organizations (CBOs), under the responsibility of local authorities or sanitary committees; (ii) sorting, reusing, and recycling waste by communities, integrating social innovations and a circular and inclusive economy; (iii) professionalizing street cleaning along main thoroughfares; (iv) neighborhood cleaning through community-based activities and activities with high labor intensity (HIMO) under the responsibility of the local authorities; (v) the construction of standardized Regrouping Points (PRN) ("Points de Regroupement normalisé - PRN") incorporating screening, sorting, marketing and waste recycling to promote employment-generating and income-generating activities; (vi) pre-collection organized around the PRNs through the local authorities ; and (vii) waste collection from households, markets and industrial activities and evacuation to the appropriate municipal waste dumpsite in Dakar.



97. In addition to corrective actions and the implementation of a waste management system, measures will be taken to secure and enhance public spaces. To this end, public gardens, lakes, retention ponds and any open space will be developed as places for recreational, economic, tourist, sports or other activities. The objective is to develop them in a sustainable way and to guard against the proliferation of waste dumps and open burning.
98. 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 component.
99. *Expected component outputs:*
- Mobilization of municipalities and communities to eradicate illegal dumpsites; open burning; and the generation of uPOPs;
 - Support to municipalities for separation, segregation, & recycling of municipal and hazardous waste.
 - Establishment of environmentally sound waste management system;
 - creation of revenue-generating activities;
 - Functional layout of public spaces;
 - Waste management unit set up in the participating municipalities to coordinate waste management efforts.
 - Identify relevant partners, private companies specialized in waste management, NGOs to develop a business model for waste management.

Subcomponent 3.1: Institutional Support

100. The purpose of institutional support is to consolidate the managerial, technical, logistical, and financial skills of stakeholders responsible for implementing solid waste management, including elected representatives, technicians, CBOs, the private sector, and civil society. The actions of the municipalities will be: (i) implementing a training program on waste management professionalism; (ii) acquisition of tools, equipment, etc.; (iii) restructuring of relevant services and the recruitment of adequate personnel; (iv) supporting the community to develop initiatives for solid waste management by strengthening the financial, institutional, organizational, and technical capacities of populations and civil society organizations; (v) creating wealth through self-employment and business creation; and (vi) stimulating citizen participation.
101. The objective of this sub-component is to improve the management capacity and ability of communities to provide waste management as a public service. It includes the following activities: (i) establishment of a management framework; (ii) training and capacity building; (iii) promotion of citizen engagement; (iv) support for community actors; (v) communication and social marketing; and (vi) social project management.

Activity 3.1.1: Training and capacity building

102. The project will fund the implementation of a training program on improving professionalism in the waste management industry. In addition, given the lack of capacity, the project will support local authorities and community organizations in providing management tools and equipment. The sustainable management of municipal solid waste requires a range of skills to manage various aspects of the waste industry. This includes



nature and quantities of waste, infrastructure requirements, waste handling techniques and technologies, environmental aspects, socio-cultural conditions, land ownership, planning, and financing. The diversity of sectors and skills involved requires diverse expertise and training. These skills are largely lacking in municipalities, the entities responsible for waste management. Capacity building is an essential element in strengthening waste management. It should target: (i) households to establish good practices (sorting, separation, storage, etc.); (ii) local authorities in terms of planning, operation and monitoring; (iii) all stakeholders (mostly still informal) involved in recycling in terms of prevention and safety measures, as well as efficient recovery practices; (iv) workers / operators on good practices in pre-collection, collection, health, and safety; and (v) a consulting firm will be recruited to design and implement a training program for local stakeholders and to provide management tools.

Activity 3.1.2: Promoting Citizen Engagement

103. In view of low citizen engagement with solid waste management, a **social marketing strategy** to promote ecologically responsible attitudes is envisaged. Integrating good practices in the living environment into existing school curricula is also planned. The aim is to make children aware of the problem of waste and to teach them the basics of a sustainable management, as they can be effective agents for behavior change.
104. Beyond raising awareness, a **municipal hygiene entity** will be created to ensure the adequate application of the hygiene code. The noticeable absence of the hygiene police within neighborhoods has led to the spread of bad practices. The reinstatement of the health and hygiene police from a combination of municipal police and revitalized hygiene services would allow monitoring and surveillance as part of the behavior change aspect. Failure to implement hygiene management needs to be corrected through policies aimed at changing behavior, particularly at the level of households and different production sites. The promotion of good practices can result from large scale awareness activities, including by developing eco responsible behaviors at household, school, and workplace levels. A **hygiene charter** agreed to by stakeholders would be a first step to prohibit unregulated dumping and littering, and would specify waste collection frequencies, permissible household waste, and cleanliness requirements of public premises and institutions. The cost recovery of certain waste products would be a good entry point in the charter.

Activity 3.1.3: Establishment of a management framework

105. The project will support the restructuring of municipal services dedicated to solid waste management and the implementation of appropriate management tools. For each municipality, a Local Technical Committee (LTC) would be set up to mobilize all stakeholders. The aim of the LTC is to provide a collegial framework for implementing and monitoring the various sanitation activities at the municipal level. As such, it is a forum for consultation and proposals. Its mission is to organize, examine issues related to public sanitation, to lead, with support from experts, the different phases of the planning process, and to assist local authorities in implementing and monitoring action plans. This technical body is established to validate different proposals on the reorganization of the waste management system. The CTL will bring together information, ideas, and expertise from its members who represent groups and organizations working together to address public sanitation issues.
106. This structure of approximately fifteen members must be put in place before the launch of the project, must be formalized by decree, and have specific terms of reference. Its members would be representatives of the main municipal technical services, local elected officials, technical services (Health, Women's and Social Development



Department, Urban Planning Department), the local private sector, representatives of neighborhood delegates or village chiefs, NGOs, and community groups involved in sanitation and other interested parties.

Activity 3.1.4: Support to community structures

107. Existing individual and collective initiatives, while essential for community participation, are too unstructured to be efficient. It is therefore necessary to develop community projects integrating informal actors such as women's groups, sports and cultural associations, waste pickers, and pre-collectors. The objective is to create the necessary conditions for community participation in solid waste management, create jobs, generate wealth, and encourage investment. It is based on consultation, information sharing, and inclusive participation. Its strategy seeks to drive the gradual transformation of the informal waste sector. It is articulated around the following four levers:
- **The creation of an appropriate institutional and legal framework:** (i) Develop specifications for micro-operators, an administrative and legal framework for community-based companies; (ii) Create a framework for dialogue and collaboration between communities and municipalities; (iii) Create a unifying framework of enterprises at community level (Unions / Cooperatives); and (iv) Improve the fee collection system from households to micro-operators (horse carts).
 - **The development of value chains:** (i) Formalize pre-collectors (horse carts) and make their social status more respectable; (ii) Improve working conditions and equipment at all stages; and (iii) Improve cost recovery of solid waste.
 - **Access to financing:** (i) Support micro-operators by setting up an efficient credit system (line of credit, micro-credit, etc.); and (ii) Take advantage of the legislative texts (Act 3 of Decentralization) to enable micro-operators to source additional material and financial resources.
 - **Capacity building, communication, and awareness raising:** (i) Design and implement an action plan on Information, Education, Communication, and Training; and (ii) Strengthen the management capacity of micro-operators through appropriate training and management kits.

Activity 3.1.5: Social marketing strategy

108. An effective waste management system requires civil information and involvement. Households require information on sorting and cost recovery of waste. The project will undertake actions such as: (i) Use the CBO channel to relay information; (ii) Communicate through different channels on the positive effects of cleanliness; (iii) Organize information and training sessions on recycling; and (iv) Create places of information sharing for citizens to increase their ownership on the theme of waste.

Subcomponent 3.2: Infrastructure Development

109. This subcomponent will support infrastructure development as well as equipment acquisition and logistical support. The proliferation of uncontrolled dumps and the prevalence of informality in the sorting and recycling sector need to be addressed.

Activity 3.2.1: The construction of PRNs and the installation of dumpsters

110. In Standardized Regrouping Points (Points de Regroupement Normalisé - PRN) dumpsters can accommodate waste from pre-collection and make a primary selection before discharge to the landfill. The PRNs accommodate the pre-collection provided by horse-drawn carts, tricycles, or trolleys. These facilities will help prevent the proliferation of uncontrolled dumpsites and reduce collection and transportation costs. The activities planned are: (i) technical, financial, environmental, and social studies for the establishment of PRNs; (ii) construction of PRNs; (iii) construction and supervision of works; and (iv) provision of storage bins.



Activity 3.2.2: Establishment of Recycling Points

111. Domestic sorting will generate recyclable items, for which a chain of collection and marketing is required. The project will finance the establishment of recycled goods shops.

Activity 3.2.3: the development of public spaces

112. The project will develop and rehabilitate public space to improve the attractiveness of the site to make it more functional for its inhabitants, notably by integrating different uses (leisure, traveling, public events, sports, cultural, trade, etc.). This activity aims to rehabilitate public spaces by integrating their different uses: (i) Leisure: to encourage visitors to use different spaces; (ii) Travel: the majority of movement on these spaces is done on foot in conditions which, at the moment, do not ensure safety and comfort; and (iii) Events: Public spaces are a major gathering place for people for many activities such as sport, commerce, cultural activities, etc. Under this activity, the following are planned: (i) The development of Marist lakes; and (ii) Development around the Dalifort basin.

Subcomponent 3.3: Solid Waste Management System

113. The proposed approach supports the organization of the value chain. The value chain approach is recommended for simplified management but also to facilitate the identification of responsible actors.

Activity 3.3.1: Standardization

114. The use of regulation bins in households is not widespread and is a genuine problem for appropriate waste management, with direct consequences for public health. The promotion of standardization hinges on raising awareness and providing incentives. Through an awareness campaign and incentive subscription, the goal will be to provide one or multiple bins to households for sorting at the source. This activity will be entrusted to community actors who will collaborate with the Chefs de quartier. The bins will be reimbursed by installment payment over a period of 36 months to facilitate access to all social levels.

The project will provide initial supplies in regulation bins that will be placed within households whose cost recovery will feed into a revolving fund.

Activity 3.3.2: Pre-collection

115. Pre-collection consists of removing solid waste at a defined frequency from households and businesses to collection points (PRNs). Pre-collection is provided by carts, tricycles, or trolleys. Pre-collection may be voluntary or door-to-door. To enable community actors to take charge of this link in the chain, the municipality must draw up specifications and sign a service contract with pre-collectors. They will collect a fee from households in return for the service provided. The municipality or its delegate will take all necessary measures for smooth operation of the pre-collection service. The project will ensure the purchase of carts, tricycles, or trolleys according to urban realities. Also, a Consultant will be recruited to prepare standard specifications for pre-collection.

Activity 3.3.3: Cleaning

116. The UCG has a street cleaning system that is limited to main roads. Despite this existing mechanism, the rate of cleanup remains insufficient. In neighborhoods, CBOs through ad hoc human or labor-intensive activities (HIMO) carry out cleaning of neighborhoods and secondary streets. They will benefit from staffing small cleaning equipment. The project will ensure the provision of small cleaning equipment.

Table: Matrix of the responsibilities of the actors



Stakeholders	Responsibilities
DEEC	<ul style="list-style-type: none"> • Project Executing Agency • Provides planning, coordination, monitoring and evaluation • Ensures the trusteeship
Municipality	<ul style="list-style-type: none"> • Define local policy, coordinate and develop solid waste management tools • Ensures the financial balance of the system • Promote a local technical committee • Provides a municipal hygiene brigade
Local Technical Committee	<ul style="list-style-type: none"> • Frame and evaluate the Waste Management Operational Plan (POGD) • Proposes solutions to the Municipality (decision support) • Defines the orientations of the solid waste management system • Gives his opinion on the technical standards of the infrastructures and the choice of the appropriate logistics • Impulse a synergy of actors • Supervise the intervention of the different actors
UCG	<ul style="list-style-type: none"> • Provides the collection service, transport of garbage, and disposal in landfill • Can contract with private partners • Supervise the management and operation of infrastructures • Participate in the sensitization of the populations
Community companies	<ul style="list-style-type: none"> • Promotes regulatory packaging and source sorting • Provides pre-collection • Actively participate in raising awareness
Households	<ul style="list-style-type: none"> • Ensure the regulatory conditioning of solid waste in appropriate containers • Make the first level of sorting (plastic and glass bottles, sand, metals, etc.) • Participate financially in the management of garbage
NGOs	<ul style="list-style-type: none"> • Provides information and awareness • Accompanies environmental education in schools • Strengthen the capacities of community actors

117. Component 4. Project coordination and management (US\$ 275,000 GEF). This component will provide the resources necessary for effective project coordination and management; monitoring and evaluation at the national, local and regional levels; coordination with the UCG, which is implementing the PROMOGED. The Environment and Classified Establishments Directorate (Division de l'Environnement et des Etablissements Classés - DEEC) of the Senegalese Ministry of Environment is the implementation agency responsible for implementing this project.



118. **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 study⁴² 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.

⁴² financed by a solid waste Global Partnership on Output-Based Aid (GPOBA)



ANNEX 4: MONITORING AND EVALUATION

COUNTRY: Africa Environmental Health and Pollution Management Project (Tanzania, Ghana, Zambia, Kenya and Senegal)

- 1. Objective.** M&E in the EHPMP has been developed as a tool and framework for results-based management and to ensure that data and information of the progress of the project toward the PDO feed into management and that timely corrective measures can be taken. An objective is to monitor performance of participating countries and promote accountability of progress toward national and regional development objectives attributable to project interventions and regional actions. Furthermore, the M&E contributes to inform the World Bank's routine reporting requirements: i) the bi-annual Implementation Status Reports (ISRs) developed for the project and publicly disclosed by the World Bank; ii) the data and information requirements for the midterm review (MTR) of the project; and iii) contributing to the project Implementation Completion Report (ICR).
- 2. The EHPMP supports the long-term environmental monitoring of the participating countries in the region through the strengthening of the capacity of the governing authorities, providing best-practice guidelines as well as improving monitoring equipment and capabilities.**
- 3. Context and capacity.** Weaknesses in capacity may be observed through unvalidated field-level data, incomplete data sets, missing information, inconsistent reporting, and data and information delivered but not reported and not used in decision making and policy formulation.
- 4. Design of results framework.** The weaknesses in government capacity have been taken into account in the design of the M&E and especially in the number and selection of indicators and data sources and methodologies for data collection. The main instrument for M&E is the Results Framework (RF). The RF is common to all participating countries and consists of the PDO statement and six PDO indicators and eight intermediate indicators. All applicable indicators are disaggregated by country, and where applicable by gender. The indicators have determined baselines and project targets, frequency for data collection, data sources, and responsibilities for data collections. Sources and quality of data can vary between countries and institution, suggesting that a data quality assurance mechanism should be implemented at the regional level.
- 5. Theory of change and results chains.** The Results Framework has been developed based on the theory of change of a regional project with complementarity and knowledge transfer between interventions of the participating countries. The results chain includes clear statements on medium-term outcomes stated in the PDO as well as statements on outputs and activities in the five countries. The framework will serve as a management tool to help countries, the World Bank and relevant stakeholders to assess progress toward the PDO and to adjust the course when necessary during implementation.
- 6. M&E arrangements.** M&E in the EHPMP will be undertaken at two levels: (a) at the regional level, and (b) by the five participating countries through the respective PCUs. The regional knowledge platform will have the overall coordinating role of the M&E function of the EHPMP and will ensure the data and information from the individual countries is sufficient. The regional knowledge platform will design and implement data collection efforts, providing coordination based on the M&E manual describing the requirement for all countries.



- **Tanzania:** The lead coordinating institution (NEMC), under the national Project Coordinator will be responsible for monitoring and evaluation (M&E) and will report on project performance to the Technical Committee (TC). The overall monitoring of project progress will be achieved through quarterly and annual reporting.
 - **Ghana:** The lead coordinating institution (EPA) together with MESTI will be responsible for monitoring and evaluation (M&E). The overall monitoring of project progress will be achieved through quarterly and annual reporting.
 - **Zambia:** The lead coordinating institution (ZEMA), under the national Project Coordinator will be responsible for monitoring and evaluation (M&E). The overall monitoring of project progress will be achieved through quarterly and annual reporting.
 - **Kenya:** The lead coordinating institution (NEMA), under the national Project Coordinator will be responsible for monitoring and evaluation (M&E). The overall monitoring of project progress will be achieved through quarterly and annual reporting.
 - **Senegal:** The lead coordinating institution (DEEC), under the national Project Coordinator will be responsible for monitoring and evaluation (M&E). The overall monitoring of project progress will be achieved through quarterly and annual reporting.
7. **M&E activities.** The EHPMP M&E activities will (a) generate information on the progress of the project; (b) analyze and aggregate data generated at the regional, country, and local levels; and (c) document and disseminate key lessons to users and stakeholders across the participating countries and elsewhere together with the communication function of the EHPMP. It will also be the recipient of all countries' evaluation and progress reports and will be able to share results and best practices with the wider region.



ANNEX 5: 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	1.90	1.50
Component 2	1.50	1.90	1.80	1.80	1.00
Component 3	3.98	4.50	4.26	3.99	2.74
Component 4	0.34	0.41	0.39	0.38	0.26

Estimated Annual Component Budget Projections

Program Components	FY20 [m US\$]	FY21 [m US\$]	FY22 [m US\$]	FY23 [m US\$]	FY24 [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	1.9	21.88
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	1.35	0.90	0.90	4.5	23.32
Zambia	0.42	0.84	1.26	0.84	0.84	4.3	22.28
Kenya	0.39	0.78	1.17	0.86	0.78	3.98	20.62
Senegal	0.27	0.54	0.81	0.54	0.54	2.73	13.99
Sub-Total	1.9	3.86	5.79	3.86	3.86	19.51	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	0.38	20.66
Senegal	0.0275	0.055	0.0825	0.055	0.055	0.262	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	7.62	7.57	37.89	100.00
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ANNEX 6: ECONOMIC ANALYSIS

COUNTRY: Africa

Africa Environmental Health and Pollution Management Program

1. 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.
2. 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.
3. 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.
4. Tanzania and Ghana will implement mercury pollution reduction investment. Specifics of the activities planned in these countries are summarized below.

Project activities related to ASGM

Country	Target area	Area, ha	Planned activities	Targeted population	Target interim indicators	Cost
Tanzania	Selected sites in 7 regions	10 Ha per region	Introduction of alternative gold recovery technology and equipment for ASGM Piloting rehabilitation of abandoned sites	150,000 miners	<ul style="list-style-type: none"> Increased number of ASGM miners using non-mercury methods Reduction in mercury use (Ton/year) Increased number of PMLs rehabilitated 	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	<ul style="list-style-type: none"> Increased number of ASGM miners using non-mercury methods; Reduction in mercury use (Ton/year) 	US\$2.24 million
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A. 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:
<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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. YLD⁴³s 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.

8. 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.

9. 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%

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

10. 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.

11. 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:

⁴³ Years of life with disabilities



- 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.
12. 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.
13. 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%

C. Cost-effectiveness analysis of uPOPs reduction in Ghana, Kenya, Zambia and Senegal

14. 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.
15. 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	<ul style="list-style-type: none"> • reduced open dumping and burning of e-waste • reduction in POPs releases (uPOPs and PBDE) 	US\$2.24 million
Zambia	Kabwe District, Municipal dumpsite	10 Ha	Reduction of uPOPs: improving the management of waste collection; transportation; treatment and disposal and improved recycling of waste	230,000	<ul style="list-style-type: none"> • reduced open dumping and burning of waste • reduction of releases of uPOPs 	US\$4.24 million
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	<ul style="list-style-type: none"> • reduction of uPOPs releases • reduced 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	<ul style="list-style-type: none"> • reduction of infectious diseases • reduced open dumping and burning of waste • reduction of releases of uPOPs 	US\$2.72 million

16. 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:

17. uPOPs emissions per year = Emission Factor X Activity Rate
18. 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.
19. 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 Bound	Upper Bound		Lower Bound	Upper Bound	Lower Bound	Upper 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)

20. 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)

	Annual project investment	25% reduction		50% reduction	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound
		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

21. 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.



22. 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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