CEO Endorsement (CEO) entry - Full sized Project Child – GEF - 7

GEF GOLD+ in Ghana: Advancing formalization and mercury-free gold in Ghana

Part I: Project Information

Name of Parent Program
Global Opportunities for Long-term Development of artisanal and small-scale gold mining ASGM) Sector Plus - GEF GOLD +

GEF ID
10616

Project Type
FSP

Type of Trust Fund
GET

CBIT/NGI
CBIT **No**
NGI **No**

Project Title
GEF GOLD+ in Ghana: Advancing formalization and mercury-free gold in Ghana

Countries
Ghana

Agency(ies)
UNDP, UNIDO

Other Executing Partner(s)
Environmental Protection Agency (EPA) of the Ministry of Environment, Science, Technology and Innovation (MESTI)

Executing Partner Type
Government

GEF Focal Area
Chemicals and Waste

Taxonomy
Focal Areas, Chemicals and Waste, Best Available Technology / Best Environmental Practices, Waste Management, Hazardous Waste Management, Influencing models, Demonstrate innovative approache, Deploy innovative financial instruments, Transform policy and regulatory environments, Convene multi-stakeholder alliances, Strengthen institutional capacity and decision-making, Stakeholders, Civil Society, Academia, Community Based Organization, Private Sector, Capital providers, Financial intermediaries and market facilitators, Type of Engagement, Participation, Information Dissemination, Consultation, Partnership, Communications, Education, Behavior change, Public Campaigns, Awareness Raising, Indigenous Peoples, Local Communities, Beneficiaries, Gender Equality, Gender results areas, Access and control over natural resources, Knowledge Generation and Exchange, Access to benefits and services, Capacity Development, Participation and leadership, Gender Mainstreaming, Women groups, Gender-sensitive indicators, Sex-disaggregated indicators, Capacity, Knowledge and Research, Knowledge Exchange, Learning, Adaptive management, Theory of change, Indicators to measure change, Innovation, Knowledge Generation

Sector

Rio Markers
Climate Change Mitigation
Climate Change Mitigation 0

Climate Change Adaptation
Climate Change Adaptation 0

Submission Date
6/15/2020

Expected Implementation Start
7/1/2022

Expected Completion Date
7/1/2027

Duration

Agency Fee($)

60In Months	571,500.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount ($)	Co-Fin Amount ($)
CW-1-1	Strengthen the sound management of industrial chemicals and their waste through better control, and reduction and/or elimination	GET	6,350,000.00	44,668,371.00
		Total Project Cost($)	**6,350,000.00**	**44,668,371.00**

B. Project description summary

Project Objective

To reduce the use of mercury and increase incomes in the ASGM sector in the participating countries through a holistic, multisectoral integrated formalization approach, and increasing access to finance leading to adoption of sustainable mercury free technologies and access to traceable gold supply chains.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing ($)	Confirmed Co-Financing($)
1. Formalization optimization of ASGM (UNDP Lead)	Technical Assistance	1. A higher degree of formalization in the sector through multisectoral, integrated approaches and capacity building of formalization actors.	1.1. Municipal and District Assemblies, District Mining Committees (DMCs), EPA and ASGM actors' capacity strengthened to assess, plan, and implement sustainable formalization interventions in Tier 1 jurisdictions. 1.2. Jurisdictional Approaches (JA) piloted to optimize land allocation through ASM zones and coexistence models with larger-scale gold mining actors in Tier 1 sites. 1.3. Land-Use Spatial Planning Authority (LUSPA), Municipal and District Assemblies, District Mining Committee (DMC), CSO and miner capacity strengthen in ASM zone management and community relations.	GET	1,200,000.00	8,426,470.00
Financial Inclusion and Responsible Supply Chains (UNDP lead)	Technical Assistance	Improved income for ASGM miners through the attainment of better gold prices facilitated by transparent and responsible supply chains.	2.1. Financial products developed and distributed to procure/retrofit mining equipment and establish supply chain due diligence at the mine level. 2.2. Proof of concept technology-assisted supply chain due diligence developed and tested in Tier 1 jurisdictions, bringing mines to market.	GET	2,300,000.00	16,150,734.00
Enhancing uptake of Mercury-free technologies (UNIDO lead)	Technical Assistance	Reduced mercury use in ASGM enabled by the increased uptake of mercury-free technologies by miners.		GET	1,950,000.00	13,693,014.00

			3.1. Municipal and District Assemblies, Mining Entities (ME)[1], academic institutions, and CSO capacity strengthened to characterize ore and implement efficient mineral processing techniques to reduce mercury use across the mine life cycle.			
			3.2. Assay lab, processing plant and training center(s) established to promote resource efficient mining with clear provisions on ore characterization, tailored mineral processing techniques.			
			[1] Mining Entities (ME) refer to Legitimate Mining Entities (ME) that must be identified, evaluated, and verified early on during project implementation to receive access to finance. Legitimate ASM refers to mining entities or miners that are consistent with applicable laws. While in some countries, ASM activities are covered by national laws and regulations, in others, ASM's legality can be unclear. When the applicable legal framework is not enforced, or in their absence, 'legitimacy' of ASM may consider in good faith efforts put forth.			
4. Knowledge sharing and communication outreach (UNDP lead)	Technical Assistance	Knowledge sharing and communication strategies targeted at all ASGM stakeholders to support and increase formalization and mercury reduction.		GET	600,000.00	4,213,235.00

		4.1. M&E and adaptive management applied to capture best practices for Hg-free technologies, lessons learned from JAs and related policy processes recorded and disseminated in Tier 1 mining jurisdictions and neighbouring GOLD+ countries.		
		4.2. Miner, District Government and local financial institution focused communication strategies explored, tested, deployed and scaled up in target regions.		
		Sub Total ($)	**6,050,000.00**	**42,483,453.00**
Project Management Cost (PMC)				
		GET	300,000.00	2,184,918.00
		Sub Total($)	**300,000.00**	**2,184,918.00**
		Total Project Cost($)	**6,350,000.00**	**44,668,371.00**

Please provide justification

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

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
GEF Agency	UNDP	In-kind	Recurrent expenditures	40,025.00
Recipient Country Government	Ministry of Environment, Science, Technology & Innovation (MESTI), Environmental Protection Agency (EPA)	In-kind	Recurrent expenditures	12,000,000.00
Other	University of Mines Tarkwa (UMat)	In-kind	Recurrent expenditures	1,500,000.00
Other	Centre for Remote Sensing and Geographic Information Services (CERSGIS)	In-kind	Recurrent expenditures	1,700,000.00
Civil Society Organization	Pact	Grant	Investment mobilized	542,750.00
Civil Society Organization	Friends of the Nation (FON)	In-kind	Recurrent expenditures	100,000.00
Civil Society Organization	Solidaridad	In-kind	Recurrent expenditures	3,879,301.00
Civil Society Organization	Ghana Microfinance Institutions Network (GHAMFIN)	In-kind	Recurrent expenditures	5,000,000.00
Civil Society Organization	National Association of Small-scale Miners (GNASSM)	In-kind	Recurrent expenditures	500,000.00
Civil Society Organization	RECLAIMS	In-kind	Recurrent expenditures	899,295.00
Private Sector	Gold Empire Resources Limited	In-kind	Recurrent expenditures	110,000.00
Private Sector	Commodity Monitor	In-kind	Recurrent expenditures	100,000.00
Private Sector	Argor Heraeus	Grant	Investment mobilized	14,500,000.00
Donor Agency	OECD	In-kind	Recurrent expenditures	117,000.00
Recipient Country Government	Ministry of Lands and Natural Resources (MLNR), Minerals Development Fund (MDF)	In-kind	Recurrent expenditures	3,500,000.00
Private Sector	Gold Empire Resources Limited	Equity	Investment mobilized	80,000.00
Private Sector	Commodity Monitor	Grant	Investment mobilized	100,000.00
			Total Co-Financing($)	**44,668,371.00**

Describe how any "Investment Mobilized" was identified

The investment mobilized refers to investments that will be done in the future and does not include any past investments. Activities involve the reduction of releases of mercury in the ASGM sector that are aimed to be eliminated during the Project's implementation period. Among the activities that have been identified there are namely: Elimination of Mercury and Development of National Capacities. Investment mobilized was identified during the PPG Phase in consultation with the EPA as lead agency and through discussions with prospective project partners. Co-financing partners were identified during the PPG in line with the stakeholder engagement plan and the PPG Team assessed the partners' abilities to support planetGOLD+ Ghana project activities based on complementarity with existing government programs or development projects with resources allocated for complimentary activities during the project lifetime. Below is more information on how each of the investments mobilized were identified. • PACT and Solidaridad (2020-2023) are working together on a project entitled Promoting Mercury-Free Mining Ghana Project" (or "Pro-MFM" is a three-year U.S. Department of State-funded (USDoS) initiative aims to reduce the use of mercury in Ghana's ASGM sector through education and training, introduction of better technology, strengthened equipment supply chains and creating incentives for mercury-free gold production. PACT has committed to a grant estimated at $542,750, which will consist of technical support for project implementation in areas of expertise, stakeholder engagement and outreach to ASGM stakeholders. The co-financing is considered investment mobilized as it excludes recurrent expenditures. • Commodity Monitor is a private company that has been licensed by the Minerals Commission as service provider for the ASGM sector. They market an integrated mercury-free mineral processing plant which costs roughly USD $50,000. The processing plant consists of crushing, milling and concentration units. Commodity Monitor will provide a grant and in-kind contributions estimated at $200,000, which will consist of a co-investment in the upgrading of ASGM production plants (mercury-free) and through the gold supply chain. The co-financing is considered

investment mobilized as it excludes recurrent expenditures. • Gold Empire Resources Limited will provide in-kind & equity investment contributions estimated at $190,000, which will consist of a co-investment in the upgrading of ASGM production plants (mercury-free) and through the gold supply chain. The co-financing is considered investment mobilized as it excludes recurrent expenditures. • Argor Heraeus is a private partner with extensive experience in responsible sourcing from ASGM mines and traders to reach the downstream consumer, bullion houses, central and commercial banks, mints and jewelers and watch manufacturers worldwide and has committed to a grant estimated at $14.5 million, which will consist of offtake agreements for responsible, traceable gold purchases at fair market price. The co-financing is considered investment mobilized for the purchase of mercury-free gold produced under the project as it excludes recurrent expenditures.

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

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
UNDP	GET	Ghana	Chemicals and Waste	Mercury	4,400,000	396,000	4,796,000.00
UNIDO	GET	Ghana	Chemicals and Waste	Mercury	1,950,000	175,500	2,125,500.00
				Total Grant Resources($)	**6,350,000.00**	**571,500.00**	**6,921,500.00**

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG) PPG Required
true

PPG Amount ($)
150,000

PPG Agency Fee ($)
13,500

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
UNDP	GET	Ghana	Chemicals and Waste	Mercury	90,000	8,100	**98,100.00**
UNIDO	GET	Ghana	Chemicals and Waste	Mercury	60,000	5,400	**65,400.00**
				Total Project Costs($)	**150,000.00**	**13,500.00**	**163,500.00**

Core Indicators

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

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
0.00	9.00	0.00	0.00

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

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

Indicator 9.2 Quantity of mercury reduced (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
	9.00		

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

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

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

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

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

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

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

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
	9.00		

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

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female		45,000		
Male		55,000		
Total	0	100000	0	0

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

Part II. Project Justification

1a. Project Description

1a. Project Description.

Activities carried out during the PPG phase were aimed at complementing information and validating the assumptions underlying the Project Identification Form (PIF). The Table below shows an overview of stakeholder additions made in alignment between the project design at the ProDoc stage and the original PIF, as well as defining the role of project counterparts. After an extended participatory process (please refer to Table 2: Summary of PPG Stakeholder Engagement Activities of Annex 9 of the ProDoc), some adjustments were made to the original project strategy (as outlined in the PIF) in order to respond to changes in project institutional context and the identified stakeholders.

Changes in Project's Strategic Results Framework between PIF and CEO ER	
Additional stakeholders integrated at the PPG stage	**Comments / Rational for additions**
Extended participation of national government entities, state public agencies, International Cooperation agencies, private sector, civil society, academy, other relevant groups (Women and youth and Indigenous and Tribal Peoples)	During the PPG, a wide range of stakeholders will be actively engaged during the execution of the different activities to achieve the foreseen outcomes, depending on the nature of the participating sector. Table 8 of the ProDoc now describes the meaning of these stakeholders for this FSP and their role in the FSP.

1) The global environmental, root causes and barriers that need to be addressed (systems description)

The Global Environmental Problem

Ghana signed the Minamata Convention on Mercury in September 2014 and ratified it on March 23, 2017. As part of activities undertaken and planned towards implementation of the Convention, a Minamata Initial Assessment (MIA) was prepared in 2018 and National Action Plan (NAP) for the Artisanal Small-Scale Gold Mining (ASGM) sector has been developed and official endorsement anticipated in 2021.

For over 1000 years, the Ancient Kingdom of Ghana, former Gold Coast Colony, and modern-day Ghana, has produced a significant portion of the world's gold[1]. From the seventh to the eleventh century, Trans-Saharan trade routes linked Arab traders and later European economies in search of gold and the Ancient West African empire where it was abundant. The region's first gold mining companies were formed shortly after the British established the Gold Coast Colony in 1874, and, following two successive gold rushes in the early-1900s, where gold prospecting and extraction were widespread in Obuasi, Tarkwa and Prestea. Many of these regions still produce gold today.

Ghana's ASGM sector continues to grow in scale and consequence. Its contribution to wealth creation, employment and the economy make it one of the most important rural livelihood activities, where gold mining accounts for 90% of all ASM activities with an estimated 4.5 million indirect dependents. Despite the sector's important role across Ghana, the majority of miners operate informally, without the security of a license or access to legitimate finance, increasing the potential for labour exploitation, debt bondage and other abuses. Formalizing the ASGM sector is a timely and pressing developmental opportunity to harness the sector's potential for poverty alleviation and help impoverished families cope with unexpected economic stresses and shocks, such as the global corona virus pandemic[2].

While the global COVID-19 pandemic has sent ripple effects throughout Ghana's economy, few industries stand to be more heavily impacted than the ASGM sector. At the onset of the pandemic, local gold prices (per gram) plummeted, and communities struggled to purchase food and other essentials overnight. Despite lockdowns, gold production continued but with fewer buyers and trade routes, leading to a temporary gold surplus driving gold prices down even further[25]. Economic losses cascaded across downstream industries reliant on small-scale mining, revealing the interconnected nature of Ghana's rural economy[3].

Ghana has an opportunity to convert challenges posed by the pandemic into opportunities by enhancing support for Small and Medium scale Enterprises (SMEs), which create massive employment for Ghanaians[4]. While the Government has implemented fiscal measures to reach underserved sectors, artisanal and small-scale miners[5] require targeted support to adopt socially and environmentally response practices and access legitimate financial services. Due to limited financial and human capital, mercury use is a persistent challenge in ASGM and source of unease for regulators, larger scale companies and communities. In recent years, expansion of illegal alluvial dredging operations prompted the #glamstop campaign emphasizing environmental degradation and chemical pollution of inland waterways, leading to negative perceptions of the sector.

Despite the important contribution of LSM to the national economy, small-scale gold mining is by far more significant in terms of employment due to the number of jobs created in downstream industries[6]. In 2017, the Mineral Commission estimated the LSM sector provided 27,000 direct jobs vs. 1 million in ASM[9]. Occupational accidents in ASM are significantly higher than in LSM operations[7] due in to the lack health and safety measures, hazardous mining practices, and in certain areas, an illiterate labor force that cannot read or are unfamiliar with warning signs. In Ghana, the potential for serious injuries is in small-scale mining substantial[8] and evidence suggests targets for improving safety include training on hazard reduction, personal protective equipment use and workplace safety, associated with almost half of all injuries11.

In 2018, ASGM contributed 43% of total gold production, accounting for nearly 2,100,000 ounces[9] (equivalent to 65 tones). Mercury (Hg) use in ASGM is widespread accounting for 42.5 (low estimate) to 62 (high estimate) tonnes per year[26] where the vast majority of miners operate without security of a mining license[10]. According to Ghana's 2018 Minamata Initial Assessment (GEF ID: 9381) an estimated 81,060 Hg/Kg mercury enters the country annually, where concentrate amalgamation accounted for 56% of total annual releases (45,150 Kg Hg/y), followed by industrial gold extraction at 26% (19,600kg Hg/y) and informal general waste dumping contributing 16% (13,162 Kg Hg/y) of releases. Concentrate amalgamation is widely practised among Ghana's small-scale miners as it is simple, inexpensive, readily available, and has a long history of use[26]. Its use in small-scale mining is legal as long it is purchased from a licensed dealer in accordance with provisions of the Mercury Act creating regulatory challenges if used in informal markets.

Ghanaian small-scale gold miners use a range of mining methods, depending on the type of deposit and where it occurs. Mining methods in Ghana are categorized into three groups, based on ore type being extracted; namely alluvial land base; alluvial dredging and hard rock[26]. The amount of mercury used in ASGM is directly related to characteristics of gold production, specifically the types of deposits exploited, and methods used to extract gold from its ores[32]. During processing activities by ASGM, mercury losses to the environment occur at two stages, during amalgamation and the amalgam roasting process that pose direct and indirect exposure risks for miners and vulnerable populations, including women of child bearing age, pregnant women and young children. Due to poor waste management, mercury is also released directly to land and water through poor management of contaminated tailings[27].

The COVID-19 crisis caused Ghana's economy to contract sharply by 3.2 and 1.0 % in the second and third quarters of 2020, pushing the country into a recession for the first time in 38 years[3]. The Ghanaian Government attempted to mitigate impacts on vulnerable households and businesses by enacting the Coronavirus Alleviation Plan (CAP) and the medium-term COVID-19 Alleviation and Revitalization of Enterprises Support (CARES) program in mid-2020. In 2020, economic uncertainty combined with high population growth pushed per capita incomes 1% lower than 2019[11] with disproportionate burdens born by informal, rural and natural resource dependent livelihoods with limited economic alternatives for rural women and men.

Consistent with the GEF Policy on Gender Mainstreaming, the proposed Full Size Project (FSP) recognizes the gender dimensions of mercury use and exposure risks in or as a result from ASGM. Analysing exposure risks in ASGM communities requires both gender-disaggregated (i.e., occupational roles, salary levels and frequency of mercury exposure in men and women) and sex-disaggregated data.

From a gender perspective, mining in Ghana viewed as a masculine or male dominated industry. In practice, mining is generally carried out mainly by adult men and youth. Of the estimated 1,000,000 miners[12], women, men, girls, and boys play a range of roles and the division of labor within the ASM supply chain is highly gendered. According to authoritative sources, male workers have historically dominated more labour-intensive functions, while women account for at least between 40% of Ghana's ASGM workforce, occupying both primary and secondary roles in addition to diverse responsibilities beyond mining, such as household duties, child-rearing, etc.[13]. Evidence suggests as more women are venturing into the sector, more are being discriminated, stigmatised, and treated unequally compared to their male counterparts[14], partly due to prevailing social norms, traditional beliefs and gender stereotypes within mining communities. Further, women are increasingly stepping out of indirect, supportive roles and engaging in mining directly[15]. However, cultural norms often structure unequal distribution of economic benefits and authority accruing for men, foreign entities, and elites. In Ghana, women do not enjoy the same opportunities around access to, control over, and benefits from mining in host communities. To improve understanding of the ASGM sector in Ghana, there is a need to improve data collection and consistency, disaggregate numbers by gender, and provide a gender sensitive platform to promote awareness raising[15].

To ensure that gender is mainstreamed effectively throughout the project, the PPG stage and UNDP's Social and Environmental Screening Procedure (SESP) identified potential risks. Risks identified included, potential reinforcement of discrimination against women and other forms of gender inequality. Due to COVID-19 restrictions during the PPG stage, field consultations were not possible to all Tier 1 sites, but an extensive desktop study was carried out, which included previous consultations and gender studies from recent projects. Furthermore, a series of stakeholder meetings, email and telephone exchanges with key informants were conducted to collect relevant information for gender-based analysis and action planning for this child project.

A Gender Analysis was developed to mainstream a Gender Action Plan throughout the project's activities (Annex 11), to upscale the opportunities for women to benefit from training and employment opportunities and develop gender-disaggregated data, accounting for multiple factors (i.e., race, ethnicity, nationality, education level, traditional community status) to strengthen their view that ASGM should be mercury-free. To ensure equality of results, during its implementation the project will actively engage women, indigenous communities and other marginalized groups, as change agents and participants, not merely as victims of inequalities or forms of discrimination that constrain equal access to and control over resources.

Root causes and barriers that need to be addressed

The **development challenge** is to overcome a sectorial context that encompasses a series of institutional, behavioural, social, financial, and environmental gaps that delay the national capacity to comply with the obligations of Ghana under the Minamata Convention for the ASGM sector, in an environmentally sound management approach.

It is estimated that an amount of **nine (9)** tons of mercury used in small mining operations needs to be eliminated in an environmentally sound manner, as the Global Environmental Benefit of this FSP.

The baseline analysis also reflects a major concern amid the coronavirus pandemic (COVID-19) that has impacted Ghana in 2020-2021 and it was fully considered during the elaboration of the Theory of Change; an analysis carried out during the PPG has identified critical risks due to this global pandemic which are fully considered in Section IV under the Risk sub-section. The key risks that have been identified - in this regard- may threaten the project´s activities as presented in Annex 7 (UNDP Risk Register), in turn, a risk management strategy to handle them while minimizing harm has been developed.

Barriers to overcome to reduce/eliminate the use of Hg in the ASGM sector

The analysis of the development challenge carried out at the PPG stage for the preparation of the problem tree has distinguished three different levels of causes for managing the use of mercury within the framework of national and international guidelines on chemical substances and hazardous waste management, i.e.: immediate causes[16], underlying causes[17] and structural/root causes[18].A group of immediate causes may delay compliance with the commitments of the Minamata Convention and will maintain over the long-term the poor socio-economic conditions of this sector, a fundamental reasoning for the project. Initially, the following four (4) immediate causes have been identified at the PPG stage and they need to be tackled by the project:

i. Limited enforcement of the existing regulations for sound environmental management of mercury.
ii. Need to improve and de-risk investment opportunities into the ASGM sector.
iii. Essential need to develop alternative, cost-efficient, mercury-free technologies.
iv. Account for the impacts of COVID-19 into the change of the existing paradigm.

Four underlying barriers and their root causes were also identified as the basis of the immediate causes mentioned above. These underlying causes, that prevent the country from achieving the environmentally sound management of mercury in the ASGM sector, are determined by their root causes in the following manner:

Informality[19]: This is determined by root causes which refer to the existing structural challenges to be faced.

Ø Legislation is outdated requiring revision to reflect realities on the ground

Despite its importance as a rural livelihood, Ghana's ASGM sector is associated with Occupational Health and Safety (OHS) risks, hazardous chemical pollution, forced and child labour, gender inequalities, illegality and, in certain regions, money laundering and suspected links to illicit financial flows or crime networks. The situation for artisanal gold miners is worsened by their exclusion from legal frameworks, leaving them with few property rights and in many cases, leaving them open to extortion by more mechanized operations. Many miners remain unbanked, lacking bank accounts or access to formal financial services, leading to financial exclusion. In many scenarios, miners in remote areas have little choice but to buy equipment from and sell their gold to middlemen, entrenching reliance on illegitimate or informal finance networks. At present, gold sourced informally or illegally in Ghana is unlikely to satisfy due diligence expectations set forth by international refineries and, further downstream actors in investment, jewelry, or technology.

Ø Limited logistical, technical, and institutional capacity to enforce regulation[20].

A the national and district level there is a lack of technical and institutional capacities to enforce existing regulation. As such, this root cause indicates that Ghana - as a whole - has insufficient institutional capacity to address sound chemicals management issues in the ASGM sector in accordance with Article 7, Annex C on the Minamata Convention of Mercury. Weak controls on the use and trade of mercury in artisanal gold markets create manifold challenges for enforcement agencies and perpetuate mercury reliance due to limited alternatives. Law enforcement is complicated by the remote location of operations, limited infrastructure, and the erosion of trust between government and miners due to military style lockdowns[21] in 2013, 2017/18 and 2021, fuelled by media campaigns against unlicensed mining resulting in complex logistics, high associated costs and a volatile environment both for regulators to enforce regulations and miners to survive in unstable, chaotic working conditions.

Ø *Informality hinders financial inclusion and social cohesion.*

Most artisanal and small-scale miners are in Ghana are informal, hindering their access to legitimate finance and the Best Available Technologies (BAT) to reduce environmental and occupational risks, while improving miner incomes. Ghanaian miners who enter the ASGM sector to escape poverty are disadvantaged by foreign participation. Between 2008 – 2013, the expansion of mechanization and number of Chinese citizens involved in illegal gold mining activity rose sharply[22]. Intensification of mining, including in the informal sector led to intensified environmental degradation. Consequently, ASGM became highly contested in public discourse, fuelled by media campaigns against *galamsey*. Controversies have focused on the illegality of foreign involvement in ASGM and of *galamsey* operations, and on the destruction of land and water bodies hindering financial inclusion and social cohesion for the Ghanaian ASGM population.

Ø Negative public perceptions and need for social license to operate.

Part of the successful formalization of Ghana's ASGM sector in the long term will entail changing public perceptions of it, especially in communities where ASM is practiced. A more positive image will contribute to social license to operate in communities and will also improve high risk perceptions of financial entities and regulators. Issues such as child labour, environmental pollution, land degradation, human health risks, and low levels of community acceptance create reinforcing barriers for legitimate Mining Entities (ME)[23] that want to improve social and environmental performance. Public education and outreach are important in this regard, as it encourages miners to be responsible community members may also encourage broader social development and diversification of livelihoods as stated goal of the Minerals and Mining Policy of Ghana.

Ø A critical need to mainstream gender equality in the ASGM sector.

The degree of exploitation and experience of men and women in artisanal mining is dependent on the local circumstance, along with sociocultural beliefs that can affect access to, and control over, resources and their benefits. In general, women have unequal access to ore deposits, mining licenses, finance, equipment, and more lucrative roles in the gold mining value chain. These income disparities can translate into broader inequalities, leaving women behind. Gender mainstreaming in ASGM communities aims to transform unequal social and institutional structures to make them profoundly responsive to gender inequalities and human rights[24]. Ghana's labour force in the ASGM sector is fragmented with low levels of social and organizational cohesion, undermining efforts to organize the men and women who rely on the sector and their families. Without social or economic solidarity units, miners lack the capacity for self-regulation and planning, posing a threat to the sustainability of mining entities or enterprises founded in the present Ghanaian context.

Lack of access to finance: ASGM activities in Ghana are undercapitalized for a variety of reasons, even though, compared to other commodities, miners would receive a relatively higher price for the gold, but the numerous market intermediaries' miners receive lower revenues than international prices. From a financial perspective, the following root causes refer to the existing structural challenges to be faced, which currently impede access to financial products and services,

Ø Lack of fiscal incentives for miners to change behaviour.

Access to financial services and financial inclusion creates a range of incentives for miners to change behaviour and adopt new practices. The present lack of economic incentives for the ASGM sector limits the willingness of mining entities to introduce mercury-free technologies and adopt best environmental practices. Without access to loans or financial services, artisanal and small-scale miners cannot afford resource efficient alternative solutions to mercury amalgamation and open-air burning of amalgam due in part to the higher capital costs of introducing more advanced technologies.

Ø Lack of geologic data coverage for available concessions.

Access to geological information is core to assessing the economic reserve potential of a deposit, selecting equipment, and optimizing flow sheets. In Ghana, the present lack of geological information for blocked out ASM zones, limits awareness of economically feasible mineral reserves (or ore deposits) for small-scale extraction and processing. Further, due to shortfalls in land allocation, miners lack secure mineral tenure and reserve data, are unregistered as entrepreneurs and out of sight of the tax authorities, many lack collateral required for accessing finance to improve practice or activities.

Ø Lack of awareness by financial institutions

Commercial banks, rural and community banks, finance houses and investors lack awareness of the sector and its potential. Licenses, geological assessments are needed (e.g., collateral) to create financial services for bankable deposits, but are consistently lacking. In general, ASGM is considered high-risk by commercial lenders as informal miners lack business skills and do not keep cash flow records, with an insufficient understanding of bank regulations for credit, loans, or other financial products.

Ø Blind spots in existing legislation discourages certificates of origin

De-risking mechanisms that can improve investor confidence are needed to accelerate financial inclusion. Yet, Section 97(2) of the Minerals and Mining Act, 2006 (Act 703) implicitly discourages due diligence on the origin of minerals with two implications for responsible sourcing. First, there is no mechanism to distinguish between the production output of legal small-scale concessions vs. 'illegal' small-scale gold mines. Second, there are no statutory provisions on rules of origin. Consequently, improvements on the traceability of minerals supply chains and mine-level due diligence are needed to de-risk gold transactions, build investor confidence, and secure downstream sourcing agreements.

Low technical capacity to support formalization and mercury reduction: The ASGM activity, in general, shows a weak technical capacity due to a wide range of root barriers:

Ø Inadequate qualified human resources and limited capacity.

This barrier includes the lack of equipment and hands-on training skills, which limits the government's capacity to assess, monitor and address the negative effects of gold mining practices, and to monitor the status of licensed and illegal mining. Evidence by mercury supply chain leakage from legal imports.

Ø Limited funding into research for mercury alternatives

Inadequate funding for research and development of suitable mercury-free alternatives that are tailored for different types of ore, available, efficient, cost effective and yields better recovery leaves miners to depend traditional gravity concentration and amalgamation methods, despite high gold losses to tailings and inefficient economic returns.

Ø Limited capacity to monitor mercury trade and supply

The present legal framework in Ghana under the Mercury Act allows for legitimate, licenced import of mercury and lawful use by small-scale miners under a subset of conditions. Despite clear acknowledgement of need to revise existing laws, informal local, national, and regional trade networks exist due to legal loopholes and limited enforcement capacity of responsible authorities.

Ø Inadequate geologic knowledge and skills

Geological knowledge is the corner stone to resource efficient and professional mining operations. The lack of knowledge of ore, mineralogical characteristics and mineral processing hinders the average miner's ability to understand why mercury is a process that generally results very high gold losses. In Ghana, miners have transitioned to concentrate amalgamation, demonstrating progress in reducing mercury use. However, the persistent lack of geological data creates challenges to optimize flow sheets needed for Hg-free processing circuits to support transition from mercury.

Ø Supply chain complexity for artisanal gold

In West Africa, artisanal and small-scale gold supply chains are highly complex, and characterized by higher risks of conflict financing or smuggling. Informal and illegal scenarios face limited transparency, local capacity to meet international standards and in certain cases, counter incentives.

Lack of a holistic approach and regional coordination: Despite regional and country level efforts, mercury flows, migration, community consent and youth employment present challenges for improving working conditions, avoiding mercury use and advancing formalization. Meeting national mercury reduction targets requires regional coordination amongst neighboring countries, and reassessing commitment to regional and continental directives on minerals, due to the following root barriers:

Ø High rates of 'irregular' migration in the ECOWAS region

Labour market dynamics in influence and, in turn, are influenced by regional migration trends. Mobility with the ECOWAS zone is a vital component of regional integration, which is itself a prerequisite for the West African economy's successful integration. West Africa and the Sahel are characterized by the highest incidence of low and semi-skilled migration on the African continent, active ASG populations and high degrees of mobility[25]. Among intraregional movements, gold rushes have recently gained relevance, redefining local environments in gold-extracting countries, and impacting heavily on gold miners' lives in rural areas. However, a coherent approach for irregular migrants[26], including transient informal gold miners, appears to be lacking in the ECOWAS region[87].

Ø High youth unemployment in rural Ghana

Youth unemployment and livelihood vulnerability for Ghana's largest demographic base (57% of the total population under the age of 25) is national and regional issue that requires attention. Ghana's strong performance over the last two decades has not translated into job creation nor improvements in rural employment conditions[27], especially for a growing youth demographic. Skills training to be productive in key sectors, including small-scale mining as a growth industry in Ghana and West Africa, is required to create decent jobs prospects and build a culture of mercury-free gold.

Ø The lack of a 'prior consent' standard on minerals

In Ghana, the concept of prior consent has a historical basis. The Concession Ordinance of 1951 (CAP 136) Section 37 states, "No person who is not a native shall carry on mining without being the holder of a concession granting the right to do so from the native having the power to grant such right". This emphasises recognition that colonial administration gave to the right of local ownership of minerals. Ghana's laws have since changed, and current laws do not establish a prior consent standard explicitly[33]. The 1992 Constitution vests the right of mineral exploitation in the President acting as a trustee on behalf of Ghanaians. However, since the Constitution provides that state sovereignty resides in the people, as a trustee the government must guarantee citizens' rights to adequately participate in mineral resource governance decisions[28] as per ECOWAS directives on minerals[29].

Ø Lack of coordinated regional approach on mercury

Mercury use in ASGM in widespread in Ghana and neighbouring states. In 2018, a UNIDO report discovered a well-developed regionally integrated flow of illegal mercury was discovered. For example, one reported flow of mercury from wholesalers in Ghana to suppliers in Burkina Faso, and to gold-buyers distributing mercury to miners in the Côte d'Ivoire. Additionally, many Ghanaian traders networking with mercury suppliers in Burkina Faso, are in fact emigrants originally from Burkina Faso, who settled in Ghana several decades ago, to specialize in ASGM.

The PPG also identified major constraints that emerged in 2020 as a result of the COVID-19 pandemic. Disrupted supply chains have influenced how the ASGM sector operates in Ghana, which has been integrated into this situational analysis.

Account for the impacts of COVID-19 on supply chains: This pandemic has affected ASGM communities where supply chains have been interrupted, affecting household incomes for rural miners. Many gold mining areas in Ghana are considered high-risk areas for COVID-19 because of the porous borders with neighboring countries and reduced access to basic healthcare. In fact, in several instances that is how COVID-19 numbers started increasing in Ghana. The current context is determined by the following causes:

Ø If ASM is to be viewed and treated in policy as a vehicle to help rural communities across Ghana buffer against COVID-19, fresh data – both qualitative and quantitative – will be needed that map on to these key areas and which are capable of informing policy.

Ø Health and safety risks, including contagious exposure for stakeholders the FSP plans to engage with, including institutional partners, plus third-party workers where field demonstrations will take place.

Ø Potential delays of anticipated co-financing, both in-kind and cash sources, due to COVID-19 corporate response, especially from private sector stakeholders that need to react immediately to adjust their cash flows to cover unexpected labour costs and significant drops in business revenues.

Ø The health and environmental authorities must attend with immediate actions urgent situations related to the COVID 19 pandemic and cannot assume the project's requirements to attend meetings, trainings and the implementation of activities that are required for the timely execution of the project.

Ø Longer periods to prepare tenders and purchase some goods and services due to the delay in the delivery of supplies, equipment, laboratory tests, among others, may affect the proposed annual FSP workplan.

This set of shortfalls are summarized in Figure 1 below

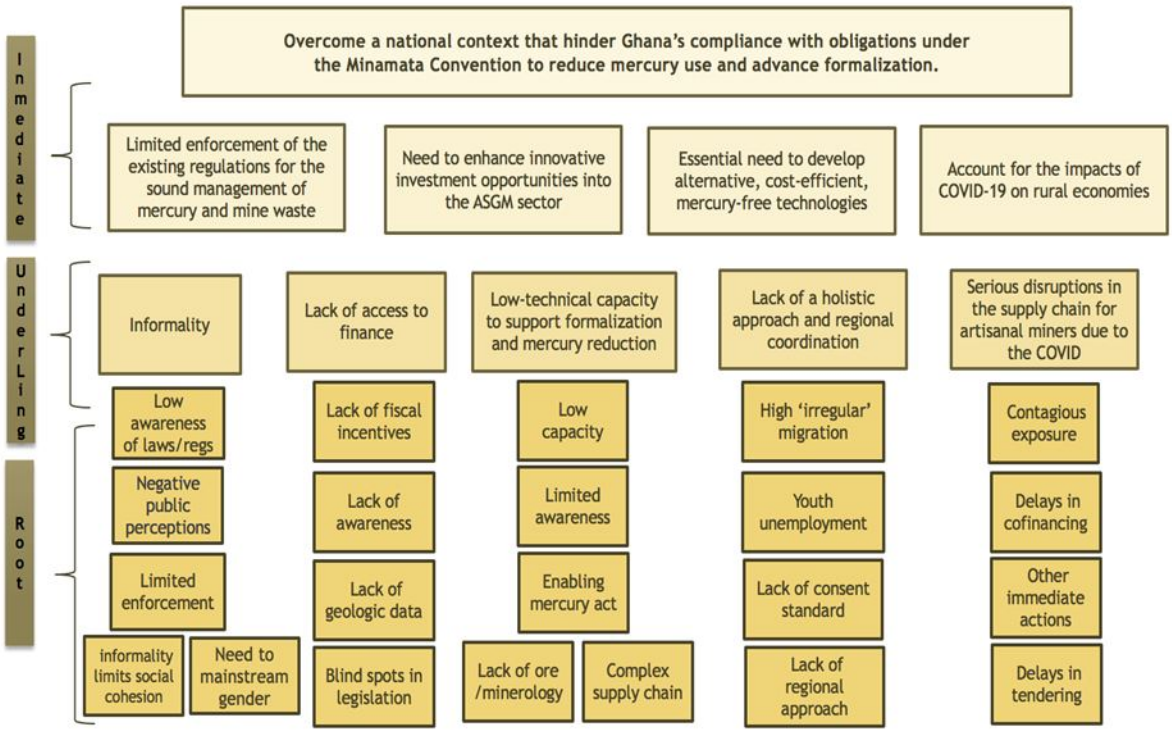

Figure 1: Theory of Change: Problem Tree Analysis Diagram

2) The baseline scenario and any associated baseline projects;

The baseline scenario

The Republic of Ghana is situated on the Gulf of Guinea in West Africa bordered to the north and northwest by Burkina Faso, east by Togo, south by the Atlantic Ocean, and Côte d'Ivoire to the west. With a geographic area of 238,535 km², Ghana is endowed with vast natural resource wealth with one of the fastest growing economies and most stable democracies in West Africa[30]. Rapid urbanization over the past three decades coincided with GDP growth, which helped to create jobs, increase human capital, decrease extreme poverty, and expand opportunities to improve living conditions for millions of Ghanaians[31].

After return to democracy in 1992 following British rule, Ghana achieved significant economic growth and poverty reduction, where substantial improvements in living standards between 1992-2013 reduced the share of people living below the national poverty line from 52.7% to 24%. In 2013, Ghana advanced to middle income status becoming one of few countries in Sub-Saharan Africa to achieve this classification[32]. As of 2021, the country has emerged as second-largest economy in the West Africa region, after Nigeria. Despite decades of impressive economic growth, progress and relative regional stability, Ghana's story is one of partial success.

Inequality is on the rise, undermining poverty reduction, constraining economic growth and threatens social stability[33]. Between 1991 and 2016 the proportion of poor households living in rural areas increased from 82.4 to 83.25%, where demographic trends show average rural household size increased with a higher number of dependents and greater reliance on agriculture, self-employed and informal waged work[11]. The labour market is dominated by low-earing employment in the informal sector, where seven out of ten jobs are estimated to be vulnerable and only one in five qualifies to meet decent work standards1[1].

In 2018, 56.1% of Ghana's total population (29.77 million) lived in cities compared to 12.9 million people (43.9%) in rural areas, where widening disparities and income inequalities contribute to differential patterns of vulnerability[34]. Disparities occur across geographic and ecological scales in terms of poverty incidence, intensity, and access to basic services[35]. Rural households are disadvantaged in access to decent housing, sanitation, cooking fuel, electricity, education, and other key indicators compared to urban dwellers1[3]. At the landscape scale, the incidence of rural poverty in Ghana shows spatially explicit trends with highest poverty rates in Savannah ecological zones, followed by forested lands with highest living standards in coastal areas [36].

Ghana's natural resources have been key drivers of economic growth over the past 30 years, a period during which GDP (real) has more than quadrupled [37]. Macroeconomic momentum has been driven in part by price increases in Ghana's main commodity exports, gold, cocoa, and oil. Over this period, natural resource rents as a percentage of GDP have more than doubled, yet Ghana's extreme poor are mainly rural and natural resource dependent[38]. In the last five years, Africa's gold mining industry - traditionally dominated by South Africa – has recently shifted focus to West African markets - namely Ghana, Mali, and Burkina Faso. In 2019, Ghana became Africa's largest gold producer and 7th largest globally with impressive growth prospects.[39]

Artisanal and Small-scale Gold Mining (ASGM) is the largest global source of anthropogenic mercury releases into the environment with about 38% of total releases from a multitude of sites in over 70 countries[40], and accounts for about 15% of the world's annual gold (Au) production (Metal Focus, 2019)[41]. The UNEP Global Mercury Partnership estimates that the amount of mercury used by the sector annually is conservatively evaluated at 1,500 metric tons (MT), making ASGM the largest intentional use sector and leading source of mercury emissions into the environment[42]. ASGM occurs almost entirely in developing countries and countries with economies in transition, where Mercury (Hg) is used in separate gold from sediments, whole or concentrated ore using rudimentary extraction and processing methods.

The GEF Program, "*Global Opportunities for Long-term development of Artisanal and Small-scale Gold Mining (ASGM) Sector Plus –GEF GOLD+",* aims to achieve Global Environmental Benefits (GEBs) by reducing mercury use from ASGM practices by addressing root causes of informality, capacity limitations of ASGM actors to access finance, technology and geologic information required to improve gold extraction and recovery techniques. By professionalizing ASGM operations, GOLD+ targets upstream production issues to improve miner incomes and reduce poverty while building downstream market linkages to bring responsible small-scale mines to market through due diligence measures addressing issues of inequality and exclusion.

The ASGM Sector in Ghana

Artisanal and Small-scale Gold Mining (ASGM) is a practice carried out by individual miners or small businesses with limited capital investment and production[43] that relies on mercury (Hg) to process gold ores. In Ghana, mercury use is widespread in ASGM and although miners have reduced use over time favouring amalgamation of concentrates, whole ore amalgamation (worst practice under Article 7 of the Minamata Convention) is endemic to certain regions and open burning of Hg-containing amalgam without mercury capture devices is common, leading to severe health risks for miners and pollution hazards for neighbouring and downstream communities through fluvial transport of contaminated sediments in inland waters ways. While cyanidation is widely used in neighbouring countries of Burkina Faso and Mali, and has recently appeared in Ghana, cyanide leaching of mercury-contaminated sediments, ore or tailings has not been observed to date[44].

Most of Ghana's gold deposits are located within the West African Craton. Gold mining is broadly categorized based on the type of ore extracted: shallow alluvial; deep alluvial; and hard rock mining. Due to its largely unregulated and uncontrolled nature, small-scale gold mining in Ghana is causing negative environmental impacts on air, water, and land such as land degradation (deforestation and soil erosion), fresh and sea water (Hg contamination, increased turbidity), biodiversity loss and CO_2 emissions due to the consumption of diesel for dredging operations. At the same time, the sector delivers remarkable socio-economic benefit for rural communities and is an important source of foreign exchange earnings[27].

In West Africa, gold mining is embedded in the culture and history of traditional local communities representing more than an emerging rural economy but a way of life for rural Ghanaians. Despite uncertainty cause by the COVID pandemic, gold production in West Africa's leading markets – Ghana, Burkina Faso, and Mali – is expected to increase by 2.7 % in 2021 to 8moz and grow to 8.4moz by 2024[45]. Most of this growth is expected from Ghana where production is forecast to reach 3.9moz by 2024. Despite the ASGM sector's importance, law enforcement is complicated by logistical constraints, as mines are often located in remote areas without security of land or mineral tenure and lack basic infrastructure[46].

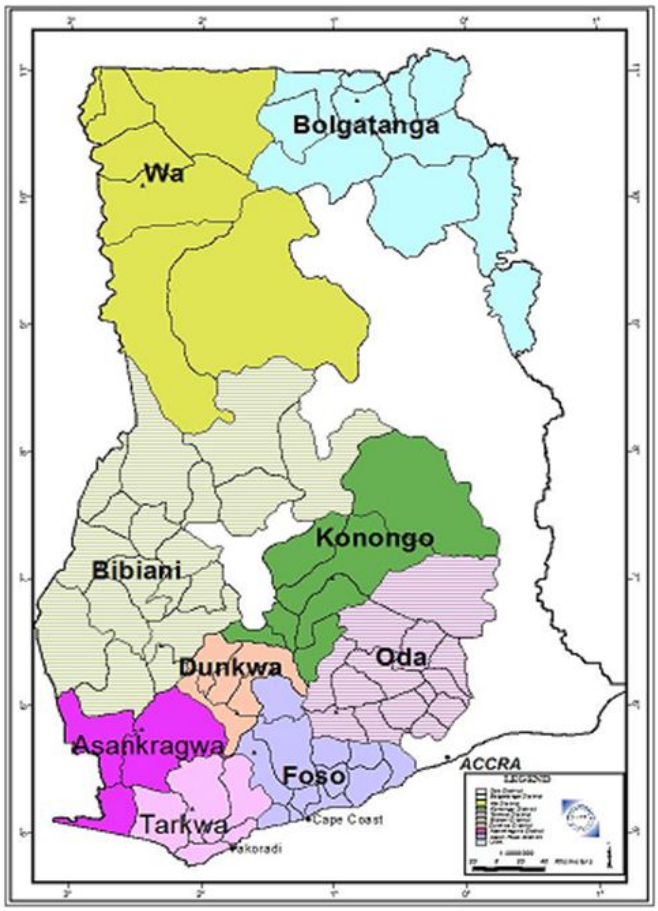

FIGURE 2. Designated mining districts as of September 2017.

ASGM is widely practiced in thirteen out of the sixteen regions of Ghana with the exception of Greater Accra, Volta and Oti Regions[27]. Although the small-scale gold mining is legalized in Ghana through the Small-Scale Gold Mining Act of 1989[47]; the Minerals and Mining Act, 2006 (Act 703)[48]; and National Mining Policy, 2014 the majority of operations are largely informal or illegal. To support the sector, the Minerals Commission (MC) originally created nine designated mining districts (see Figure 1) and established thirteen Mining District Centers located close to mining areas to provide services including advice on existing regulation, alongside training for mining, processing, marketing, environmental sustainability, health and safety[27]. District centres are manned by District Officers with expertise in mining engineering and the mandate to deliver extension services to miners and ASGM communities in Tarkwa, Asankragwa, Bibiani, Assin Foso, Akim Oda, Dunkwa on-Offin, Konongo, Wa and Bolgatanga. Within Ghana, largest ASGM operations occur in Tarkwa, Bibiani, Dunkwa, Asankragwa and Akim-Oda District Centres (Figure 2; Source: Minerals Commission, 2021).

In all designated mining districts where the Minerals Commission operate district offices, representative ASGM associations or cooperatives are present[32]. The Ghana National Association of Small-Scale Miners (GNASSM) is the most active and widely known for advocacy on multiple issues[26]. The Association was formed through coordination with the Minerals Commission as a business association and represents the voice of small-scale miners at the national and local level, though women are under-represented[49]. GNASSM plays an active role in the promotion of responsible small-scale gold mining, acting as liaison between government agencies and miners on new laws and policies, including the Minamata Convention.

In 2018, ASGM contributed 43% of total gold production, accounting for nearly 2,100,000 ounces[50] (equivalent to 65 tones). Mercury (Hg) use in ASGM is widespread accounting for 42.5 (low estimate) to 62 (high estimate) tonnes per year[26] where the vast majority of miners operate without security of a mining license[51]. According to Ghana's 2018 Minamata Initial Assessment (GEF ID: 9381) an estimated 81,060 Hg/Kg mercury enters the country annually, where concentrate amalgamation accounted for 56% of total annual releases (45,150 Kg Hg/y), followed by industrial gold extraction at 26% (19,600kg Hg/y) and informal general waste dumping contributing 16% (13,162 Kg Hg/y) of releases. Concentrate amalgamation is widely practised among Ghana's small-scale miners as it is simple, inexpensive, readily available, and has a long history of use[26]. Its use in small-scale mining is legal as long it is purchased from a licensed dealer in accordance with provisions of the Mercury Act creating regulatory challenges if used in informal markets.

In Ghana, the term *galamsey* is often used as a label for illegal operations. In practice, the term is sometimes used incorrectly to refer to all small-scale gold mining operations, without making a clear distinction between legal, illegal, or informal ones. In the field, it can sometimes be difficult to distinguish legal and illegal operations, as on the surface their practices can appear very similar. The term '*galamsey*' covers a wide range of practices across a spectrum of informality and illegality, ranging from informal, part-time artisanal miners working independently with very low levels technology; to small groups of miners infringing on the concessions of LSM companies; to highly mechanized operations working in prohibited areas such as forest reserves, protected areas; and especially, alluvial dredging in rivers which may be foreign owned.

TABLE 1. Definitions of ASGM operations.

Category	Description
Illegal	ASGM actors are either prohibited by law or lack mining licenses, and do not adhere to other requirements set in national regulations. In Ghana, this includes persons or operations lacking mining licenses, and all non-Ghanaian citizens as small-scale mining is reserved for citizens.
Extralegal	ASGM actors are neither recognized nor prohibited by national regulations. Such as artisanal miners, which are no recognized in law. In Ghana, artisanal miners are not recognized in mining laws and excluded. In Ghana, artisanal (non-mechanized) gold miners that are excluded from law and thus operate on the margins of existing law.
Informal	Regardless of legal status, ASGM actors are not organized in or effectively represented by a legal entity; do not receive governmental support; or do not benefit from enforcement of policies that enable them to understand / comply with requirements in national regulations.
Legal	ASGM actors are recognized by national law, are in possession of mining licenses and environmental permits, and adhere to any other standards as required by national regulations. In Ghana, legal Mining Entities (MEs) and Community Mining Licenses exist.
Formal	ASGM actors possess the licenses and permits required by law; are organized in legally recognized entities that represent their needs; comply with regulations, policies, and management practices, including taxation; and are empowered to manage their activity including technical, administrative, financial, social, and environmental aspects.

Source: UN Environment and UNITAR Handbook (2019) on Formalization for the ASGM sector developed for signatories to the Minamata Convention.

The Minerals Commission estimates there are at least 1,000,000 small-scale miners in Ghana, including a wide range of livelihoods directly connected to the sector (i.e., miners, processors, site managers). While demographic data is unreliable at the national level on demography, rural Ghanaians constitute a large share of primary and secondary workforce[52]. Similar to other African countries, women play an important role accounting for between 40-50% of the total ASGM population, both primary and secondary roles[53]. Multiple lines of evidence reinforce the important role of Ghanaian women in informal mining, from processing, transport, trade to ancillary services such as cooking, where rural women pursue work at artisan and small-scale gold mines due to the lack of economic alternatives[54]. Similarly, rural youth and children from low-income households, engage in mining to earn income to pay for school fees and escape poverty[55]. While regions vary, in general boys are more active as child laborers, where girls adopt secondary roles[37].

Ghana hosts seventy distinct groups[56] and young population structure with approximately 57% of the population under the age of 25[40]. Major groups in Ghana include the Akan, accounting for 47.5% Mole-Dagbon 16.6%, Ewe 13.9%, Ga-Dangme 7.4%, Gurma 5.7%, Guan 3.7%, Grusi 2.5%, Mande 1.1%, other 1.4% (2010 est.)[57]. Immigrants from neighbouring countries in West Africa (including Burkina Faso, Nigeria, Mali and others) and overseas make significant contributions to Ghana's economy through various impacts on labour markets and economic growth[41], yet the exact labour force contribution to the ASGM sector remains uncertain. Since 2008 increased competition from migrant businesses, particularly those owned by Nigerian and Chinese migrants[58] has been reported. Perhaps the most politically sensitive demographic group in small-scale gold mining involve Chinese equipment providers (known as Chang fa)[59], miners and financers[60]. Enhanced mechanisation and intensified mining occurred through introduction of heavy equipment, new technology and skills provided by Chinese distributors between 2008 to 2013. Mining has since intensified as Chinese techniques were later adopted by Ghanaian miners leading to high intensity alluvial dredging[42].

Intensification of mining operations in the informal sector led to intensified environmental degradation. Consequently, ASGM has been heavily contested in public discourse, fuelled by media campaigns against *galamsey* – in all forms. Despite the number Ghanaians involved, controversies have focused on the illegality of foreign actors in ASGM operations, and on the destruction of land and water bodies. The government responded with military-style crackdowns in 2013 and operation vanguard in 2017/2018[37], when a moratorium was placed on all ASGM. Criminalisation of small-scale miners has been criticized due to powerful interests that have encouraged informal operations with accusations of corruption and limited transparency during seizure extending to security forces tasked with enforcement[37].

According to the 2021 NAP on ASGM, estimated distribution of small-scale gold mining extraction in Ghana, by district show the greatest concentrations of miners in Dunkwa (175,000) Tarkwa (170,000), Bibiani (160,000), Asankragwa (135,000), Akim Oda (110,000), Assin Foso (95,000), Bolgatanga (65,000), Konongo (45,000), and Wa (45,000), where a land -based alluvial accounted for the largest share of operations ranging from 45-75%, with the exception of Wa and Bolgatanga that were dominated by alluvial dredging operations. While deep alluvial (dredging in rivers) attracts significant media attention and public concern, new data presented in Ghana's NAP shows that the highest proportional mercury use per ore type occurs in land-based alluvial mining operations, even in the low estimate scenario. Thus, land-based alluvial is a priority. Thus, land-based alluvial is a priority for policy makers to fulfill mercury abatement targets and obligations set forth in the NAP on ASGM (2021). Consequently, this FSP targets land-based alluvial as a leading national priority.

In Ghana, shallow (dig and wash) alluvial operations typically have non-mechanized and dredging techniques at a depth of 0-3 meters and deep alluvial ranging from 7-12 meters. Due to severe soil erosion, increased sediment, river siltation, and adverse impacts on riparian habitats from dredging operations create an ideal environment for increased siltation and sediment-bound heavy metal dispersal well beyond the point of origin. In contrast, primary extraction techniques of gold-bearing rock (usually quartz) involve sinking of shafts, drifts, and digging pits, with higher overall technical requirements compared to placer (alluvial) deposits. Extraction of hard rock ores range from manual (non-mechanized) crushing techniques to the use of jaw crushers, hammer mills, ball mills and modified corn mills. In general, highest degrees of mechanization are observed in the Twarka region of Western Ghana. As a value commodity due to low recovery rates, tailings are stockpiled at processing centers and sold to medium-scale companies, such as Sankofa Goldfields in Prestea and large-scale companies such as Adamus Resources in Nkroful, for further processing using the Carbon-in-Leach (CIL) process. In this process, tailings are reprocessed (milled) and the slurry treated with lime to raise the pH to 10.5-11 followed by leaching with 250 mg/L cyanide solution[61].

Field studies conducted during the NAP on ASGM (representing five major mining regions accounting for 65% of the total ASGM population)[45] found isolated instances where mercury was added directly to sluices, which in effect, constitute whole ore amalgamation and worst practice under Article 7 Annex C. This process consists of adding mercury to ground ore during the concentration process (milling/sluicing) and tends to use excessive amounts

of mercury that is usually not recovered. While limited in many regions, this form of whole ore amalgamation has been observed in Amoamang in Asankragwa where mercury is added to milled ore before concentration (sluicing). According to miners they believe this extracts more gold. After sluicing no mercury is added, except on few occasions and constitutes a geographically explicit (i.e., isolated) practice[45].

The risk of mercury-contaminated tailings was observed at a mine site at Wassa Japa in the Asankragwa Mining District Centre. Field observations in Prestea also discovered an unusual practice of "double-amalgamation". In this case, mercury is applied to gold concentrates to form amalgam. However, because gold deposits have naturally high lead (Pb), amalgams are dissolved in nitric acid to eliminate residual lead. The acid solution is then poured off, leaving behind gold, which is then amalgamated for a second time. This practice uses nearly twice as much mercury as normal concentrate amalgamation does and presents additional co-exposure risks to lead. Similar observations have been noted in regions of Ghana, where lead exposures among small-scale miners were disproportionately high compared to other sectors[62].

Open burning of amalgam without mercury capture devices is common in Ghana. Field observations during the NAP found one out of 30 sites was using a retort, triangulated with miner interviews, who confirmed that retorts were rarely used. Miners gave several reasons for not using retorts, including the fragility of the glass retort, equipment costs, time it takes to use the retort, the length of time needed to cool the retort before opening and retrieving gold, and sponge gold discoloration. The University of Mines and Technology (UMaT), Tarkwa has recently been involved in efforts to produce a locally fabricated retorts that may be more widely accepted, yet up take remains low[63]. Under field conditions, retorts capture only 75-80% of mercury and may become contaminated, increasing mercury exposures if improperly handled. After open burning of amalgam or, if few cases retorting, sponge gold is smelted in gold shops to obtain bullion – referred to as 'refined gold' by local miners. Due to the high temperatures during smelting, residual mercury present in sponge gold is emitted to air, typically accounting for 1 – 3% of sponge gold by weight[45].

Reducing and where feasible eliminating mercury use in ASGM operations are a priority for the GoG. In line with the NAP of ASGM, emphasis on the elimination of worst practices as well as a targeted approach on land-based alluvial operations as largest mercury uses per ore type, followed by hard rock mining[45] will be essential. Considering the scale of land-based alluvial operations, and growth of hard rock mines as surface deposits are deleted, allocation of geologically prospected land for small-scale gold miners is not only a fundamental building block for formalization efforts but will play a critical role in meeting mercury abatement targets[45].

Beyond pollution issues, unregulated land-based alluvial and hardrock mining are threats to forest conservation in Ghana[64]. Based on data from 2001-2015 Ghana's annual deforestation rate was approximately 3.51%, equating to yearly losses of > 315,000 hectares (ha). Total deforestation during this time period surpassed 4.7 million ha, of which over 84% (3.98 million ha) occurred in open forests, compared to 16% (745,326 ha) in closed forests.6 From 2001 to 2010, the majority of deforestation occurred in the High Forest (southwestern Ghana) and Transition Zones (central Ghana), but from 2013-2015 there was a significant increase in forest loss across the Savannah Zone (northern Ghana), a shift that pushed annual average forest loss to over one-half million ha/year. Loss of closed canopy forest signals encroachment into state protected forests, whereas open forest loss typically reflects conversion of private or customary land for agriculture, indicating cropland expansion at the expense of forest cover[65]. In mining-affected forest landscapes, applied nucleation and assisted regeneration offer cost effective techniques to reduce soil erosion, reclaim slope stability and overtime can support revegetation to recover ecological structure and function. Such approaches are under review by GoG and World Bank initiatives including the Forest Investment Programme (FIP) and GEF-7 Landscape Restoration and Ecosystem Management for Sustainable Food Systems GEF (10348).

To reduce ecosystem degradation and pollution impacts caused by ASGM, access to geologic data and characterizing ores will be key to building the capacity of miners and promoting resource efficient mining practices across the mine life cycle. In Ghana, ASGM is a vital income source, but the sector is limited by shortfalls in land allocation with known reserves and lack of technical capacity. Technical capacity in ASGM areas is weak and support is required to professionalize operations, train on mercury-free techniques and build capacity. Review of legislation and definition of specific categories of gold mining operations based on identified parameters in mining districts is required to facilitate ASGM formalization. Furthermore, an improved understanding of educational programs targeting miners and local workforce dynamics is needed to understand demand and supply side needs to develop appropriate de-risking and financial mechanisms.

Despite the important contribution of LSM to the national economy, small-scale gold mining is by far more significant in terms of employment due to the number of jobs created in downstream industries[66]. In 2017, the Mineral Commission estimated the LSM sector provided 27,000 direct jobs vs. 1 million in ASM[49]. Occupational accidents in ASM are significantly higher than in LSM operations[67] due in to the lack health and safety measures, hazardous mining practices, and in certain areas, an illiterate labour force that cannot read or are unfamiliar with warning signs. In Ghana, the potential for serious injuries is in small-scale mining substantial[68] and evidence suggests targets for improving safety include training on hazard reduction, personal protective equipment use and workplace safety, associated with almost half of all injuries51.

Ghana has a significant LSM sector of including major concessions operated by Gold Fields (the country's largest mine in Tarkwa), Asanko Gold, Newmont, AngloGold Ashanti and Kinross. Given Ghana's extended gold mining history and location of major deposits, large-scale mines naturally overlap with small-scale operators. Two factors play a role in competition over access to ore bodies. First, artisanal mining is deeply embedded in Ghana's local culture, land-use practices, and customary authority structures in traditional communities. As such, forced eviction of informal miners from formal concessions has often been short-lived without support from local chiefs,[69] as traditional authorities for local communities[70]. Second, geology plays a critical role in how different groups access geologic deposits. For instance, the way a particular ore body is located underground allows for extraction on different scales and depth profiles[71] as industrial and artisanal miners differ in technical capacity to access (parts of) ore bodies. Thus, socio-political and geological features influence how companies and communities come to agreements on accessing deposits[72].

Site invasion by small-scale miners onto large-scale concessions, are a regular occurrence, and source of unease for the GoG, companies and communities. Over time, strategies ranging from dialogue, cohabitation and coexistence offer strategies to engage miners directly, address land allocation issues and promote land-use planning to minimize environmental impacts, while improving mine waste, effluent, and tailings management. Intervention strategies range but may include the establishment of the community mining scheme in ASM zones, ceding part of a concession or allowing miners to mine or operate a processing plant. Table 2 below provides an overview of existing LSM initiatives to support mining communities.

Table 2: Large- Scale Mining (LSM) initiatives that (potentially) benefit ASM in Ghana

Private Sector	Site location	Cooperation modality
AngloGold Ashanti, Obuasi Mine	Obuasi	Ceded part of their concession for licesing to small-scale miners (Coexistence)
Newmont Ghana	Ahafo	Ceded part of their expliotation concession for licensing to small-scale miners (Coexistence) Supported livelihood diversification in gold mining areas where ASGM operates (Cohabitaton) Provide alternative livelihood training to miners who want to diversify incomes (Cohabitaton)
Kinross	Chirano	Dialouge and workshops on advancing formalization
Golden Star Resources	Akyempim	Supported women empowerment and livlihood diversification programmes in mining communities

Source: PPG Team (2021)

Modalities of ASM-LSM collaboration have shown genuine progress in moving from eviction from concessions to more inclusive approaches of dialogue aiming to resolve conflicts on the path toward cohabitation and ultimately coexistence (see Figure 2). This FSP defines modalities trending toward cohabitation as a 'live and let live' approach, or tolerating small-scale miners, but recognizes investments in alternative livelihood and diversification programs to reduce competition for the same mineral deposit (Figure 3). In Ghana, ASM zones and scenarios at the ASM-LSM interface offer potential to strengthen land and mineral tenure security and allow the right to mine, thus enhancing the legitimacy and sustainability of small-scale mining operations.

Ghana is well positioned to support the systems transformation designed under the GOLD+ programme, which plans to pilot holistic, multi-sectoral and integrated strategies emphasizing optimized land allocation for ASM activities through ASM zones, and modalities of cooperation at the ASM-LSM interface, including multi-stakeholder dialogue, cohabitation strategies and models of coexistence, which may include 'tributer' systems which have existed in Ghana for decades, consistent with mining Regulations 493-506.

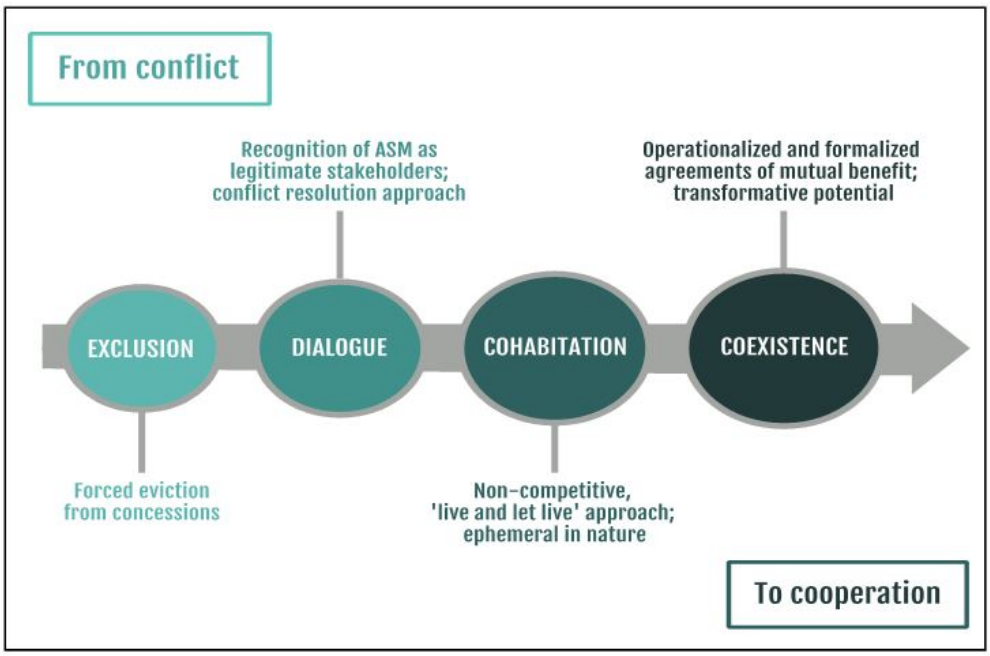

FIGURE 3: Continuum of cooperation at the ASM-LSM interface.

Demarcation of ASM zones offer an alternative to forced eviction (i.e., exclusion) of miners from concessions. As the most advanced modalities of cooperation, include strategies adopted by AngloGold Ashanti and Newmont which demonstrate cases where an LSM actor may choose to cede a portion of their concession to the Minerals Commission (MC), whereby the Commission will reserve (i.e., block out) this area small-scale mining, thus allowing for legal transfer of mineral rights and tenure. Improved land allocation through blocked out ASM zones or models of coexistence offers an entry point to organize, professionalize, and formalize operations depending upon local circumstances. Ensuring access to a viable mineral deposit and enabling the right to mine, legitimizes ASGM livelihoods and can provide much needed collateral for financial institutions to improve access to asset-based finance or

tailor loan products[73]. Establishing mineable reserves is vital to creating a sustainable operation as it enhances the link between miners and the land they work, that may be accompanied by extended mine life and reduced abandonment. Further, strengthening land and mineral tenure are preconditions for sustainable interventions allowing for integrated land-use planning. Under this FSP new land will not be allocated for ASGM but utilize existing ASM zones or concessions.

The GoG has tested multiple policy and legal strategies to organize small-scale miners[74], including tributer systems, demarcation of ASM zones[47] and have taken steps to decentralize governance to mining districts through the establishment of designated mining districts, centers and District Mining Committees (DMCs) and a Community Mining Scheme (CMS), aimed to address illegal mining operations and the conflicts that often arise with communities. Without cohesive strategies to reconcile land-use conflicts, enhance financial access and promote technology transfer, mercury pollution will continue unabated endangering vulnerable populations, fisheries, and wildlife, and through drainage of waterways into Gulf of Guinea and Atlantic Ocean generating global impact. In Ghana, ASM zones and ASM-LSM coexistence offer benefits to reduce mercury use and prevent conflict with the aim of balancing land-use between sectors to reduce pollution hazards, while promoting sustainable land, forest and water management for global environmental benefit.

Although the majority of West African ASGM may be informal, operations may be conducted with a high degree of legitimacy[75], and unable to understand or comply with existing laws and regulations (see table 1). Recognising the need for a flexible measure of ASM 'legitimacy', the OECD produced the Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict Affected and High-Risk Areas (CAHRAs). Legitimate ASGM can be understood as operations that are consistent with applicable laws. While small-scale gold mining is recognized national laws and regulations, the legality of certain operations remains unclear. When the applicable legal framework is not enforced, however the assessment of ASGM legitimacy should consider good faith efforts of miners and enterprises to operate within the applicable legal framework as well as their engagement in opportunities for formalization as they become available[76]. For example, Section 97(2) of the Minerals and Mining Act, 2006 (Act 703) states that *"a person is presumed to be lawfully in possession of minerals until the contrary is proven"* implicitly discourages due diligence on the source or origin of minerals. This contradicts the OECD Due Diligence Guidance on rules of origin as there is no mechanism to distinguish between the production output of legal small-scale mines vs. 'illegal' concessions.

While gold is often mined illegally by ASGM actors in Ghana supply chains do not share similar risk profiles as neighbouring gold mines in Nigeria, Burkina Faso, and Mali where operations have suspected linkages to with crime syndicates, rebel or extremist groups. Intermingling of gold from Conflict Affected and High-Risk Areas (CAHRAs)[77] within the region can result in de facto boycotts by international downstream partners where mining operations lack adequate capacity to demonstrate due diligence measures and compliance with existing law. Consequently, public sector capacity building on OECD mineral Supply Chain Due Diligence Guidance (DDG)[78] and market entry standards, such as the CRAFT Code can allow the GoG to sustainably attract and retain refining contracts and encouraging responsible, mercury-free gold production.

In June 2021, the Bank of Ghana begun a Gold Purchase Program (GPP) to shore up the national currency, the cedi over time and strengthen the future macroeconomic management position of the country. This is aligned with international trends, where investments in Gold have become central to modern reserve management. Central banks have become the third force behind jewellery and technology and investment sectors in the global gold demand in the past decade. Although Ghana is Africa's largest gold producer, the nation holds only moderate amount of physical Au (8.7 tonnes) as part of its reserves. For nearly 60 years, Ghana has not added an ounce to reserve holdings, but this is anticipated to change under the new GPP.

As of 2021, it is expected that the Bank of Ghana will secure refining contracts for ASM of gold with the London Bullion Market Association (LBMA)[79] approved refiners. LBMA refiners constitute a downstream market with the highest levels of integrity and transparency for the global precious metals industry. Through responsible sourcing programs, the LBMA community have stated commitments to source from responsibly produced gold from Central Banks, or directly from legitimate Mining Entities (MEs) with adequate due diligence measures in place to meet downstream requirements of the international marketplace.

In recent years, the GoG and national and international partner organizations have become increasingly aware of the necessity to take action to reduce, and where feasible, eliminate the use of mercury. In line with the Minamata Convention on Mercury, Ghana is also developing the following initiatives:

Ø **GEF enabling activities:** MIA (GEF ID:9381)[80] supported by UNDP and NAP on ASGM (GEF ID:9478)[81] supported by UNIDO.

Ø **GEF-6 Environmental Health and Pollution Management Program in Africa** ($8.7 million USD) implemented by the World Bank targeting mercury abatement in ASGM and e-waste sectors (2020-2025). The project aims to promote sustainable inclusive growth by improving access to environmental services through knowledge sharing and capacity building; strengthening human capital by improving health of vulnerable populations, especially women and children; complementing regional initiatives and individual projects, focusing on competitiveness, sustainability, and governance. Components include: (1) institutional strengthening, capacity building and knowledge sharing; (2) policy dialogue support and regulatory enhancements; and (3) demonstrating technological tools and economic approaches in ASGM.

Ø **UNDP SGP Ghana (2019-2021)** is piloting formalization of mineral rights and duties for ASGM in Gbane (Kejetia, Obuasi and Bantam); Datoko, Talensi Nabdam District of the Upper East Region; and Nadowli/Kaleo District of the Upper West Region.

Ø **Ministry of Health Specific International Programme (SIP; 2021-2023)** financed by the Minamata Convention on Mercury Secretariat ($385,000 USD) promotes awareness raising on the Minamata Convention and health sector obligations, including the establishment of standards for Hg-free devices; and a national calibration system, targeting technical capacity and technology for the health sector).

Ø **World Bank Artisanal and Small-Scale Mining Formalization (P168002; 2019-2024).** Implemented by the Ministry of Lands and Natural Resources IDA credit project ($34 M USD) on ASM Formalization with complementary aims to (i) enhance regulations and policies at the national level on legalization and formalization; (ii) strengthen institutional capacity and inter-institutional coordination; and (iii) promote sustainable ASM practice by professionalizing the sector through multi-stakeholder dialogue, development of sustainable community-based mining practices, and enabling outcomes, such as strengthening District mining committees, ASM zone management and livelihood diversification.

Ø **World Bank** are leading an Extractive Industries Transparency Initiative (EITI) grant ($2M USD) from the Extractive Global Programmatic Support (EGPS) Trust Fund, designed to strengthen the capacity of the Ghanaian EITI to mainstream ASM into the EITI reporting and develop tools and initiatives, such as beneficial ownership of ASM ventures, to improve the governance and transparency of the sub-sector.

Ø **World Bank Forestry Investment Program (FIP)** is a combined grant ($12.4 million USD) and loan ($7 million USD) supporting rehabilitation of abandoned gold mines in forested ASM regions at the pilot-scale, to advance safe post-mining land use and enhance private sector engagement in plantations across Brong-Ahafo, Ashanti, Eastern and Western regions.

Ø **Friends of the Nation (2018-2020)** project funded by the US Department of Sate (USDoS) aimed to develop mercury-free process flows for small-scale miners, based on characteristic ores found in Ghana. The project provided small-scale gold miners assistance in equipment selection, reagents, and increased recovery, based on the ore type, allowing miners to choose cost-effective approaches for Hg-free flow sheets and processes.

Ø **ILO CARING Gold Mining Project (2015-2019)** funded by the US Department of Labour (USDoL) focused on strategies to reduce child labour and improve working conditions in ASGM in Ghana and the Philippines ($5 million. USD). In Ghana, the CARING project took place across the Ashanti and Western Regions and the Adansi North and Aowin Districts aimed at strengthening laws and policies to address child labour through increased monitoring; increased access to social protection services; and to find innovate solutions to reduce child labour and improve working conditions in the ASGM sector with key Ministries, CSOs and policy makers.

Ø **Fund for Peace and West Africa Network for Peacebuilding (2019-2022)** project entitled *Responsive Engagement and Collective Learning Approaches to Inform Mercury Substitution in ASGM, Ghana (RECLAIMS ASGM Ghana)* financed by the US Department of State aiims to reduce mercury use in ASGM through both technological and policy means($750,000 USD).. RECLAIMS is focusing on two key ASGM pilot areas, Western and Upper East region in the north, to demonstrate best practices and to engage in community sensitization, with the goal to replicate and scale up throughout the country.

Ø **Pact and Solidaridad (2020-2023**) project entitled Promoting Mercury-Free Mining Ghana Project" (or "Pro-MFM" is a three-year U.S. Department of State-funded (USDoS) initiative aims to reduce the use of mercury in Ghana's ASGM sector through education and training, introduction of better technology, strengthened equipment supply chains and creating incentives for mercury-free gold production.

Ø **USAID-NASA SERVIR West Africa (2016-current)** was expanded to from its 2016 inception to promote the use of publicly available satellite imagery and related geospatial decision-support tools/products to help key stakeholders and decision makers, especially in Burkina Faso, Ghana, Niger, and Senegal, make decisions in four areas: agriculture and food security; water and related disasters; weather and climate; and land cover and land use change and ecosystems. In Ghana, a mobile app designed for monitoring land-sue impacts from *galamsey* provides near real time information on the location of ASGM sites across Ghana.

Ø **Solidaridad and Trust Africa (2021-2025)** project entitled Gold Reclaim Sustainability project aims to contribute to a responsible global gold value chain by strengthening civil society and increasing and maintaining civic space; as well as applying a gender and social inclusion approach. This will influence the public and private sectors to adopt and implement sustainability norms that will ultimately alleviate the poverty of miners.

Ø **Solidaridad's (2017-2022)** project entitled Improving access to technical and financial services in the Small-scale Mining Sector aims to bring more rapidly to scale responsible practices in the small-scale mining sector by improving the quality and availability of local services, and by proving a business case for responsible operation that is well aligned with the interests of miners, gold buyers and financial institutions.

Ø **Solidaridad, Rainforest Alliance and International Cocoa Initiative (2021-2023)** project entitled Tackling Forced and Child Labour in Ghanaian Cocoa and Gold Mining, aims to ensure that children and vulnerable people in cocoa and gold-mining communities in Ghana have increased socio-economic resilience and are protected against forced labour and the Worst Forms of Child Labour. The project adopts a landscape approach to addressing child labour issues within communities of Western, Ashanti and Eastern regions.

Ø **Landscape Restoration and Ecosystem Management for Sustainable Food Systems Project (P172386)** has the objective is to strengthen integrated natural resource management and increase benefits to communities in targeted savannah and cocoa forest landscapes. The project's total financing is US$102.76 million, financed by the World Bank's International Development Association (US$75 million credit), the Global Environment Facility (US$12.76 million grant), and the PROGREEN Multi-donor Trust Fund (US$15 million grant). Specifically, the project will be implemented through the following components: Institutional Strengthening of Governance for Participatory Landscape Management; Enhanced governance in support of sustainable ASM; Sustainable Crop and Forest Landscape Management; Monitoring and Project and Knowledge Management and Contingent Emergency Response. This project has coordinated with the Ghana GOLD+ child project to reduce possible overlaps.

Ø **Ghana Microfinance Institutions Network (GHAMFIN)** is a network of 2143 Non-Bank Financial Institutions' Association, Microfinance Associations (MFAs) and member financial institutions (FIs) engaged in the provision of financial and non-financial services. GHAMFIN provides products such as loans, investments, savings, and insurance to the small-scale mining sector, among others. In 2019, GHS $8.3billion (USD $1.36billion at UN Exchange rates GHS 5.955 = 1 USD) in loans were distributed by GHAMFIN, where an estimated 15% (GHS $1.2Billion; USD $202M) was dispersed to small-scale miners. In 2021, GHAMFIN aim to engage their members to support financial literacy training for small-scale gold miners, and enhance the use of assets, such as land as collateral, and facilitate access to finance.

Institutional and Legal framework

The Constitution of the Republic of Ghana (1992), as amended in 1996 includes articles on fundamental human rights and freedoms, protection from slavery and forced labour (Article 16), equality and freedom from discrimination (Article 17), cultural rights and practices (Article 26), the institution of Chieftaincy[82] (Article 270), women's rights (Article 27) and children's rights (Article 28). Article 36 (10) indicates the State shall safeguard the health, safety and welfare of all persons in employment, and establish the basis for the full deployment of the creative potential of all Ghanaians. Article 36 (9) provides that the State shall take appropriate measures to protect and safeguard the national environment for posterity; and shall seek cooperation with other states and bodies for global environmental stewardship. Article 257 (6) specifies that as part of public lands that all minerals under or upon land, rivers, streams, or water courses are property of the Republic of Ghana and shall be vested in the President in trust for Ghanaians. Article 269 provides that all transactions for the exploitation of mineral, water or other resources made or entered into after the Constitution came into force are mandated to national resource commissions, including the Minerals Commission, Forestry Commission and such others as determined by parliament.

Ø **Minerals and Mining Law (PNDC Law 153)** was enacted in 1986 as part of sweeping government reforms to promote and regulate development of the mining sector. The Ministry of Lands and Natural Resources reiterates that mineral resources are property of the state and separate from land tenure.

Ø **Small-Scale Gold Mining Act (1989)** legalized small-scale gold mining in Ghana in the Small-Scale Mining Act of 1989. The Act defines small-scale mining as *"…mining by any method not involving substantial expenditure by an individual or group of persons not exceeding nine in number or by a cooperative society made up of ten or more persons**[83]**"*. The Minerals and Mining Act, 2006 (Act 703) consolidated and revised mining laws.

Ø **Minerals and Mining Act, 2006 (ACT 703),** as amended repeals the Minerals and Mining Act, 1986 (PNDCL 153) and Small-Scale Gold Mining Law, 1989 (PNDCL 218). among others and incorporates existing laws and regulations on the sale of mercury and minerals, use of explosives, requirement for environmental permits, and empowers the Minister of Lands and Natural Resources, after consulting the Minerals Commission, to designate areas for ASGM operations.

o *Section 96* provides that a small-scale miner may purchase from an authorized mercury dealer, the quantities of mercury that may be reasonably necessary for the mining operations of the small-scale miner. The provision is similar to section 4 of the Mercury Act.

o *Section 93* requires that a licensed operator must mine and produce minerals by an effective and efficient method and shall observe good mining practices, health and safety rules and pay due regard to the protection of the environment during mining operations.

o *Section 92* provides for the establishment of a small-scale mining committee made up of political, traditional and governmental appointees including an officer of the EPA. The mandate of the committee who are appointed by the Minister, is to *"assist the district office to effectively monitor, promote and develop mining operations in the designated area."*

o The 2006 Act was amended in 2015 (Act 900), also to (a) add substantial fines and penalties (including criminal penalties) for foreigners who unlawfully engage in small-scale mining, and Ghanaians who engage foreigners to undertake small-scale mining; and (b) authorize police to seize mining equipment.

Ø **Ghana's National Mining Policy (2014)** established the prevailing policy framework for the industry. . A National Mining Policy was also approved by Cabinet in 2014, regarding small-scale mining, the Policy aims to *"enhance the development of an efficient, modern and sustainable sector, involving both precious and industrial minerals*." A summary of relevant policies, laws and regulations are discussed below:

Ø **The National Land Policy, (1999)** provides a framework and direction to address issues such as: land ownership, security of tenure, land use and development, and environmental conservation. Ghana's National Land Policy holds community participation in land management and land development as a guiding principle, vital for sustainable rural land development.

Ø **The Environmental Protection Agency Act, 1994 (Act 490**), which empowers the Ghana Environmental Protection Agency (EPA) to issue environmental permits for mining operations, and to prescribe and ensure compliance of environmental regulations. The Agency evaluates applications and issues environmental permits to small-scale miners. The Agency also grants clearance permits for importation of mercury and is also responsible for overseeing mercury use as part of its chemicals management responsibilities.

Ø **The Water Resources Commission Act, 1996 (Act 552) and Water Use Regulations (2001**), which govern water use. The Water Commission, in consultation with the EPA, can require water users, including miners, to provide an environmental management plan.

Ø **Minerals Commission Act, 1993 (Act 450)** mandates the Minerals Commission as the statutory agency responsible for the management and regulation and the coordination of policies for the country's minerals and mining industry. The Minerals Commission are responsible for designating areas for ASM, and while the identification and delineation of zones has been achieved, geo-prospecting and management of such zones is inadequate. For instance, the economic viability of deposits in locked out ASM zones has rarely been estimated. Improved knowledge of a mineral resource enables the value of material in the ground and life if a future mine operation to be estimated[84].

Ø **Minerals Development Fund Act (2016)** provides financial resources for the direct benefit of (a) a mining community; (b) a holder of interest in land within a mining community; (c) a traditional and local government authority within a mining community; and (d) an institution responsible for the development of mining.

Ø **Ghana Geological Survey Authority Act 2016 (Act 928)** replaced the Survey Act, 1962 (Act 127) which established Geological Survey Department. Authority of the Ghana Geological Survey Authority (GGSA) is mandated under the 2016 Act to advise, promote and research on geoscientific issues concerning mineral resources, groundwater, environment, geo-hazards and land use planning to support sustainable development. As part of the GGSAs mandate, there is growing demand and need for geologic information and conceptual planning for ASM zones and the Community licencing Scheme, including dispute resolution between ASM and LSM actors, as well as host communities. However, the GGSA is under resourced.

Ø **The Mercury Act 1989** prohibits the importation of any quantity of mercury into Ghana except under a license. The prohibition also covers possession, purchase, sale or transfer. The penalty for breach is a fine, imprisonment or both. However, the act does not prohibit the use of mercury in the ASGM sector where operators may purchase from licensed dealers (in): *"such reasonable quantities of mercury as may be shown to be necessary for the purpose of their mining operations."* When mercury is legally imported, the Customs Division of the Ghana Revenue Authority, in collaboration with the Minerals Commission as well as the EPAs Chemicals Control and Management Centre ensure that the importer has a license and quantities are within allowable amounts. However, mercury import figures reported by the Ministry of Trade and Industry show significant leakage. Despite this, small-scale gold miners are required to: *"observe good mining practices in the use of mercury for carrying out mining operations'* with limited enforcement. Accordingly, Ghana aims to manage trade including the prevention of diversion of mercury and mercury compounds from foreign and domestic sources by 2030, with plans to repeal Mercury Law 1989 (Act 217) and replace with a new law.

Ø **District Mining Committees.** Currently, in Ghana there are 38 District Mining Committees in thirteen mining District centres. While small-scale mining is recognized in the existing legal framework, hurdles associated with formal licensing include low awareness of mining laws, bureaucracies and fees, land tenure, compliance monitoring, and ineffective collaboration of relevant stakeholders at the local level to allocate land for ASGM. These factors combined with negative media and public perceptions of *galamsey* and foreign operators create barriers to compliance and broader societal acceptance of the sector.

Ø **The Community Mining Scheme (CMS)** commenced in 2019 as a government flagship designed to ensure sustainable livelihood opportunities for Ghanaian miners who do not have adequate financial resources to own their concessions, to be part of a communally owned mine. The Scheme offers an inclusive approach which involves the community including traditional authorities, landowners and miners, as direct shareholders in the mining business and its fund management, to ensure equitable distribution of returns. Aimed at encouraging local participation in small-scale gold mining, the scheme operates in accordance with the Minerals and Mining Act (Act 703) and tributer system in Regulations 493-506 of the Minerals and Mining (Health, Safety and Technical) Regulations, 2012 (LI 2182). The Scheme aims to assist miners through enhanced technical capacity-building and promote mercury-free technologies in gold processing. It also aims at improving gold supply and value chain and encouraging local community participation. At the local level, the Scheme is managed by Community Mining Committees with includes District Mining Committees and co-opted representatives from the Water Resources Commission, Forestry Commission, Police and a traditional leader of the relevant community. The Scheme is currently being piloted in the selected areas including Wassa Amenfi East, Akrofruom and Adansi North Districts.

Ø As of 2021, an estimated 20 CMSs are operational with each employing approximately 3,000 youth[85]. The Scheme delivers multiple benefits in terms of decent employment, capacity building for miners on responsible mining practices and promoting models of coexistence between large-scale and small-scale operators. The Scheme and promoting of mining group formation is key to collateralizing lending, particularly as the geological potential of concessions is progressively unlocked, and additional information is collected as part of a de-risking mechanism (i.e., production, asset data ect.). The CMS is a novel approach developed by the Minerals Commission and mining stakeholders to address underlying drivers of informal mining (*galamsey*), especially illegal small-scale operations. However, issuance of licences has been problematic and requires further analysis of challenges and opportunities for community-based mining.

Ø To address the issue of 'illegal' mining, the government has taken various measures including, the creation of an Inter-Ministerial Committee on Illegal Mining (IMCIM); District Committees against Illegal Mining (DCIMs), joint military and police taskforce Operation Vanguard, #Galamstop campaign; and formed a National Security apparatus. To effectively implement measures on illegal mining, the Ghanaian government through the Minister of Lands and Natural Resources, placed a ban on all forms of small-scale mining in 2017/18, where military and police forces were deployed to Ashanti, Western and Eastern Regions. The IMCIM Secretariat was commissioned on 28th December 2017, oversaw implementation of the ban, which was lifted in December 2018. In 2021, the IMCIM was dissolved following elections, however military forces were again deployed into ASGM areas, destabilizing operations, and creating concern among communities.

Ø Despite the sector's importance and multiple Government programs aimed at formalizing the sector, the vast majority of ASGM in Ghana remains informal, illegal, or extralegal (see Table 1). While impacts vary with geology and extraction methods used to mine a deposit, the impacts closely linked to common characteristics of ASM found in Ghana include rural unemployment and a culture of livelihood informality, combined with a lack of financing, equipment, skills, knowledge, and incentives to improve mining practices. In many ways, the informality of the ASM sector limits its potential and due to limited capital investment, miners lack the resources to conduct exploration, mine rehabilitation and closure, or post-closure planning.

Ø The EPA and Minerals Commission have taken steps to reduce mercury use in the small-scale gold mining industry before, during and after the Minamata Convention came into force. In line with Minamata Convention[86] Ghana's NAP on ASGM identifies steps to improve regulation through revision of the legal/regulatory framework. Specifically, the NAP aims to (i) create categories for artisanal, small and medium scale mining operations

based on identified parameters; (ii) strengthen existing formal and informal organizational structures, (iii) inclusion of small-scale gold miners as part of District Mining Committees, (iv) devolve approval of licenses to local authorities, and (vi) expand the licensing regime to include independent mineral processing centers, such as community-based toll mills or similar communally owned models.

Ø Ghana is well positioned to support the transformation designed under the GOLD+ programme, which plans to optimize formalization through a holistic, multi-sectoral and integrated landscape approach, emphasizing blocked out ASM zones[87] and testing models of ASM-LSM coexistence, as strategies to advance the community mining scheme. The GoG has tested different strategies to organize small-scale gold miners, including the establishment of exclusive ASM zones for legitimate Mining Entities (MEs), tributer systems (on-concession sharing) and encourages coexistence with larger-scale gold mining companies through ceding part of a concession based on technical criteria and strategies to reduce competition for deposits and conflicts.

Acting regulations and laws that must also be taken into consideration for ASGM formalization include:

Ø **The Environmental Assessement Regulation 1999 L.I 1652** requires all undertakings including mining to to undertake an Environmental Impact Asssement (EIA). The relevance of these regulations is that it affords the proponent an opportunity to minimize or mitigate possible environmental impacts including the impact of mercury on human health and environment. Ghana's laws also provide for public participation in the context of environmental regulation. The EPA is responsible for ensuring EIAs are conducted when public concerns are raised over an intended project.

Ø **Riparian Buffer Zone Policy for managing freshwater bodies (2013)** provides a harmonized policy vision to previously fragmented regulations on lands bordering water bodies or river systems with comprehensive measures and actions to guide the coordinated establishment of vegetative buffers for the preservation and function of Ghana's water bodies and riparian ecosystems. The Policy aims at ensuring all designated buffer zones along rivers, streams, lakes, reservoirs, and other water bodies, are sustainably managed. Five major areas are emphasised in the policy with specific objectives and measures in the context of national development namely: (i) Maintaining the ecological and life support functions of buffer zones; (ii) Sustaining the multi-functionality of buffer zones; (iii) Riparian buffer zones specific to urban and peri-urban areas; (iv) building capacity through the research and education, training and empowerment of communities on conservation of buffer zones; and (v) coordinating and harmonizing policies, bye laws and traditional practices on buffer zones among government institutions and other stakeholders[88].

Ø **Hazardous, Electronic and Other Wastes (Classification) Control and Management Regulations, 2016 (L.I. 2250)** provides for the classification, control and management of hazardous waste and provides a mechanism and procedure for listing waste management activities that do not require a waste management permit. The Regulations also precribe the requirement for the disposal of hazardous waste. Regulation 19(c) of LI 2250 prohibits the mixing of hazardous wastes where it may cause a risk of pollution or create a problem in the further management of the wastes. This is particularly essential with regards to the use of cynidation to treat mercury contaminated waste due to enhanced mobility. The Third Schedule of the Regulations deals with criteria for assessment of waste for landfill disposal including measurements for total concentrations and leachable concentrations of chemical substances including mercury. The use of cyanide for gold processing by Artisanal and Small-scale miners is not illegal, but the EPA has not permitted any miner to use the process to recover due to the potential environmental consequences. The EPA also plans to develop locally based cyanide management code in accordance with the International Cyanide Management Code to regulate cyanide and promote its responsible transport, use and management by small-scale miners.

Ø **Regulations under the Minerals and Mining Act, 2006 (Act 703)** under section 110 of the Mining Act, 2006 (Act 703), provide for selected matters to implement provisions of the Act, including, among other things, exportation, sale and disposal of minerals, conditions of mineral rights, obligations under a reconnaissance licence, and obligations of a holder of prospecting licence.

Ø **Minerals and Mining (General) Regulations, 2012 (L.I. 2173)** regulate the general operation of ASGM license holders. It requires ASGM license holders, to commence operations within 6 months after the grant of license or any other period stated in the license; to conduct their operations in accordance with the approved plan; demarcate and keep demarcated their boundaries; and comply with the terms and conditions of the license and any directives from the Minerals Commission.

Ø **Minerals and Mining (Licensing) Regulations, 2012 (L.I. 2176)** cover the licensing process and procedure for ASM. The L.I. regulates the creation of designated areas for ASM. The regulation provides for the grant of ASGM licenses and extension, renewal, amendment, division, merger and suspension or termination of licenses. Where the ASM area is designated, the District office receives and processes applications for ASM licenses in respect of the designated area.

Ø **Minerals and Mining (Support Services) Regulations, 2012 (L.I. 2174)** enable ASGM license holders to engage the services of a company registered to provide support services to them and such companies are to be holders of licence Class B support service providers. A class B support services provider refers to a Ghanaian and must be specifically or exclusively licensed to provide the following services: mining, ore processing, reclamation, revegetation and management of mining operations, haulage service and transport of personnel, among others. Non-Ghanaian registered to provide contract services to ASGM license holders before commencement of these Regulations, shall be permitted to do so until otherwise determined by the Minister.

Ø **Minerals and Mining (Compensation and Resettlement) Regulations, 2012 (L.I. 2177)** cover Issues of compensation and settlement for those who lost lands to mining, was a major area of concern for several years. These regulations therefore fill an important and critical gap in providing a basis for addressing this problem timeously and preventing protracted conflict. Regulations also cover compensation claims and their assessment, resettlement, resettlement plans and related requirements as well as surface rights in a mining area, as well as surface rights and compensation outside the mining area.

Ø **Minerals and Mining (Explosives) Regulations, 2012 (L.I. 2177)** under section 110 of the Mining Act, apply to the storage, possession, manufacture and use of explosives for mining, quarrying and civil works and to substances used for the manufacture of explosives. It also provides with respect to effects on the environment of the manufacture, storage and use of explosives for mining purposes, fire prevention and emergency response. In Ghana, it is not just the large scale -mining companies that employ the use of explosives in their operations. The ASGM sector also uses explosives. However, mining entities must first obtain written permission from the Chief Inspector of Mines from the Minerals Commission and be prepared to engage a licensed blast man to undertake operations.

Ø **Minerals and Mining (Health, Safety and Technical) Regulations, 2012 (L.I. 2182)** establish environmental, safety, machinery, and related guidelines for mining operations. Regulation 473 requires a written permission from the Chief Inspector of Mines to use mercury and requires the use of a retort for small-scale mining activities. Regulation 474 prescribes for the safe handling of mercury.

Ø **Water Use Regulations, 2001 (L.I. 1692)** under Section 35 of the Water Resources Commission Act, 1996, covers the appeal for and grant of authorization by the Commission to use water. Subject to the Act, a person may obtain a permit from the Commission for: (a) domestic water use (b) commercial water use, (c) municipal water use, (d) industrial water use, (e) agricultural water use, (f) power generation water use, (g) water transportation water use, (h) fisheries (aquaculture).

Ø **Drilling Licence and Groundwater Development Regulations, 2006 (LI 1827)** require a person to obtain a drilling licence, granted in accordance with these Regulations, for the construction of a well for the abstraction or monitoring of groundwater or for research. An application for a licence, shall be made to the Water Resources Commission. The Commission shall keep a register containing the particulars of licences granted and the register may be accessed by the public. An applicant who qualifies for a licence, shall pay a licence fee in accordance with the Fees and Charges (Amendment) Instrument 2019 (L.I.2386).

Ø **Children's Act, 1988, Act 560 as Amended** provides for the rights of the child, maintenance, and adoption, regulate child labour and apprenticeship, for ancillary matters concerning children generally and to provide for related matters. The Act prohibits exploitative child labor and sets the minimum age for admission of a child to employment to be fifteen years. The minimum age for the engagement of a person in hazardous work is eighteen years and this includes mining and quarrying. The Social Services Sub-Committee of a District Assembly and the Department of Social Welfare are responsible for the enforcement of the provisions on child labor in the informal sector. Ghana's 1992 Constitution guarantees all children in Ghana the right of access to public primary and secondary school, regardless of their migration status, however children are only required to attend school until the age of X, making then vulnerable as school-work transitions related to mining are misaligned with existing labour laws, and related policies on child labour[89].

Ø **Labor Act, 2003, Act 651** prohibits forced labour[90].

Ø **Human Trafficking Act, 2005, Act 694** provides for the prevention, reduction, and punishment of human trafficking, for the rehabilitation and reintegration of trafficked persons and related matters. The Act prohibits child trafficking and forced labour.

Ø **National Plan of Action for the Elimination of Human Trafficking in Ghana (2017–2021)** aims to improve data collection, enhance victim protection, increase accountability for perpetrators, and conduct prevention and outreach, including an expansion of the Livelihood Empowerment Against Poverty (LEAP) Program. In 2019, the government conducted a mid-way assessment of progress, gaps, and challenges that indicated the importance of continued funding to ensure success. The government also took additional steps to operationalize a shelter for child victims of trafficking but did not admit and care for child trafficking victims during the reporting period.

Ø The GoG has implemented a range of measures relating to the regulation and promotion of small-scale mining with some positive results. These include: (a) Establishment of District Centres manned by Minerals Commission personnel; (b) Geological investigation and demarcation of areas suitable for small-scale mining; (c) Provision of finance to small-scale miners to improve their operations; (d) Education, training and provision of logistics to enhance the corporate governance, efficiency, and safety of their operations, and; (e) with USDoL[91] support successfully established child labour free zones, enforced through the Minerals Commission Child Labour Unit (CLU). Despite progress, access to finance remains limited hindering progress.

Associated baseline projects

Also related to institutional partnerships, there is a group of GEF-financed projects and other initiatives currently under implementation related to the development challenge this project is also addressing, which could provide some additional support to strengthening this institutional partnership approach in the Ghana context. Thanks to the involvement of the institutional partners in some of them, under the leadership of the Environmental Protection agency (EPA) it appears the achievement of the outcomes for this FSP is of mutual benefit. Specifically, this FSP will ensure coordination and count on the capacity built and knowledge gathered from the concurrent projects that are already in progress, as shown in the Table below:

Table 3. Associated Relevant Projects and Initiatives for planetGOLD+ Ghana

Project	Agency	Main relevance for this FSP
The planetGOLD Global Program	GEF/CI	This Program aims to support the participating countries in fulfilling their commitments under the Minamata Convention. Cost-effective knowledge management practices related to formalization, technical solutions access to financing and awareness raising developed by the first group of participating countries will be adapted to the Ghana context through this FSP. One of the key inputs of this Program to this FSP is "innovation", i.e.: the market does not see mercury usage in isolation, but rather as one of many factors that need to be tackled if they are to trade gold as "ethical". This FSP will build on the GEF planetGOLD Global Program through the use of an existing knowledge platform, lessoned learned, capacity building materials, databases, proven technologies and market opportunities. Through outputs of Component 4, it also enhances the scope of this global platform.
Global Knowledge Management and Exchange of Child Project Results Through Networking and Outreach Activities for the GEF GOLD Program	GEF/UNEP	This GEF project, implemented by UNEP, together with the National Resources Defense Council (NRDC) and UNIDO, aims to facilitate the sharing of technical information and engage in outreach to relevant stakeholders to reduce and where feasible eliminate mercury use in ASGM. It has been initially designed to ensure that lessons learned from the eight individual planetGOLD+ country child projects will be captured and shared between the child projects and other ASGM stakeholders globally. This knowledge sharing platform is assisting countries where ASGM is present to increase capacity to formalize ASGM and approach the process in a holistic manner; provide technical advice with respect to access to finance for the ASGM sector; and increase technical capacity to support mercury reduction efforts through a broad range of guidance material to implement practical projects, which will be consulted during the implementation of the pilot projects of this FSP.
The planetGOLD Global Forum	GEF/UNEP	This FSP will be engaged in the planetGOLD Global Forum by participating in a two-yearly learning and sharing event that will facilitate face-to-face meetings (in line with COVID-19 safety protocols) between ASGM experts and practitioners, governments, gold buyers and miners in support of ongoing of experience exchanges and development of global expertise and capacity building on ASGM issues in Ghana to influence the global ASGM dialogue agenda and policy development.
Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas	OECD	OECD, which launched in 2016 the *"Sourcing Gold from Artisanal and Small-Scale Miners*" policy, will provide practical guidance on how companies should engage and source gold from ASGM miners; reference material that this FSP will access during its implementation.
Fairmined and Fairtrade Gold	ARM	The Alliance for Responsible Mining (ARM) and Fairtrade International have developed international standards for best ASGM best practices, i.e.: "Fairmined" and "Fairtrade Gold", in a move to raise public awareness on the positive impact of their consumer choices. These standards require communities to be formalized and respect social and environmental minimum requirements. ARM has further developed with Code for Risk Mitigation for ASGM engaging in Formal Trade (CRAFT), which is a code for progressive compliance for ASM producers. The above actions will also serve as guidance to the implementation of the activities foreseen in this FSP.
ECOWAS Directive on Harmonization of Guiding Principles and Policies in the Mining Sector	ECOWAS Member States	As an ECOWAS Member State Ghana aims to provide for a harmonized mineral policy and legal framework for Member States. It addresses issues of accountability for mining companies and governments, financial stability, human rights, transparency, social equity, and protection for local communities and the environment. For artisanal small-scale miners (Article 11.6), Member States are directed to put legislation into place that will "*ensure safe, efficient and environmentally sustainable* mining", where Member States are also encouraged to adopt measures to improve legal, economic and technical oversight of artisanal mining activities, and promotes peaceful ASM-LSM relationships. The directive guarantees the principle of FPIC in the case of mining and petroleum development by state parties. Like most national laws, it affirms that minerals in their natural state are the property of the states with human rights obligations arising from mining activities (Article 15). The above commitments as Ghana is an ECOWAS Member State will serve as guidance to the implementation of the activities and stakeholder outreach foreseen in this FSP.
ECOWAS Common External Tariff (CET)	ECOWAS Member States	adopted on 25th of October 2013, was created as part of the goal to achieve economic integration. The objective of the CET is to set the same customs duties, import quotas, preferences or other non-tariff barriers to trade applicable to all goods entering the region. This integrated customs approach could form a basis of regional cooperation on governing mercury trade within the region. Overall coordination between this FSP and WB/SCSD - regarding the activities related to ASGM - will be a major responsibility of the Project Management Unit, in close coordination with the Implementing Partner, EPA.
The African Mining Vision (AMV)	African Union (AU)	The AMV was adopted by Heads of State in 2009. This agreement is concerned with integrating mining into local, national and regional development policies in Africa. Specifically, for ASGM, the AMV framework for action calls for the establishment of resilient ASM communities, through (1) formalizing and upscaling programmes to upgrade knowledge, skills and technology in the ASM sector; (2) mainstreaming ASM into poverty reduction strategies; (3) ensuring gender equality and eliminating child labour; (4) stimulating partnership wit

		h government and LSM to facilitate access to technology, skills, knowledge and markets; a nd (5) strengthening ASM associations. UNDP is supporting Ghana in creating a country m ining vision to implement the AMV.
EHPMP (GEF-6)	GEF/World Bank	$8.7 million (USD) implemented by the World Bank targeting mercury abatement in ASGM and e-waste sectors (2020-2025). The project aims to promote sustainable inclusive growt h by improving access to environmental services through knowledge sharing and capacity building; strengthening human capital by improving health of vulnerable populations, espe cially women and children; complementing regional initiatives and individual projects, focu sing on competitiveness, sustainability, and governance. Components include: (1) instituti onal strengthening, capacity building and knowledge sharing; (2) policy dialogue support a nd regulatory enhancements; and (3) demonstrating technological tools and economic ap proaches in ASGM. Overall coordination between this FSP and WB/SCSD - regarding the ac tivities related to ASGM - will be a major responsibility of the Project Management Unit, in close coordination with the Implementing Partner, EPA.
Landscape Restoration and Ecosystem Management for Sustainable Food Systems	GEF/World Bank	The project's total financing is US$102.76 million, financed by the World Bank's Internation al Development Association (US$75 million credit), the Global Environment Facility (US$1 2.76 million grant), and the PROGREEN Multi-donor Trust Fund (US$15 million grant). The project has the objective is to strengthen integrated natural resource management and inc rease benefits to communities in targeted savannah and cocoa forest landscapes. Specifi cally, the project will be implemented through the following components: Institutional Stre ngthening of Governance for Participatory Landscape Management; Enhanced governance in support of sustainable ASM; Sustainable Crop and Forest Landscape Management; Mon itoring and Project and Knowledge Management and Contingent Emergency Response.
ASM Formalization	World Bank	Implemented by the Ministry of Lands and Natural Resources IDA credit project ($34 M US D) on ASM Formalization with complementary aims to (i) enhance regulations and policies at the national level on legalization and formalization; (ii) strengthen institutional capacity and inter-institutional coordination; and (iii) promote sustainable ASM practice by professi onalizing the sector through multi-stakeholder dialogue, development of sustainable com munity-based mining practices, and enabling outcomes, such as strengthening District min ing committees, ASM zone management and livelihood diversification. Overall coordinatio n between this FSP and WB/SCSD - regarding the activities related to ASGM - will be a maj or responsibility of the Project Management Unit, in close coordination with the Implement ing Partner, EPA.

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

The proposed alternative scenario

The planetGOLD+ programme's Theory of Change (ToC) has been developed around:

- Optimizing formalization through commodity-specific Jurisdictional Approaches (JAs)[92];
- Accelerating financial inclusion and creation of responsible supply chains;
- Enhancing uptake of mercury-free technologies through resource efficient gold production;
- Fostering knowledge sharing, learning, and local capacity building support.

The integrated approach proposed for the Ghana Child Project fully responds to and reflects the planetGOLD+ Programme's ToC as can be deducted from the child project's results framework. All child project components fully align with the programme components, and the child project outputs directly contribute to the PFD and child project outcomes as described in the project's results framework. As such the proposed child project proposes suitable and appropriate options to tackle systematic challenges for countries where the ASGM sector is a more than significant source of mercury and environmental harm. The child project will achieve tangible and desired transformation including multiple global environmental benefits, highlighting co-benefits of environmental management and compliance of the gold mining sector toward accelerating progress on the Minamata Convention, REDD+, the Convention on Biological Diversity (CBD), the United Nations Framework Convention on Climate Change (UNFCCC), and achieving Land Degradation Neutrality (LDN) in accordance with Ghana's commitments under the United Nations Convention to Combat Desertification (UNCCD). As mentioned above, gender mainstreaming will be critical to all project activities, and a Gender Action Plan (GAP) has been developed to support mainstreaming.

This project will trigger adequate investments are made to ensure a miner-centric perspective is captured and viewed through a 360 lens of the community. For example, each mine has a story to tell in land-use history, levels of miner organization, stakeholder relations, especially where site invasion or concession sharing conflicts occur, and resource sharing challenges related to water, forests and other natural assets. To sustainably attract and retain future investments in the ASGM sector, local stakeholders and the investment community of Ghana can find a point of convergence in capturing the lessons learned to date during the project by exploring, documenting, and translating the local and regional culture of gold mining into a

positive narrative, emphasizing livelihood benefits and development opportunities. In this regard, strategic focus of the project is to support the formalization of the ASGM sector, sustainably improve access to finance, and promote technology transfer, knowledge management and local capacity building.

The proposed alternative approach aims to maximize potential of the ASGM sector in a way that balances natural and human capital, internally consistent with Ghana's stated development trajectory to reduce, and where feasible, eliminate mercury use. This approach aims at enabling holistic development of the sector and supporting sustainable community-based mining in designated ASM territories; by strengthening the quality of human capital and increasing access to financial instruments to a historically marginalized and excluded segment of the Ghanaian economy. With EPA leadership, public institutions, ASGM organizations and other international initiatives - led by UNDP-UNIDO and the GEF - can develop the comparative advantages of each partner and capitalize on synergies, in order to achieve sustainability of project results and maintain coherence with Ghana's ASM blueprint and conservation goals.

The alternative scenario is of great significance for human health, environment and sustainable growth; in order to follow the existing national regulation and international guidelines on chemical substances and hazardous waste management, specifically, to comply in due time with the commitments signed by the GoG under the Minamata Convention and in accordance with a national environmental policy already in place, which guides the intervention principles of this FSP.

As such, the proposed Child Project offers suitable and appropriate options to tackle systematic challenges for Ghana, where the ASGM sector is a significant source of mercury emissions and releases, alongside ecosystem degradation. This FSP, as reflected through the expected outputs and corresponding outcomes is fully aligned with key aspects of Ghana's NAP on ASGM to deliver global environmental benefit, while reducing poverty and promoting broader social inclusion of ASGM actors. This Child Project will explore options for financial mechanisms to structure lending opportunities best suited to the ASGM sector with state-funding programs, such as the Minerals Development Fund (MDF), commercial banks and Tier 1 financial institutions (see Table 7) to support SMEs and sustain existing momentum of women led Village Savings and Loan Associations (VSLAs) as vehicles for economic empowerment and resilience. In this FSP, gold buying schemes, state-supported funds, blended loans, blended solidarity microfinance, direct investment grants for MEs, challenge grants and a development program for suppliers in the ASGM mineral supply chain will be piloted. Ghana can customize strategies on certificate of origin and pilot traceability measures with leading downstream partners through technology-assisted mineral supply chain due diligence to bring responsible gold mines from mine to international markets.

The planetGOLD+ Child Project in Ghana aims for the reduction of **nine (9) metric tons (MT)** of mercury over a five-year period through a holistic, multi-sectoral integrated formalization approach, recognizing that reliable access to finance is a critical long-term sustainability measures for progressive phase-out of mercury in the ASGM sector and replication of GOLD+ results beyond project lifetime. Nevertheless, it should be considered that substantial aspects need to be explicitly established, complemented, or in some circumstances even regulated, to improve provisions to protect human health and the environment from mercury releases due to the intentional use of mercury in the ASGM sector.

Gender mainstreaming will be applied as a crosscutting theme for the GOLD+ Ghana project. To this end, gender analyses has formed part of the socio-economic assessments for this FSP; the roles women play in various stages of the ASGM process include mining, crushing, processing, concentration, mercury amalgamation (burning), gold trading, mining support services, including cooking, equipment distribution etc. Through various processes' mercury exposure for women and men occurs at varying levels and severity. Recognizing that mercury poses unique health risks to women due to the gender division of labour and physiological risks, the potential adverse effects of prenatal mercury exposure will be highlighted in community level communications. Women will be strongly encouraged to participate in all training activities, from business skills and financial literacy to resource efficient mining and pollution prevention measures.

In order to achieve its outcomes, the project's strategy will require collaboration (political, technical and financial) beween upstream and downstream supply chain actors, relevant government authories and enforcement agencies. The project will provide technical assistance to bring about integrated institutional support and coordination of groundbreaking technological interventions. Contributions from the GEF will add value in many ways, yet three elements are highlighted:

i. This UNDP-UNIDO GEF project will help to assure that mercury-free activities are done in accordance with national and international standards;

ii. The GOLD+ Ghana project will play a coordination role between legitimate mining entities and informal operators which will lead to lowering individual disposal costs through an improved coordination among ASGM supply and value chain actors, government, and civil society.

iii. Theory of Change analysis for this project should be adaptive during implementation due to prevailing circumstances in Ghana, characterized by the challenging socio-economic environment ASGM operates within, political concerns and security issues in border areas and neighbouring countries, hardships due to the COVID-19 pandemic, and the uncertain impacts of climate change.

The alternative path will be based on reliable sources and Best Available Technologies/Best Environmental Practices (BAT/BEP) in order to mitigate potential risks due to the reduction and elimination of the use of mercury in Ghana's ASGM sector. Alternatives to the business-as-usual scenario will be evaluated and compared in light of identified risks, and the most feasible alternatives determined following ore characterization and feasibility criteria. Pilot projects will be undertaken to identify the required technological changes and business models together with social and environmental safeguards to mitigate negative impacts, and to establish the necessary control measures; and more challenging critical risks recently idenfied amid the coronavirus pandemic. Criteria for the feasible path will be drawn up and aligned with Ghana's socio-economic reality and specific needs of intervention priorities.

This FSP will build upon ongoing efforts of the Government of Ghana to fulfil its global environmental commitments through the implementation of the Convention of Minamata, in accordance with the *"Minamata Initial Assessment (MIA) for Ghana"* and *"National Action Plan on ASGM"*. Collectively, these GEF-financed enabling activities provide critical baseline for mercury emissions and releases and create road map for the development of appropriate administrative and regulatory frameworks for the pursuit of an alternative development path in the ASGM sector through nationally appropriate strategies and actions to enhance national capacity for the environmentally sound management of mercury in the ASGM sector.

Under this policy guidance, two main purposes have emerged. The first is to protect human health and the environment from mercury while strengthening socio-economic and environmental sustainability in small-scale gold mining production, in order to comply with Ghana's commitments to phase out Hg use. The second purpose is to trigger innovative actions to promote socially and environmentally responsible mining. However, the baseline actions on this front have a significant limitation; the need to ensure the maximum delivery of Global Environmental Benefits (GEBs) with prevention, reduction and elimination due to high levels of human exposure to harmful chemicals, while boosting local development opportunities for women and men in gold mining areas.

This FSP is aligned with the NAP on ASGM Roadmap, as presented in Table 4:

Table 4: Alignment of the ASGM FSP with Ghana NAP on ASGM

FSP Outputs	Policy Area as listed in NAP
1.1/1.2./1.3.	Revision of legal/regulatory framework (Minerals and Mining Act and Subsidiary legislations); Streamline licensing and make it more accessible.; Improving Environmental Management, supporting mine closure planning for ASGM operators.
2.1./2.2	Financing the process of formalization; Improve miners' access to gold markets; Develop locally designed certification for CRAFT code (consistent with planetGOLD criteria as a branched version of leading standards).
3.1./3.2	Increase financing to the GGSA to improve availability of geological data; Intensify training, technical assistance and capacity building for miners to minimize mercury use in ASGM; Undertake other actions to accelerate transition to mercury free processing circuits; and raise awareness for ASGM operators to take steps to enhance compliance with relevant standards of practice as defined in by the International Cyanide Management Code (ICMC).
4.1 / 4.2	Health promotion and awareness raising; Awareness raising and training on the legal framework on ASGM and Mercury; Strategies for providing information to artisanal and small-scale miners and affected communities, including balanced media coverage of the ASGM sector in Ghana.

It is important to note that the overall strategy of this FSP and the related activities to be executed under each output will be complementary and coordinated - through the EPA - with the activities to be carried out under Component A and C of the World Bank Project *"Ghana Artisanal and Small-Scale Mining Formalization" as part of the* Likewise, this planetGOLD+ child project will need to create an interactive operational platform to harmonize its execution with the World Bank GEF-6 FSP "*Environmental Health and Pollution Management Program (EHPMP) in Africa"* to avoid double counting of environment benefits during the execution of these three projects. The Project Management Unit (PMU) will be responsible for guaranteeing this coordination as well as ensuring the compliance of the agreeable and separate key indicators for this FSP.

Theory of Change for this FSP

In order to improve the provisions to protect human health and the environment against the use of mercury in the ASGM sector; there are significant challenges that need to be faced to overcome the barriers to address in the causal chain analysis shown in the previous section. As summarized from the Theory of Change analysis, Figure 3 shows the alternative pathway and solutions, based on the entries proposed by the project:

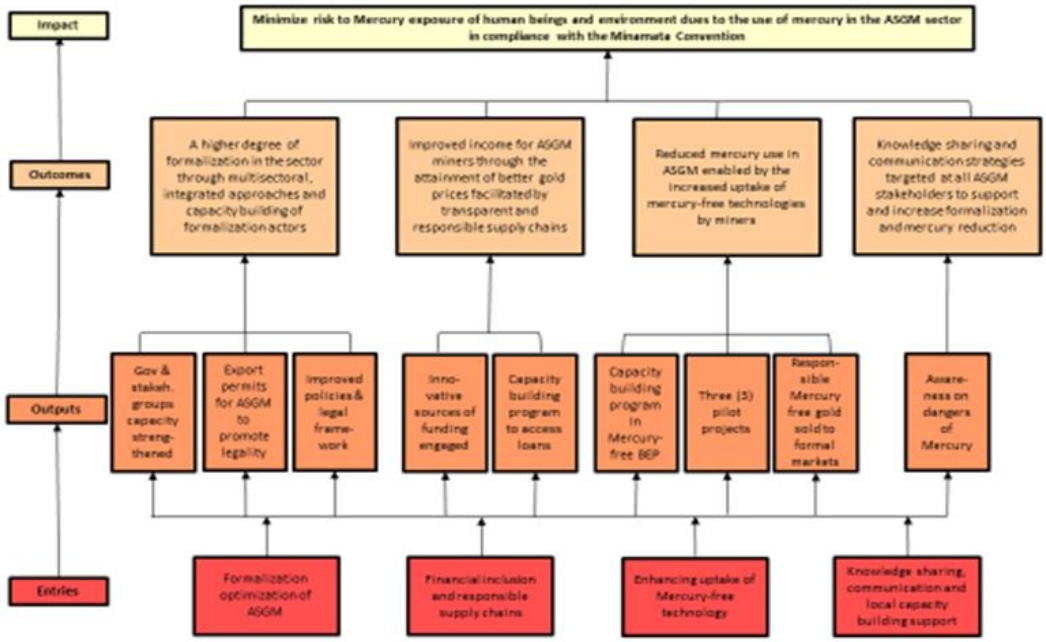

FIGURE 4: The Theory of Change Diagram

In turn, the proposed strategy under this FSP will provide economic support to the ASGM sector in Ghana ; and the skills diversification that it provides amongst agrarian workers and rural villages is a fundamentally important feature of the mining territories and one that is providing key support during the economic turbulence of the COVID-19 pandemic.

The Project Approach

The Project´s vision is to proceed with direct interventions on the immediate, underlying and root causes previously identified; recognizing the multi-dimensional impacts of artisanal and small-scale gold mining on the environment, health and poverty. The objective of this FSP is to minimize risks to mercury exposure to human beings and the environment due to the use of mercury in the ASGM sector in compliance with the Minamata Convention. This impact is clearly aligned with the UNDP Country strategy. Additionally, this FSP is aligned with UNDP Strategic Plan Output 2.1.1. For this purpose, the project's strategy is implemented, as accepted by the GEF and the UNDP, through four project components.

The area of focus of Component 1 "*Formalization optimization of ASGM*" is to enable an ASGM formalization environment through multi-sectoral, holistic, and integrated approach, through Jurisdictional approach (JA) pilots in designated mining districts, in proximity of District Mining Centres. As a platform for multi-stake holder dialogue, Jurisdictional Approaches (JAs) aim to work across the mine life cycle, address the social needs of the miners and communities, and empowerment of stakeholders. As such, accelerating opportunities for allocation of ASM zones and ASM-LSM coexistence, can ensure that every key stakeholder (policymakers/regulators/miners/financiers) has sufficient capacity to participate in meaningful dialogue and legitimize ASGM as a source of livelihood if carried out consent, social licence to operate.

Key stakeholders, at national and community levels, will have their capacity strengthened through the implementation of a technical training program - taking into account gender as a crosscutting consideration -, consolidation of the regulatory framework to advance adequate management and disposal of at least nine (9) tons of mercury currently used by the ASGM sector during the implementation of the FSP, in order to comply with the obligations under the Minamata Convention, and the need to develop long-term relationships with mining entities, as key elements of the successful FSP's exit strategy.

Outcome 1. Component 1 would directly address the immediate cause "*Limited enforcement of the existing regulations for the sound environmental management of mercury*"; as indicated in Figure 3: Theory of Change Diagram.

The area of focus of Component 2 *"Financial Inclusion and Responsible Supply Chains"* is to extend access of ASGM-appropriate, affordable and timely financial services to enable responsible gold supply chains. This approach is established in two ways. The first one creates awareness to educate and collaborate with financial institutions at the community, national and regional levels, and to tailor services and products suited for the ASGM sector; and the second one, to develop capacity building to assist miners in accessing funds and sustainably grow businesses. Both avenues are linked, and their establishment are key to the creation of a sustainable ASGM sector.

Outcome 2. Component 2 would address the immediate cause *"Need to enhance innovative investment opportunities into the ASGM sector*"; as indicated in in Figure 4: Theory of Change Diagram.

Under Component 3 *"Enhancing uptake of Mercury-free technologies"* **[93]**, the alternative path will be based on reliable sources in order to mitigate potential risks. Alternatives to the business-as-usual practices will be evaluated and compared in light of the identified risks, and the safest, most feasible alternatives that fit the intended users will be selected. Pilot projects will be undertaken to identify the required technological approach as well as environmental and health impacts, to establish necessary control measures; and more challenging, critical risks recently idenfied amid the coronavirus (COVID-19) pandemic. The Ghana Geological Survey Authority (GGSA) and University of Mines and Technology (UMaT) will be involved in this process as responsible parties. Criteria for the feasible path will be drawn up and aligned with Ghana's specific needs, recognizing gender is a cross cutting concern to mainstreamed through - a Gender Action Plan (Annex 11).

Through this Component, this FSP aims to establish closer interaction and collaboration with the miners who are involved in the use of mercury for gold production. Coordination mechanisms and the implementation of commercially-driven pilot experiences will foster alternative investments; by establishing incentives for the chosen pilot locations and by enhancing dialogue and collaboration along the gold production chain. The ultimate objective of the coordination mechanism will be to balance benefits for each of the participating stakeholders in mercury elimination to deliver maximum gold recovery and transition to Hg-free processes.

Outcome 3. for Component 3[94] would address the immediate cause *"Essential need to develop alternative, cost-efficient, mercury-free technologies"*, as indicated in Figure 4: Theory of Change Diagram.

Component 4 of this FSP "*Knowledge sharing and communication outreach"* will capture lessons learned, monitor the project´s activities and provide the required feedback, through an awareness raising campaign and information strategy, which includes dissemination at the district, national, ECOWAS Region and global levels. Annual workshops will be organized to create awareness and allow for active feedback. Information on the benefits of formalized ASGM mining operations; acting directly, in an integrated manner, to address immediate causes mentioned above; all of this aligned with the GEF planetGOLD+ Global Program and with the other GEF planetGOLD Child project in Burkina Faso and Kenya already under implementation in the African region; and with GOLD+ projects in Nigeria, Madagascar, Uganda and Congo under development, alongside the WB/GEF EHPMP, WB Formalization, WB EITI and other initiatives under EPA leadership.

Key Assumptions

The project's approach is based on various assumptions that will be critical for achieving the expected changes as per the Theory of Change analysis:

Ø Institutions are willing to receive training on improved environmental management of ASGM and the GoG commits to making adequate human resources available for duration of the project and beyond.

Ø When formalizing mining activities, continuous efforts will be made to integrate consensus-based decision making with informed consultation of local mining communities and project stakeholders. An agreement should be reached regarding land-use with other rural women and men users.

Ø A collaborative approach to policy making that is sustained and continuously improves, integrating gender related issues across the implementation of the proposed activities.

Ø Implementation of the Gender Action Plan (Annex 11) will help strengthen gender equality and empower women by improving their working conditions when directly participating in the activities related to the environmentally sound management of mercury-free technologies and best practices with special attention to the potentially disruptive nature of technology transfer for women in mining.

Ø Impacts for the Ghanaian economy amid the coronavirus situation (COVID-19) will be timely mitigated to guarantee successful completion of the proposed activities and achievement of outcomes.

Ø A proactive engagement of the PMU with the ASGM miners on the ground will be sustained through FSP implementation to ensure that miners and the local mining communities are engaged and willing to adopt the proposed alternative, mercury-free mining techniques.

Ø The selection of the mercury-free technologies considers BAT/BET aspects and affordability (operation costs, maintenance, and waste disposal) as well as the compliance in due time of all the regulations –at national and district levels- for their proper operation.

Ø This FSP seeks to promote adoption of technologies that are accessible (financially, geographically, and culturally) and locally procured where possible.

Ø The proposed alternative becomes offers efficient recovery techniques (resulting in improved financial returns), therefore it will level off the costs associated with proposed alternative solutions.

Ø Success in the implementation of the co-financed planned activities, therefore, mining communities can easily access services.

Ø Effective synergies and communication created between public authorities at national and district levels and ASGM entities will enable a favorable environment for multi-stakeholder dialogue.

Ø Existing mercury traders, both, national and international, who are profiting from the illegal trade and retail commerce of mercury in Ghana, will not stand in the way of the project's success by any means.

Expected Outcomes and Components of the Project

The project has four substantive components aligned with four main outcomes and eleven outputs, embracing the *institutional*, *regulatory*, *technological* and *information-outreach* dimensions needed to reach the proposed structural change defined in the Theory of Change (ToC) analysis, in order to strengthen the national capacity in Ghan ato the environmentally sound management of mercury in the ASGM sector within the framework of national and international guidelines, mainly under the guidance of the Minamata Convention.

Component 1. Formalization Optimization of ASGM

This project will assist Ghana with policy and institutional planning to address the challenge of a "*weak formalization enabling environment"* through supporting frameworks that have a multi-sectoral, holistic, and integrated approach in order to comply with its obligations under the Minamata Convention on mercury use reductions in the ASGM sector.

Despite commitment and political will to reducing, and where feasible, eliminate mercury use, achieving this will be a major challenge without allocation of land for ASGM activities with known geologic potential, inclusive finance and investing in human capital (skills, knowledge abilities) of miners, their representative organizations and municipal and district assemblies to achieve legalization and facilitate the process of formalization, of which secure land and mineral tenure are pre-conditions for responsible, transparent gold supply chains and can provide much needed collateral to stabilize investment climates.

Component 1, views security of land and resource tenure as a basic requirement for the stability of a responsible mineral supply chain and likewise for successful mining companies. Surface and sub-surface rights should be administered through blocked out ASM zones or coexistence (e.g., ceding part of a concession; tributer systems) with conventional larger scale gold mining actors, combined with suitable incentives to catalyse the broader adoption and up-scaling of these practices. Secure mineral rights and land tenure are at the heart of formalization efforts and offer an incentive for maintaining legal compliance with existing laws, if terms are appropriate, such as tax incentives for meeting certain criteria (i.e., Hg-free production circuits, responsible cyanidation, pollution prevention measures, mine water and sound tailings management).

One of the focal points of the GOLD+ Program is to champion new approaches to formalize the ASGM sector by piloting JAs that focus on areas defined by sub-national administrative boundaries to reconcile social, economic, and environmental objectives through participation of diverse stakeholder across different rural land-use sector. Proposed sites are presented in Table 1, focusing attention on agro-industries and commodities that are important for ensuring local food security (i.e., tubers, vegetables, grains), with a specific focus on cocoa as Ghana's principal agricultural export and competing land-use in ASGM areas.

Output 1.2 under Component 1 will be underpinned by Strategic Environmental and Social Assessment (SESA) principles and approach. As a tool, the SESA process will be applied to climate change risk assessments to support planning for Jurisdictional Approach (JA) pilots in Tier 1 Districts. Demonstration sites (denoted as Tier 1 sites) identified during the PPG including priority districts (sub-national administrative boundaries), each with three ASGM hotspots/villages listed as processing plant options (see Table 5). Specific processing plant locations have not yet been identified but will be verified and selected with site verification criteria based off the Environmental and Social Management Framework (ESMF; Annex 10).

The identification of the current and projected climate vulnerabilities at the project pilot locations is of critical importance during site selection - as indicated in Annex 7 of the ProDoc - including information on the overall vulnerability[95] (exposure, sensitivity and adaptive capacity) of target natural resources in the pilot´s areas to climate change. The selection of sites will take into consideration short and long term risks associated with climate change and natural disasters.

Outcome 1 of Component 1 is: Higher degree of formalization through Jurisdictional Approaches (JAs) and capacity building of formalization actors.

The proposed outputs under this outcome seek to develop an ASGM governance framework that is brings together the interests of different stakeholders, policy makers, district authorities, traditional community leaders, miners, financial institutions, impact investors, international NGOs, and academics by promoting technical and business-like partnerships with the private sector. This outcome proposes capacity-building through the different levels of organizations to enable technical assistance in the formalization process, either through dedicated ASM zones with known geologic potential or through ASM-LSM coexistence arrangements, shown in Figure 2.

Output 1.1: Municipal and District Assemblies, District Mining Committees (DMCs), EPA and ASGM actors' capacity strengthened to assess, plan, and implement sustainable formalization interventions in Tier 1 jurisdictions.

This output aims to advance the capacity of sub-national (i.e., Municipal and District authorities) to assess, plan, support, implement and monitor sustainable, mercury-free interventions in the ASGM sector to advance existing policy priorities set forth in the NAP on ASGM. Specifically, win-to-win coexistence between ASM activities and LSM operations will be promoted to encourage zero harm strategies for traditional local communities engaged in mining and rural households. It includes interventions at the community level, in blocked out ASM zones and ASM-LSM mining territories willing to implement proposed activities under this child project to achieve project-specific goals as part of the planetGOLD global program.

The following incremental activities will be carried out to achieve Output 1.1:

i. *Define specific categories of ASGM operations based on identified parameters in territorial mining locations.*

As indicated in the NAP on ASGM, revision of existing production scales is a national priority and recognized barrier to formalization. Within national regulations and based on the geological, social and entrepreneurial features of ASGM mining locations, this activity will classify the different levels of ASM operations at the district level in order to create incentives for improved organization and permitting. During the PPG phase the planetGOLD+ Team assessed land and mineral tenure security within the areas proposed for pilot sites. Related to this activity, a review of legislation on mining, especially ASM-LSM[96] coexistence is required as conflict over land, access to and control over mineral deposits and the right to mine is a major barrier of progress. In Ghana, ASGM stakeholder engagement has evolved from forced eviction (exclusionary approaches) to more inclusive strategies, including dialogue, cohabitation (e.g., non-competitive arrangements, often fragile and short-lived) to robust coexistence models where mutually beneficial agreements are operationalized with potential to improve mining practices, de-risk operations and invest in sustainable livelihood programs, in accordance with provisions of the Community Mining Scheme (CMS). Analysis of existing categorized will be undertaken by desk-top review in consultation with the Minerals Commission (and World Bank IDA credit on formalization), Municipal and District Assemblies, District Mining Committees (DMCs), GNASSM, Traditional authorities, and CSOs in designated mining areas.

This activity will specifically address Minamata Convention Annex 7 Article C, (b) Steps to Facilitate Formalization or Regulation through revision of the legal / regulatory framework and create categories for artisanal, small and medium scale mining operations based on identified parameters, linked with Act. ii.

ii. Conduct a harmonized validation of national policies, plans and regulations to streamline sub-national environmental permits and mining licensing.

The project, through the PMU, will evaluate recent the most recent assessment of policies, plans, regulations, standards, and measures in place pertaining to the formalization of ASGM and mercury phase-out in the ASGM sector, building upon gaps identified in the NAP on ASGM (2021). The validation will aim to target Tier 1 sites framing broader needs and gaps, overlaps and ambiguities relevant for the ASGM sector currently under investigation by the (GEF-6) EHPMP project, being implemented by the EPA and World Bank. The EHPMP project will provide a list of recommendations and actions to address key issues for Tier 1 sites these under the scope of this FSP, including the participation of key national institutions as needed. This activity compliments Output 1.1., Act. i, through an evaluation of national policies, plans and regulations to reduce sub-national level bottlenecks in the issuance of environmental permits and mineral licences at the District level[97]. This activity requires coordination between the EPA Minerals Commission, Forestry Commission, Water Resources Commission and World Bank Formalization project to understand challenges and opportunities related to the Community Mining Scheme (CMS), and how to utilize this model to decentralize licencing, empower District governments and existing structures.

iii. Conduct a formalization diagnostic in Tier 1 sites.

Due to geographic and geologic differences in mine production systems, scale and stakeholder relationships; target ASGM communities will be assessed under the project by a "formalization diagnostic". This diagnostic will be based on planetGOLD criteria for socially and environmentally responsible mining operations[98], as a branched version of the CRAFT Code[99], developed and implemented to assess the potential of 'Tier 1' ASGM communities in select mining jurisdictions, in line with planetGOLD criteria for socially and environmentally responsible mining. Through a combined approach, this can improve the international image of local mining operations by proactively adopting measures under the planetGOLD criteria, based off leading market entry standards and the CRAFT Code. The Code is a tool adapted by the Alliance for Responsible Mining (ARM) and Resolve to create a flexible market entry standard with modules based on Annex II risks identified under OECD due diligence guidelines[100].

This activity will perform baseline surveys/inventories to identify, assess and ranking of the different kinds of MEs in the intervention sites, by degree of formalization, organization, gender dimensions, socio-demographics, land tenure, gold grades, accessibility to ASGM sites, security, land conflict issues, mercury use/contamination, women participation, child labor, work-related-safety, etc. This diagnostic will serve as a transparent selection criterion for project sites and engage stakeholders early in the project cycle, aimed at identifying MEs and collecting written commitments from leaders to comply with responsible mining criteria. While potential for mercury reductions will be the key criteria, other factors (i.e., financial access, ore grade, biodiversity, climate change risks, water gains, etc.) will also be considered when selecting priority sites under this FSP; in accordance with the social and environmental risk analysis.

iv. Support building of an official ASGM registry in Tier 1 sites.

In line with existing data collection protocols established by the Minerals Commission (MC), this activity will support the building up an official ASGM Registry for Tier 1 sites to understand demographic attributes of the primary and secondary labour force dynamics, including variables such as gender, age, language, role in ASGM production systems, affiliation with informal or formal groups, cooperatives or MEs, and contact details. The purpose of this register is to create a network for planetGOLD+ communications to inform national and local stakeholders of relevant stakeholder meetings, notifications, training opportunities (Component 1, 2, 3) and awareness raising activities under Component 4. Communications protocols for this activity will be aligned with planetGOLD global knowledge component guidance on messaging. Under this FSP data collection for intervention sites will be coordinated with ongoing programming of the MC, and coordinate with national databases as an instrument for policy making at the national level in the ASGM sector.

An efficient and reliable registration system, led by the EPA in collaboration with the Minerals Commission, will be set up under the project, including, among others, the following actions:

- Ø Survey of the cadaster and creation of a sex-disaggregated directory of artisanal and small-scale miners, gold buyers and mercury sellers at the district and national level.
- Ø Presence and details of informal mining groups, cooperatives, MEs or associations.
- Ø Registration of the quantities of ore processed per day, processed cake, gold produced by ASM at the mining district level, as well as the total number of people who work in the ASGM sector, based on sex-disaggregated data.
- Ø An automated system to record the quantities of recovered gold, and mercury gold ratios (Hg:Au), as to inform revision of categories for different production scales (Output 1.1. Act.i).
- Ø Registry of the different sources of direct and indirect information that allows identifying movements of mercury or acquisition, commercialization, forms of trading and the number of abandoned vs. active mine sites within intervention areas.

v. Establish partnerships with Municipal and District Assemblies, District Mining Committees, EPA, CSOs and private sector to scale Hg-free technology

deployment.

Strengthening partnerships between diverse stakeholders is a precondition for inclusive formalization policy and creates an enabling environment for progress. Supporting sustainable ASGM in Tier 1 sites prioritizes the development of sustainable community ASGM practices through multi-stakeholder partnerships (EPA, Minerals Commission, the GGSA, MMDAs, District Mining Committees, LSM companies) for a pilot program to develop environmentally responsible community-based mining, including a quota for female and youth entrepreneurs' participation to ensure women and at-risk youth are actively engaged.

Based on Annex 9 (Stakeholder Analysis) key groups will be assessed for their power and interest in the project within Tie 1 areas to generate a power-interest matrix and further refine stakeholder engagement strategies. For all JA pilots, Terms of Reference (ToR) for GOLD+ District-level Working Groups (DLWG) will be developed for each Tier 1 site to document the roles, responsibilities, and opportunities for project-affected stakeholders to support and sustain the transition from mercury, promote socially and environmentally responsible mining operations and scale Hg-free technology deployment during and beyond the project. Each DLWG should also clearly define a mission and vision for each project area, considering the need for government, civil society, mining, and non-mining land user inputs in Tier 1 areas.

This activity will specifically address Minamata Convention Annex 7 Article C, e) Strategies for involving stakeholders in the implementation and continuing development of the NAP at the sub-national level, as part of Ghana's strategy to reach miners and stakeholders in priority mining districts where mercury use is prevalent. As a sub-national, decentralized and district level approach, district Municipal and District Assemblies, District Mining Committees, CSOs and private sector will be engaged to scale Hg-free technology deployment under leadership of the EPA through multi-stakeholder consultation.

vi. Streamline licensing and make it more accessible for miners.

This activity will involve computerization of a harmonized application form and permitting process. This will require the collective input of all licensing and permitting authorities including the EPA, Minerals Commission, Forestry Commission and Water Resources Commission. The computerized harmonized application form will enable all these institutions to process licenses and permits simultaneously thus reducing the bureaucracy and turn-around time. In addition, this activity will facilitate the involvement of stakeholders in the development of fee structures for licenses and permits.

viii. Develop capacity of regulatory agencies to deliver services to miners

The capacity of the EPA regional/area officers and Minerals Commission District officers will be strengthened on improved management, regulation and enforcement as well to provide technical assistance to small scale miners. Based on this EPA regional/area officers and Minerals Commission District officers should be able to identify funding opportunities and share with small-scale gold miners.

Output 1.2: Jurisdictional Approaches (JA) piloted to optimize land allocation through ASM zones and coexistence models with larger scale mining actors in Tier 1 sites.

This output aims to pilot the development of the JA as a multi-stakeholder forum(s) to secure wide input and support; development of action plans or roadmaps that identify the key social, environmental and production goals and challenges in each Tier 1 mining jurisdiction (i.e., District), as well as actions needed to address them; and a monitoring or information system to track implementation. The JA model will be piloted in Tier 1 sites as a tool to optimize land allocation and decentralize mining application processes for local concessions, issuance of environmental licenses and other permits required by law. The JA model provides a platform for continuously engaging and providing support to ASGM actors and key stakeholders to ensure allocation of ASM zones and/or the provisioning of community mining licenses is transparent and can serve miners and MEs within a realistic time frame, at reasonable cost. This activity is linked with Output 1.1. Act.vi, where planetGOLD+ DLMSWGs in Tier 1 sites (comprised of ASGM hotspots) will participate in piloting of integrated land-use tools. During the PPG, the *Governance Assessment* and *Negotiations Training and the Rights Based Approach* were shortlisted for JA pilots based on Ghana's context and may be adapted during implementation.

JA pilots require a viable multi-stakeholder coalition as precondition for success, and to build upon existing District-level structures (e.g., District Mining Committees (DMCs)). However, DMCs do not currently allow for miner representation, leaving a gap in representation. As such, the DLMSWG model (developed in Output Act. vi) allows for informed, participation of MEs and non-mining stakeholders (i.e., agriculture, forestry). This output will build upon lessons learned from Ghana's Community Resource Management Area (CREMA) mechanism[101], an innovative natural resource governance and landscape-level planning tool developed under REDD+. Evidence suggests both positive and negative aspects of this approach to be integrated into JA pilot design within multi-functional landscapes where gold mining, cocoa and other key livelihood pursuits coexist.

The following incremental activities will be carried out to achieve Output 1.2:

i. Conduct land-use mapping in Tier 1 sites.

Changes in land cover and land-use in Ghana are driven by a number of factors, climate change and resource consumption being major contributors. In many regions of Ghana, informal mining, agriculture and forestry often coexist as part of a multifunctional working landscape which enable subsistence but can also generate conflicts between different resource sectors. Output 1.2. will be underpinned by a SESA approach. Improving land allocation for ASGM activities begins with land-use mapping and planning, following completion of Output 3.1. Act. ii. (verify Tier 1 sites) conducted in parallel with Output 1.1. Act. iv to ensure coherence between social and environmental criteria and ESIA metrics. In line with District level spatial planning frameworks, this activity will coordinate with national, regional and district level agencies, the EPA, Minerals, Lands and Forestry Commissions to ensure land-use maps are validated with relevant parties to minimize duplication of existing mapping projects, and/or spatial products. The purpose of land-maps can be seen as threefold; (i) set baseline for situational analysis at the onset of the project; (ii) inform decision making for the allocation of ASM zones, community mining licences and/or models of ASM-LSM coexistence, and (iii) support MEs and the EPA develop mine closure plans (Output 1.3., Act. iii).

This activity will generate land-use maps to inform JA pilots in Tier 1 districts in coordination with the USAID-NASA financed SERVIR West Africa project to serve as a baseline for initial situational analysis. Subsequently, the EPA in coordination with SERVIR West Africa (Ghana) may wish to consolidate efforts in geographic areas of interest to provide a list of recommendations and actions to address land-use planning priorities under the scope of this FSP. Maps and products created under this activity can also serve as evaluated at the Mid-Term and Final project evaluation for land-use changes utilizing change detection, time series analysis and relevant approaches employed by the Monitoring of Artisanal Mining (*galamsey*) in Ghana Service [102] utilizing satellite data and Landsat 8, Sentinel 1 and other spatial products. Under leadership of the EPA, the SERVIR Ghana mobile app for monitoring *galamsey* may be applicable to support real-time assessment of mining activities in Tier 1 ASM zones and/or sites for co-existence with LSM actors.

ii. Pilot integrated land-use planning tools to establish ASM zones with private sector and government partners.

Once Tier 1 sites have been verified and site-specific ESIAs/ESMPs completed, land-use planning tools will be applied to support spatially explicit decision-making for the allocation of blocked on ASM zones, community mining licences and where appropriate, ASM-LSM coexistence models. During the first year of implementation, with support from the planetGOLD global knowledge component, preconditions for success must be evaluated including identification of: (i) core groups of producers (legitimate MEs. and non-mining sectors) that are supportive of the vision and process; (ii) local government supportive of vision and process; (iii) local civil society groups exist, have capacity and interest to support process. This activity will coordinate with, review recommendations from and receive capacity building support through Conservation international (CI) as planetGOLD+ lead agency of the global knowledge component. New land will not be allocated for ASGM activities under this FSP, as 15,000 hectares have already been demarcated as blocked out ASM zones, exclusively for mining activities in support of the CMS.

Once Tier 1 sites are verified and formally selected, the following tools may be piloted[103]:

Ø *Governance Assessment:* applies the *Sustainable Landscapes Rating Tool*, which enables a rapid assessment of key conditions for jurisdictional policies and governance to assist sustainable landscape management. The Tool provides a snapshot of a jurisdiction's capacity to establish and ensure effective functioning of policies, plans, strategies, regulations, monitoring systems and multi-stakeholder platforms, which, collectively, have been found to be important in supporting Sustainable Landscape Approaches (SLAs). The Tool applies an objective, evidence-based rating system. It collects and organizes complex information about policies and governance into a structured and easy-to-understand format. Landscape actors include sub-national governments, MEs, NGOs and CSOs can use the tool to: (i) Communicate externally about the status of key enabling conditions to attract investment and other forms of support; (ii) benchmark progress on establishing enabling conditions against planetGOLD criteria for socially and responsible mining operations; (ii) build support among diverse stakeholders and facilitate planning to address gaps in promoting responsible gold supply chains.

Ø *Negotiations Training and Rights Based Approach:* involves a process of stakeholder mapping and needs assessment in Tier 1 jurisdictions (Districts) that ensures all relevant stakeholders, especially marginalized groups, are able to proactively and positively participate in decisions with national, municipal and district-level government during the project. To advance formalization of the ASGM sector, the Human-Rights Based Approach (HRBA) is often presented as a framework to build trust and confidence between state and non-state actors through an improved understanding of the rights and roles of duty bearers and rights bearers[104]. SESA and ESIAs will also consider human rights impacts as part of ensuring a HRBA consistent with guidance on formalization for the ASGM sector endorsed by the Minamata Secretariat. This activity will utilize USAID-NASA West Africa SERVIR tools, including those developed on multi-stakeholder engagement and data collected from pilots on ASGM stakeholder mapping As a spatial product designed for use by the MC and EPA, the SERVIR Ghana spatial platform and mobile app technology offers a platform for monitoring of ASGM activities, and to potentially host relevant information collected from Tier 1 intervention sites for JA pilots under this FSP.

iii. Carry out a climate change risk assessment.

As part of the holistic multisector integrated approach the FSP will perform climate change vulnerability assessments and implement climate adaptation strategies, underpinned by a SESA approach and principals. This activity will assess - for potential issues for livelihoods and technical design of the mercury-free facilities - a natural disaster risk assessment that could eventually affect operations in the places where the planned pilot projects will be implemented. This assessment will include four steps, as the STAP guidance on Climate Risk Screening, i.e.: hazard identification, assessment of vulnerability and exposure, risk classification and risk mitigation plans. Risks assessments will consider not only the duration of the FSP but also the lifetime of the expected Global Environmental Benefits (GEBs). This activity will build upon existing methods endorsed by the GEF, and build upon existing approaches, data, and spatial products as available from the Land Use and Spatial Planning Authority (LUSPA), District Governments, and the EPA. This activity will coordinate ongoing activities with the Ghanaian-based Centre for Remote Sensing & Geographic Information Services (CERSGI)[105], established by EPA and University of Ghana to provide services to government agencies, NGOs, research institutions and the private sector. This activity targets to consolidate SESA, which aims to understand the extent to which the project provides an adequate response to environmental and climate change-related challenges; may adversely affect the environment and offers opportunities to enhance the state of the environment and contribute to low carbon development. Major future rural impacts in Ghana are expected in the near term and beyond through changes in water availability and supply, food security, and agricultural incomes, including shifts in production areas of food and non-food crops. Climate risks will be integrated in the SESA and ESIAs so need to ensure climate vulnerability assessments inform those, rather than duplicate efforts.

iv. Promote access to responsible, traceable gold markets.

The project aims to develop a roadmap for the ASGM sector to access differentiated international markets rather than relying on local markets to sell their gold, often resulting in low gold prices. For instance, in promoting compliance with modules of the CRAFT code, it automatically places legitimate Mining Entities (MEs) in a position to demonstrate risk-based due diligence measures in accordance with OECD Due Diligence Guidance (DDG) for mineral supply chains, thus enabling access to international gold markets. These initiatives, developed by ARM and Resolve Intl. support responsible production and marketing of gold that is more respectful of the environment, human rights, and anticorruption efforts. In addition, those who achieve CRAFT compliance will receive technical assistance and a better price for their gold in international markets, which may result in the recovery of alternative, Hg-free, technological investments in less time and build positive downstream linkages with leading global refiners. To enhance supply chain traceability, a proof-of-concept scheme with a major LBMA refiner will be developed under Output 2.2. This activity aims

to promote the concept of access to responsible, traceable gold markets through the roadmap for ASGM operations to bring mines to market and is directly linked with Output 2.1. Act. i (design and validate de-risking mechanism) and Act. ii (build capacity of legitimate MEs on mine-level due diligence).

Throughout the project, legitimate MEs will be encouraged to progressively build their competence of and compliance with the planetGOLD criteria for socially and responsible mining. Experiences of miners and their peer groups will be collected, collated, and shared on the planetGOLD website using the planetGOLD voices template of short narratives where miners can share challenges and successes with applying this criteria.

v. Develop and validate JA protocol for Tier 1 sites.

JA pilots in Ghana are based on a 'phased approach' that allows the GoG to characterize different mining areas based on their potential to produce responsible, mercury-free gold and align Tier 1 sites with GOLD+ criteria promoted by Conservation International (CI)[106]. During the PPG, GOLD+ criteria were developed to support site selection and verification with social and environmental criteria (to be carried out under Output 1.2. Act. ii). It is expected that this activity will allow the country to create an approach to assessing a formalization diagnostic tool, identify the challenges that may exist in implementing this approach with the ASGM sector, and customize its application beyond the lifetime of the project.

Piloting the JA in the ASGM sector of Ghana will follow territorial boundaries of mining areas with a commodity-specific focus on responsible gold. In addition to the territorial boundaries, criteria such as rural livelihood and land-uses, annual gold production, the type of geologic deposit, different types of gold ores; alluvial, free-milling/oxide and sulphidic ores can also be used as a form of classification. Free-milling ores are found in the Tarkwa area while sulphides are found in Birimian System in towns such as Bogoso, Prestea, Obuasi and Bolgatanga among others. This activity will review all JA pilot activities under Output 1.2. to develop and validate an integrated, holistic, and multi-sectoral protocol with clear descriptions of criteria and information to be collected for each Tier 1 site to optimize land allocation for blocked out ASM zones, community mining licences and models of coexistence (shown in Table 4) and promote formalization as a process of continuous capacity build of ASGM actors, district government and DMCs.

Table 4. Proposed project sites under Tier 1 approach.

Criteria	**Proposed GOLD+ Intervention Site**				
Priority	**Tier 1 sites**			**Tier 2 sites**	
Administrative Region	**Western**	**Western**	**Ashanti**	**West North Region**	**Eastern**
Administrative District	Prestea-Huni Valley	Wassa Amenfi East	Adansi North District	Bibiani Ahwiaso Bekwai	Birim North
District Mining Center	Tarkwa	Asankragwa	Obuasi	Bibiani	Akim Oda
Type(s) of gold deposit	Hardrock, Alluvial, Colluvial	Hardrock, Alluvial, Colluvial	Hardrock, Alluvial, Colluvial	Hardrock, Alluvial, Colluvial -	Hardrock, Alluvial, Colluvial
Annual gold production (District Centre Est.)[107]	7,294kg	6,209kg	10,505kg	6,312 kg	4,984kg
ASGM Population (District Centre Est.)[2]	128,000	101,250	131,250	160,000	110,000
LSM operations present	Golden Star Resources	Ganhe Mining Resources Development Ltd.	AngloGold Ashanti, Obuasi Mine	Asante Gold	Newmont Akyem (25km, Akoase)
Rural livelihood and land-uses	Cocoa, coconut, palm oil, rubber, citrus, grains and tubers	Cocoa, palm oil, rubber, citrus, vegetables, grains and tubers	Cocoa, palm oil, citrus, vegetables, grains and tubers	Cocoa, palm oil, citrus, vegetables, grains and tubers	Cocoa, palm oil, citrus, vegetables, grains and tubers
ASGM hotspot 1(village/area)	Heman	Japa	Adumanu	Dontoko[108]	Anyinam
ASGM hotspot 2(village/area)	Prestea	Nananko	Akyease	Endwenase	Kwabeng
ASGM hotspot 3(village/area)	Kutukrom	Amoamang	Abadwam	Aswaniso	Akoase

Output 1.3: Land-Use and Spatial Planning Authority (LUSPA) Municipal and District Assemblies, EPA, District Mining Committee (DMC), CSO and miner capacity strengthen in ASM zone management and community relations.

This output aims to strengthen the capacity of National, Municipal and District authorities in ASM zone management and community relations to advance existing policy priorities set forth in Ghana's NAP on ASGM related to improving social and environmental performance, alongside promoting coexistence between ASM activities and LSM operations. Within respective mandates the Land-Use and Spatial Planning Authority (LUSPA) and EPA will lead interventions at the community level, in ASM-LSM mining territories willing to implement proposed activities under this FSP to prepare social license to operate protocols for small and large scale mining companies, and promote Child Labour Free Zones (CLFZs)[109] piloted by the Minerals Commission, Child Labour Unit (CLU). To sustain results, this output will provide support to MEs (i.e., cooperatives, small enterprises) and community-based mining operations on improving ASM zone management and validating mine closure plans with the EPA, LUSPA, GNASSM and DMCs in Tier 1 sites to improve post-mining land-use planning, as part of a package of 'bankable documents' to improve access to finance (Component 2) and ensure legal compliance with existing laws and regulation (Component 1).

The following incremental activities will be carried out to achieve Output 1.3:

i. *Prepare and validate social license to operate protocols for small-scale and large-scale mining companies.*

As part of the holistic, multisector integrated approach to ASGM formalization the FSP will undertake review of leading international practices in establishing, managing, and monitoring a social license to operate (SLO) to develop a checklist of protocols for small and LSM companies operating in neighbouring or overlapping geographic areas in Tier 1 sites. In mining, the SLO can be understood as an informal social contract that aims to bridge the gap among stakeholders' views involved in mining activities and consider public perceptions. The existence of a SLO means that the project has sufficient social approval as a prerequisite for its long-term sustainability[110]. While this concept is widely accepted by the industrial mining industry as a tool for success, and has prompted companies to look beyond their self-interest, informal small-scale operators generally lack the financial, human, and social capital to develop such informal contracts, respond to grievances, and take corrective action to reduce conflict.

This activity includes a series of consultative workshops in Tier 1 mining districts working in collaboration with the EPA, Minerals Commission (MC), Ministry of Employment and Labour Relations (MoELR), Ministry of Local Government and Rural Development (MoLGRD), Ministry of Gender, Children and Social Protection (MoGCSP), Municipal Assembly representatives, GNASSM, traditional authorities, legitimate MEs, LSM sector representatives and the Ghana Chamber of Mines to draft and validate social license to operate protocols for community-based mining operations (under the community mining scheme). Preparation of SLO protocols under this FSP will establish, validate, manage, and monitor SLOs with host communities, local government, and enforcement agencies. Through multi-stakeholder engagement, the protocol will be developed as a practical checklist of basic principles for responsible mining conduct, strategies for documenting stakeholder relations in Tier 1 sites, set annual goals individual mine sites and select simple indicators to monitor process over the lifetime of the project. Lessons learned from Tier 1 sites under this project will be shared with Tier 2 site District Mining Committees (DMCs), Municipal and District Assemblies and project partners working similar jurisdictions.

This activity is directly linked to Output 1.3 Act iv. (Capacity building for Municipal and District Assemblies, DMCs and MEs to positively manage community relations). In Ghana, where ASM has been periodically banned and such actions caused social unrest, an SLO is often required to rebuild trust and confidence with artisan and small-scale miners, however involvement of local government is crucial to implement its basic principles.

ii. Promote creation of child labour free zones in Tier 1 sites.

The project aims to support the Minerals and Mining Policy of Ghana on its prohibition of child labor in mining and encourages child supervision be required for all GOLD+ project sites in accordance with the UNP-ILO standard on the prevention of child and forced labour. This activity builds upon lessons learned from the USDoL CARING Gold project (2015-2019), Combating Forced Labor and Labor Trafficking of Adults and Children in Ghana (2017 –2021), project implemented by Verité; and examples of CLFZs implemented in small-scale gold and cocoa producing communities. The child project will establish child protection committees in Tier 1 districts to engage District Mining Committees, local government, traditional authorities, chiefs, primary and secondary schools, GNASSM and verified MEs on the prevention of child labour and way to eliminate ILO worst forms of child labour in small-scale gold mining in accordance with planetGOLD criteria for socially and environmentally responsible mining. The project adopts a spatially explicit approach to the establishment of CLFZs for community-based mining operations, blocked out ASM zones and, where appropriate, coexistence models with larger-scale gold mining companies.

This activity is linked to Output 1.1, Act. iii (CRAFT Code formalization diagnostic), Output 2.2. Act. i (design and validate de-risking mechanism for Tier 1 sites) and Act.ii (Capacity building on mine-level due diligence) as the prevention of child labour is an Annex II risk in OECD DDG and source of concern for communities, investors, and downstream consumers worldwide. The project will convene workshops to engage miners, their families and MEs on the issue of child labour in mineral supply chains and disseminate lessons learned from the USDoL CARING Gold project (2015-2019) on the establishment of child protection committees in collaboration with the Minerals Commission's Child Labour Unit (CLU). In collaboration with the Minerals Development Fund (MDF), opportunities for financing low-cost childcare services for mine workers in Tier 1 communities will be explored as a guarantee for solidarity microfinance funds aimed at women-led Village Saving & Loan Associations (VSLAs) in gold mining communities (Output 2.2., Act. v).

iii. Design and validate mine closure plans for Tier 1 sites.

This activity will assess the existing framework on mine closure in ASGM contexts, provide recommendations for resource efficient (low cost) progressive rehabilitation planning for mine sites and how to develop modalities for the posting of bonds by small-scale miners for reclaiming degraded lands. Firstly, this activity will facilitate desk-top review of existing policies, laws, and regulations on the enforcement provisions in the permitting processes with respect to mine reclamation/rehabilitation and closure and provide practical suggestions for their improvement in ASGM contexts. Second, the project will coordinate with existing World Bank and GoG programs to assess the status of guideline development for mine rehabilitation and closure according to the type of mines. To minimize duplication of effort, this FSP will not emphasize pilot rehabilitation technologies per se or carry out extensive field-based mine rehabilitation activities, as multiple parallel programs are undertaking such activities in Ghana at present. Instead, the project will synthesize lessons learned from existing initiatives and promote guidelines which emphasize prevention of environmental impacts during operations because rehabilitation is more expensive than prevention, with cost effective strategies for progressive closure planning. Last, the project will explore financial assurance modalities for the posting of bonds by small-scale miners for reclaiming degraded lands as part of de-risking investments under Output 2.2. Act. i, and encouraging topsoil conservation to retain seed banks and low-cost strategies such as applied nucleation and assisted regeneration to offset impacts during operations.

*iv. Capacity building for Municipal and District Assemblies, DMCs, EPA and Mining Entities (MEs)**[111]** to positively manage community relations.*

The project will support ongoing capacity building activities to positively manage community relations in Tier 1 districts. Capacity building of DMCs to manage ASM in their localities is a core need to advance formalization through multi-stakeholder governance frameworks as defined in Output 1.2. Act. v. Throughout the project life cycle, this activity will convene support capacity building workshops for District-level government, DMCs and MEs to improve promote creation of child labor free zones in Tier 1 sites, encourage the development and financial assurance of mine closure plans and encourage the

adoption of social license to operate protocols for small-scale and large-scale mining companies to ensure uptake, use and long-term sustainability of Output 3.1. activities and build a spatially explicit community of practice among Tier 1 sites on socially and environmentally responsible gold supply chains and community-based mining.

v. Conduct Environmental and Social Impact Assessments (ESIAs) for Tier 1 sites after geological investigation.

Site-specific ESIAs will be conducted at Tier 1 sites to inform and guide social and environmental safeguards, following geologic inventions carried out under Output 3.1., Act., i. The site-specific ESIAs will be conducted in coordination with and used to inform site verification, following detailed geological investigations in blocked-out ASM zones in Tier 1 sites to identify mineralogy and metallurgical properties of deposits. An Environmental and Social Management Framework (ESMF) has been carried out in the PPG (Annex 10) providing a basis for site-specific ESIAs and Environmental and Social Management Plan (ESMPs) to be prepared once site selection has been confirmed[112] and used to guide Tier 1 site verification with social and environmental criteria, Output 3.1., Act,ii. Based on the results of the ESIA, the site-specific ESMP will likely include an Occupational Health and Safety Plan, Labour Management Plan, Water Management Plan, Pollution Prevention with special attention to Mercury and Cyanide, and others, as deemed necessary, especially where cyanidation leaching facilities are deemed feasable under Output 3.2., Act.,i. These will be conducted prior to commencement of the field project activities, guaranteeing that no activities may cause adverse social and environmental impacts are to proceed until assessments are completed and appropriate mitigation and management measures are in place; however, implementation and monitoring of identified risk management and mitigation measures is required throughout the project life-cycle. During each site-specific ESIA, selection of locations of the proposed processing plants and other facilities will be undertaken considering proximity to protected areas and villages to ensure that they will not be adversely impacted.

The ESIAs/ESMPs address the issue of wastewater discharge from project activities including mining operations and each processing plant. Treatment before discharge into any water bodies will be undertaken to ensure the reduction of suspended solids, chemicals, and fuel residues to acceptable limits in line with national or international standards. This will ensure that water quality does not represent a risk for the health and the livelihoods of other water users or a serious ecosystem risk. The impact of suspended solids, chemicals, and fuel residues (as applicable) on other water users is evaluated, contamination of wastewater with pollutants that represent a high risk is monitored, and technical improvements to reduce emissions are designed and implemented. This assessment will deal with the temporary storage of by-products of the mining business, specifically mercury and contaminated tailings; ESIA/ESMPs propose alternative mitigation means of handling this substance along the ASGM mercury management cycle. ESIA/ESMPs also assess the likelihood of participation of minors in hazardous activities and prevalence of child labor within the ASGM sector in the target mining territories and proposes measures to reduce it in line with Output 1.3., Act. ii (promotion of child labour free zones).

Considering technologies proposed under Component 3[113], the ESMF calls attention to social and environmental risks associated with artisan or small-scale cyanidation processing facilities[114]. This FSP advocates for responsible small-scale cyanidation, underpinned by mining principals and standards of practice as defined by the International Cyanide Management Code (ICMC), or the CN Code based upon planetGOLD guidance to stakeholders on managing the risks of cyanide (CN) use in ASGM for gold extraction, especially in the context of the sector's transition from mercury use. In compliment to Output 3.1., Act. i, ore characterization provides the first step in evaluating appropriate flowsheets, reagent concentrations and optimizing process controls for improved comminution (crushing, grinding) and leaching circuits. In simplest terms, ore characterization ensures deposits are amenable to cyanide, and helps identify naturally occurring heavy metals, such as Lead (Pb) and Arsenic (As) that may pose additional risks.

As part of integrated risk management, detailed geological assessments, combined with Tier 1 site verification with social and environmental criteria, based upon site-specific ESIAs and ESMPs will be prepared at Project Inception. The ESIA/ESMP process, following site verification and geological assesssment, can take place ahead of any other project activities. Feasibility assessments (Output 3.1, Act. i) must occur before plants are operationalized, and inform site-specific ESMP mitigation measures in recognizing the entire cyanide (chemical) life cycle encompassed for sound management following standards of practice set forth by the CN Code, including: sourcing from verified CN manufactures, and ensuring risks are mitigated during transport, storage and handling, operations, waste disposal, and preparations for cyanidation plant decommissioning.

Component 2. Financial Inclusion and Responsible Supply Chains[115]

For miners, one of the most significant barriers to the development of a responsible ASGM sector is access to legitimate finance. Financial institutions often have insufficient understanding of the sector's development potential to commit to providing loans, insurance or other financial products to the sector. The risks are often perceived to be too high and such entities do not have the expertise and experience to review ASGM loan applications or develop financial products that can be tailored to reach this financial market niche. At the same time, community-based organizations generally lack experience in record keeping, bookkeeping reporting (e.g., resource exploration and estimation, production tracking, economic modelling, and mine life cycle planning); nor do they possess the administrative capacity needed to prepare loan applications. Without ongoing support, a limited number of MEs in Ghana can sustainability increase their access to conventional and alternative financing options from commercial banks, rural and community banks, and credit unions.

In this regard, Component 2 follows a strategic approach targeting services on the supply and demand end to build trust and confidence between Tier 1 financial institutions in target jurisdictions (see Table 6) to reach MEs and women-led Village Savings and Loan Associations (VSLAs). It aims to launch a set of activities to educate and collaborate with key potential financiers (upstream and downstream) to design and provide financial products suited to the ASGM sector, integrating several actors in the investment community, such as local rural savings and credit entities, micro-finance institutions (MIFs), international mining corporations, commercial and national development banks, global, and regional development banks, i.e.: WB, AfDB among others. On the other hand, this FSP will assist miners with capacity building to access funds, including training miners on business and operations management with tools to not only access financial opportunities but successfully execute their investment plans to create more sustainable and profitable mining operations.

A clear incentive for miners using land and mineral tenure as collateral is that it can facilitate access to finance previously unrealizable. It would also facilitate access to other forms of support – technological, training, education, and other services – which cannot realistically be disseminated without financial services being present and linked in some way to ASM. A final benefit is increased connectivity, as linkages with financial services will increase the visibility of partnering ASM operators, in turn, opening supply routes and transportation networks so crucial to the sector's success. In combination, this support provides a much-needed platform for ASM operators to innovate.

planetGOLD+ Ghana will provide training and support for artisanal miners and small-scale mining entities to improve the skills required to sustain process on formalization, including increasing business skills, accounting, and enhancing abilities to produce 'bankable' documents needed to access loans and secure investments from impact investors. This FSP will assess the viability and capacity of Tier 1 financial institutions (shown in Table 7), where appropriate, to act as the intermediaries for disbursing grants, rotational small-medium loans for verified legitimate MEs and act as intermediaries to disperse solidarity microfinance (rotational) loans for women-led Village Savings and Loan Associations (VSLAs) in support of ASGM livelihoods. In coordination with the Ghana Microfinance Institutions Network (GHAMFIN)[116] and ARB Apex Bank Limited[117], Tier 1 financial institutions (Table 6) will also receive training on small-scale mining market analysis and business management for engaging and working with ASGM actors. To enhance understanding of the financial ecosystem, in cooperation with GHAMFIN, GNASSM and the MDF, Tier 1 financial institutions located in Tier 1 Districts will provide coaching and mentoring for MEs to develop bankable documents and meet basic de-risking criteria developed in consultation upstream and downstream partners. Further, as the project improves understanding of financial institutions aims to engage commercial banks in Ghana to provide loans to MEs with higher levels of financial need, combined with the Minerals Development Fund (MDF) as a long-term, sustainable financial mechanism to accelerate the reach of loans to MEs and sustain results through innovative blended financial mechanisms to reach small-scale miners.

Different financial institutions will be engaged in developing de-risking criteria for small-scale mines, in collaboration with the state-backed Minerals Development Fund and Chamber of Mines, alongside upstream (mining) and downstream (refining) actors. Financial inclusion of the ASGM sector is viewed as a sustainability mechanism to extend results beyond the lifetime of this FSP and encourage societal, business, and financial sector acceptance of the sector's development potential.

Outcome 2 of Component 2 is: Improved income for ASGM miners through the attainment of better gold prices facilitated by transparent and responsible supply chains.

The deployment of bankable documents and mercury-free infrastructure plans - over the long-term - will require innovative means of accessing inclusive capital markets, willing to enhance global environmental reasons as well as to deliver local socio-economic benefits for those clusters of populations that depend heavily upon this activity. The term capital markets generally refer to platforms for raising long-term capital – capital available for more than a year – in the form of debt or equity, offering a wide variety of options for investors, a pre-condition that it does exist in the current context of the ASGM sector in Ghana.

Risks and return are central considerations for financiers when carrying out its investments. A range of variables will have an impact on project success and many that will change over the FSP lifespan need to be understood and managed or mitigated in the context of the deal structure. Before investing, both debt and equity providers will undertake a detailed due diligence assessment of a wide variety of risk factors. Technical financial experts and advisors will be brought in by the project during this process, where specific technical knowledge or insight is needed, a pre-condition that currently does not exist in the local financial markets.

Output 2.1: Financial products developed and distributed to procure/retrofit mining equipment and establish supply chain due diligence at the mine level.

This output aims to: i. establish partnerships with financial entities and build their capacity and understanding to develop financial products that would be tailored to this sector and better assess loan applications from miners, ii. work with legitimate MEs (like cooperatives or small-scale enterprise) and individual miners to build their capacity in developing loan/investment applications for Hg-free processing equipment/investments and subsequently apply for loans, social impact investment grants or any other legally binding financial scheme, and iii. support vulnerable women with diversified livelihood options and basic financial literacy training. Possible financial mechanisms that will be explored in Ghana are listed in Table 5 below.

Table 5. Financial mechanisms for access to sustainable, mercury-free gold markets.

	Financial Mechanism	Description	Feasibility of being implemented under this FSP
Gold buying scheme	Responsible public purchases of gold from Mining Entities (MEs) in Tier 1 sites.	As part of sustainable public policy, the Government of Ghana (GoG) has adopted various strategies and mechanisms, over time, that prioritize state gold buying programs from formalized, small-scale gold mining operations.	In June 2021, the Central Bank of Ghana announced a domestic gold purchasing programme. This FSP will provide technical assistance to the Bank of Ghana to engage legitimate MEs into conditional purchase quotas, in alignment with planetGOLD criteria for socially and environmentally responsible mining so that artisanal gold can be sold directly to the Bank of Ghana, as a domestic market and promote responsible gold production and sourcing from minerals supply chains established in Tier 1 sites (pilot project areas). While in early stages offtake agreements through the PMMC aim to increase the treasury,
State-supported grants	Public programs for responsible, traceable gold supply chains.	The GoG, through the Minerals Development Fund (MDF) acts as a dedicated financial mechanism to support investments to improve the living standards of mining-affected communities. Despite institutional commitments by the MDF to support small-scale miners directly, limited dispersals have been distributed to due in part to bans (2017-2018) and COVID-19 delays. Technical assistance grants through public programs are aimed at building local capacity for responsible mining practices to reduce environmental degradation, risk-based due diligence and increasing the chances of accessing finance in future through (blended) subsidized loans, or private sector blended finance by year 2-3 of the project through engagements without upstream (mining companies) and downstream actors (refiners, jewelers or luxury fashion houses).	FSP activities under Component 2 (Financial Inclusion and Responsible Supply Chains) aims to promote awareness raising of state-supported funds administered by the MDF and create linkages to building capacity risk-based due diligence measures to receive partial tax breaks. Due diligence for operations can be defined based on existing planetGOLD criteria, as a branched version of the CRAFT Code, to produce gold under leading international standards (i.e., environmental stewardship, labour and human rights, transparency, anti-corruption, accountability ect.). Given relatively low uptake in Ghana at present of independent state backed funds, experiences in neighbouring Burkina or Senegal should be assessed for models to optimize sustainability and ensure state-supported programs can reach, benefit and extend support to small-scale miners in Ghana.
Blended Loans	Interest Rate Subsidies (blended loans) for MEs with Tier 1 Financial institutions.	Complementary use of GOLD+ non-reimbursable grants (or grant-equivalent instruments) for interest rate subsidies (blended loans) used to cover part of the interest payments for a loan issued by a Tier 1 financial institution. The project beneficiary thus receives a subsidized loan at a below market interest rate. The interest-rate subsidy is generally provided in relation to loans from third party actors.	Credit subsidies are an alternative to interest rate and credit policies when dealing with high and volatile credit spreads. In a model where credit spreads move in response to shocks to the net worth of financial intermediaries, credit subsidies can stabilize those spreads avoiding the transmission to the real economy. Interest rate policy can be a substitute for credit subsidies but is limited by the zero-bound constraint. Credit subsidies overcome this constraint. They are superior to a policy of credit easing if the government is less efficient than financial intermediaries in providing credit[118].
Blended Solidarity Microfinance [119]	Solidarity microfinance for women-led Village Savings and Loan Associations (VSLAs)[120]	Complementary use of GOLD+ non-reimbursable grants (or grant-equivalent instruments) and non-grant financing from public sources to provide financing on terms that would make projects financially viable and sustainable. Grants provided by the GOLD+ project will be combined with state-supported funds administered by the MDF. Blended Solidarity microfinance products will provide funding for VSLAs to increase working capital and participate in financial literacy and business skills training to promote responsible community-based mining practices and provide seed capital for livelihood diversification into supporting industries.	Blended grant and state-supported non-grant financial mechanisms of up to $30K (USD) can be provided on a competitive basis to VSLAs, administered by the MDF in partnership with Rural and Community Banks in Tier 1 sites. Funds are released in two tranches, including 1. A non-reimbursable grant ($15K) to provide working capital and capacity building support for VSLAs to develop business plans; and 2. Public Mineral Development Fund (MDF) contribution to support responsible community-based mining enterprises ($15K) requiring 50% of the revolving fund to be repaid over 3 years with an accumulated maximum of $200 (USD) thousand in the execution of the assistance. As a fixed solidarity fund, revolving loan terms and guidelines will be developed with Tier 1 financial institutions and the MDF board, with inputs from the Minerals Commission, Ministry of Finance and the Ministry of Gender, Children and Social Protection.

			The MDF and Tier 1 financial institutions in project ar eas will participate in a mentor program on financial li teracy and business skills training for responsible mi ning enterprises or secondary support services (i.e., P PEs, improved sluice equipment, low-cost childcare n ear mining areas to support child labour free zones).
Direct investment grants	Loans tied to existing equipment for Mining Entities (MEs) to improve the uptake of Hg-free gold production an d responsible cyanidation.	Provide non-reimbursable resources (grants) f or Mining Entities (MEs) whose destination is t raining, acquisition of mining licenses, environ mental permits and mercury-free mineral proc essing methods, and improve access to dome stic (Bank of Ghana; ARP APEX Bank) and inter national gold markets (downstream actors suc h a refiners).	Grants of up $35,000 (USD) can be structured per org anization and with an accumulated maximum of $35 0,000 (USD) execution of the financial assistance env elope. Technical assistance grant is provided to a M E to build capacity in Hg-free gold production and incr ease the chances of accessing markets. It can also b e used after finance has been granted to increase the chances of success.
Challenge grants	Competitive challenge funds for resp onsible small-scale mining operation s.	Set up blended competitive funds that promot e sustainable mining ventures in order to enha nce social and environmental performance of mining operations where challenge grants can be used as a: i) loan guarantee, used to cover t he lender's losses (Tier 1 Financial Institutions in mining areas) in case of default so that it ag rees to finance the project or to do so on bette r terms, ii) procurement of PPEs, iii) skills traini ng in value addition, and iv) financial assuranc e for reclamation bonds to carry out mine clos ure plans in Tier 1 sites.	Small grants of up $50,000 (USD) on a competitive ba sis can be structured per local organization with an a ccumulated maximum of $400,000 (USD) in the exec ution of the overall assistance envelope. Building upo n previous experience, the challenge fund can be dev eloped in partnership with the MDF, District Mining C ommittees (DMCs), the Ghana Chamber of Mines and private sector partners, from upstream (mining) and downstream (refiner) partners as recipient markets.
Technical Assistance	Development program for suppliers i n the ASGM production chain.	Creation and consolidation of stable contractin g relationships between mining suppliers with small and artisanal miners, generating links of trust that enable processes of specialization a nd productive complementation, under win-win scenarios.	This FSP will provide technical assistance, including but not limited to sound chemicals and mine waste m anagement training, Occupational Health and Safety (OHS) for new equipment procured under the project, resource efficient mining and pollution prevention an d others deemed appropriate by the EPA, to enhance l inks between verified mining entities and responsible suppliers.

Source: PPG Team, July 2021.

The following incremental activities will be carried out to achieve Output 2.1:

i. Educating and collaborating with local and national financial institutions.

This activity aims at engaging potential/innovative lending sources of green/environmental financing through education and collaboration to provide financial products suited to the ASGM sector, for instance, micro-finance institutions willing to operate or facilitate in the territories of intervention. This includes training of staff of the financial entities in the assessment of ASGM investments (such as gold sales records, records of ore production, risk assessment, evaluation of legal and technical requirements, etc.) as well as the appraisal of loan guarantees to evaluate the economic case for loans, leases or even, equity participation with due attention given to gender equality issues and languages spoken by mining communities. Financial inclusion opportunities for women and youth led cooperatives, self-help groups and other representative entities is strongly encouraged in this FSP to overcome existing inequalities.

The project, through a phased a strategic communications approach aims to reach commercial banks, and sub-national Tier 1 financial institutions with offices in Tier 1 sites to decentralize services and bring financial products closers to community-based mining operations, community license schemes, ASM zones and other modalities envisioned under the GOLD+ project. GHAMFIN is coordination with the MDF will explore strategies to reach the small-scale gold mining community in Ghana, within their respective roles and mandates.

Lessons from the Global planetGOLD Programme will be used to improve the process of getting these financial products to market by providing case studies and best practices – in other planetGOLD participating countries- that can then be adopted to suit the local environment. Initiatives that explore new models such as mobile apps to assist in capacity building and data collection for risk-based due diligence measures at the mine-level are encouraged. Digital app platforms have a dual role in presenting simple information to miners, with the reciprocal benefit of also collecting information in inform data collection protocols for lending institutions (Output 2.1. Act. iv). To expand reach of communications and awareness raising for Tier 1 financial institutions (see Table 7), the ARB Apex Bank Limited will be targeted as a key stakeholder as Ghana's mini-central bank for Rural & Community Banks (RCBs) with the aim to reframe the ASGM sector as an emerging economy.

ii. Conduct capacity assessment of Tier 1 financial institutions.

This activity aims to assess the capacity of Tier 1 financial intuitions, located in Tier 1 (priority) intervention sites with United Nations Capital Development Fund tools and methods in coordination with the Ministry of Finance and Minerals Development Fund (MDF) board as key stakeholders. The purpose of this assessment is to assess perceptions, awareness level and capacity of Rural and Community, Savings and Loans Companies (S&Ls), and Finance Houses (FCs) on the ASGM sector in Ghana and needs for local financial institutions to fully participate in and benefit from Output 2.1. Act. i (educating and collaborating with local and national financial institutions).

Table 6. Analysis of tier 1 financial institutions (sub-national level[121])

Financial Institution	GOLD+ Suitability
Rural and Community Banks (RCBs)	Initial target and priority, with over 140 in Ghana. Banks such as Adansi Rural Bank Limited and North Birim Rural Bank (Asuopra), in Ashanti Region and Eastern Region respectively, are near ASM epicenters. Developing lending schemes with these organizations makes sense because many local miners and suppliers already bank with them and are probably the financial institutions most familiar with ASM and associations in Ghana. To expand reach and coordination between Tier 1 project sites, the ARB Apex Bank Limited will be engaged as Ghana's mini-central bank for rural banks.
Savings and Loans Companies (S&Ls)	As GOLD+ moves into more sophisticated financing, organizations such as SIC Life Savings and Loans could be approached for developing funds and schemes for the industry. Given that S&L's are mostly based in Accra and have little familiarity with mining, these are a secondary priority to RCBs. If dealing with miners directly, these financial institutors are probably best equipped to deal with cooperatives or refineries (something big and low risk by ASM standards).
Finance Houses (FCs)	There are FC's in Ghana and these institutions are important for developing funds and lines of credit for equipment leasing schemes. The thinking here is approaching FC's to work with the PMMC and other relevant agencies and ministries to use captured gold to reinvest to develop these funds. These institutions may be called upon to design and develop revolving funds and schemes anchored in more permanent mining complexes.

i. Capacity building to assist organized miners to access funds.

Training miners on business, operations management and financial literacy will provide them with the tools to not only access financial products and proposed mechanisms (Table 6) but successfully execute their investment plans - adapted to the local context. These combined efforts are designed to create more sustainable and profitable mining operations, with the aim of improving miner incomes through the attainment of better gold prices facilitated by transparent, traceable, and responsible supply mineral chains. This activity includes workshops/awareness raising events conducted to increase miners' awareness (including women miners and women-led entities) on the value of mine-level due diligence, compliance with mining laws and regulations, and how compliance with planetGOLD criteria can facilitate access to different types of financial products and reduce risks for miners, their families, and communities.

This activity aims to deliver workshops and ongoing support services on financial literacy and investment readiness to prepare, manage and submit bankable documents in accordance with financial institutions expectations. Financial sector expectation swill be defined through consultation with a range of upstream and downstream actors in the financial ecosystem in Tier 1 sites – linked to Output 2.2. Act.i and Act.ii.

ii. Assisting mining districts with technical assistance and financial support for the adoption of sustainable practices.

This activity will provide technical assistance and non-reimbursable financial support for the elimination and replacement of mercury-driven technologies. Interventions along the supply chain will be performed to encourage an understanding and commitment to procuring the benefits of responsible gold mining. Quantifying and communicating the financial benefits of responsible mining to ASGM miners and gold traders is a crucial incentive and will be used to encourage the adoption of sustainable practices. Engagement with gold traders, both, at the global and national levels, in deploying gold provenance solutions and associated business benefits to ensure their buy-in will be key to the success of responsible mineral supply chain interventions. Where JAs are used, the project will facilitate knowledge sharing on ASGM topics amongst relevant stakeholders of the multifunctional mining landscape.

iii. Verify data collection protocol for lending institutions.

This FSP will assess the viability to build the capacity of rural and community banks to act as the intermediaries for disbursing rotational small-medium loans for verified legitimate mining entities (MEs) and act as intermediaries to disperse solidarity microfinance (rotational) loans for women-led Village Savings and Loan Associations (VSALs). Tier 1 financial institutions will receive training on small-scale mining market analysis and business management, as well as coaching and mentoring for MEs to develop bankable documents and meet basic de-risking criteria developed in consultation upstream and downstream partners. Data requirements and collection protocols we be defined early on in project implementation in coordination with the Ministry of Finance (MoF), and a range of lending institutions.

Output 2.2: Proof of concept for technology-assisted mineral supply chain due diligence developed and tested in target locations.

To build the confidence of financial intermediaries in supporting change through investment (providing financing for upgrading processing plants and eliminating mercury use), while also providing miners with insights in the economic opportunities such upgrades can bring about, the project will develop evidence based on economic models of processing plant upgrades integrating BEP and mercury-free pilot plants installed as part of this project, as well as previously established and well-functioning mercury-free processing plants. The results will present strong economic arguments (including payback periods) to miners and financiers to encourage change through suitable investments. Traceability technologies, including physical and chemical systems in accordance with leading practice from legitimate gold buyers and LBMA refiners will be assessed for proof-of-concept mineral supply chain due diligence pilot suitability at Tier 1 sites, combined with adequate mine-level due diligence.

As a first step, the project will train miners and legitimate MEs on how to use long-term records miners may already have (such as gold sales records, records of ore production, assets etc.) and train them in improving the recording and reporting of present production activities as well as other aspects critical to prove the economic case for loans and leases (e.g. how to report on resource exploration and estimation, production tracking, economic modelling, and full life-cycle mine planning). Improving this type of reporting can increase the potential access for miners and legally established MEs (e.g., cooperatives, small-scale enterprise, economic solidarity units) to conventional financing options, as well as new financial mechanisms and opportunities to invest in human capital and technologies in order to professionalize ASGM operations.

Source: Adapted from Muttuhuri et al. (2021), designed by K.Dales and J.Opiyo.

The following incremental activities will be carried out to achieve Output 2.2:

i. Design and validate de-risking mechanism in Tier 1 sites.

This activity focuses on the design and validation of a de-risking[122] mechanism for MEs at Tier 1 sites, as a complimentary approach to testing models of blended financial mechanisms[123] to overcome market failures of data limitation. Under this FSP, improving access to information on production required to de-risk investments and enhance transparency about production, employment, productive asset, and geological data. Under this FSP, planetGOLD criteria[124] provides a framework for de-risking investments in Tier 1 sites with MEs. These criteria may be adapted and continue to evolve through sequential use under this FSP.

As point of clarification about the planetGOLD criteria, and CRAFT code from which they are derived: in order to sell gold, MEs must at a minimum show that they do not have "Module 3" risks – including risks that, under OECD DD, require gold buyers to immediately disengage. MEs who are planetGOLD beneficiaries must also show that they are mercury-free. For other elements of the planetGOLD criteria, indeed there is a recognition that there is room for continuous improvement, and they can sell gold if they have a mitigation plan in place and can show progress to the downstream gold buyer.

Based on interviews with financial institutions, commercial lenders and experts during the PPG, data is summarized below:

Ø *Production Data.* To facilitate access to financial products, miners should focus on providing as much detail as possible about their activities and production. This starts with production records, over time, and improved record keeping of these data, which offer an indication of how much gold is being mined and determine what the value of a particular site is. Production information helps to forecast monthly throughput and can facilitate longer-term establishment of downstream contracts with buyers, such as the PMMC in Ghana, or support new relationships with refiners. The sustainability of production systems to address issues such as, human rights, OHS, labour rights, anti-corruption, environmental stewardship and sound chemicals management are captured under planetGOLD criteria and CRAFT code modules.

Ø *Employment Data.* Employment records can be shared, which provides a lending institution the scale of the operations in terms of size and reach, and the diversity of its production processes. From this, much can be learned about an operation's innovation trajectory, and what specific areas of the operation will require support over time. Employment data should, at a minimum, be sex disaggregated.

Ø *Productive Asset Data.* Detailed records of equipment are, thirdly, what could be supplied to lending institutions to provide a picture of the level of investment in the sector and on operators' needs. Assets can include mineral processing equipment, physical infrastructure, protective equipment, vehicles, and existing environmental permits or mining licences that have been obtained at the time of application.

Ø *Geologic Data.* Finally, periodic reports on the life of the mine, specifically, geological assessments which cast light on how much gold remains, can be supplied as part of economic reserve forecasting. Improving access to geological land can support business planning for mine operations and closure planning.

Formalization efforts must consider not only land allocation, but also consider the occurrence and distribution of gold deposits, and their accessibility. Secure tenure to mineral resources increases economic reliance and provides a positive incentive for miners to organize and obtain licenses and permits required by law to advance community-based mining and legitimate small-scale gold mining operations. Once land with known geological potential is secured, miners can facilitate access to financial services, markets, and extension services, with appropriate de-risking mechanisms in place to improve supply chain transparency.

ii. Capacity building of legitimate MEs on mine-level due diligence.

This activity will convene workshops to educate miners about locally designed certification schemes that establish criteria of environmental and social performance for a more stable and/or expanded markets for traceable gold that is responsibly produced in compliance with the planetGOLD criteria for socially and environmentally responsible mining, comprised of CRAFT code modules and leading international standards. Mine-level due diligence training under this FSP is targeted across the production and value chain to enable responsible, small-scale gold mines to enhance transparency

upstream and shorten supply chains, where appropriate. Experiences with application of the planetGOLD criteria will be integrated into knowledge exchange for the child project, and where appropriate integrated with the global knowledge component to share experiences with other participating countries. Figure 5 illustrate the supply and value chain of ASGM operations in Ghana, adapted for the context of this FSP and identified actors.

iii. Assisting the ASGM miners and financiers in closing the suitable deals.

Although the project will not have full control over the approval process of the loan applications, the project will regularly (on a yearly basis), assess the number of project-supported loan applications that have been approved, the percentage of approvals as well as other relevant statistics (total amount of funding, funding per loan approved, gender-specific information on receivers and amounts of loans, etc.). The results of these assessments will provide an indication of the success of the project in supporting mining entities in the development of their loan applications. The project will keep track on a yearly basis of the number of loan applications approved with project support. If at the time of the Mid-Term-Review, it appears that insufficient loans are being approved, the project will assess whether it must provide loan application training, or whether additional financial support to mining communities/groups should be in place. The recommendations coming out of the Mid-Term-Review (MTR) will then reshape the direction of the project in this regard.

iv. Preparing and validating standard covenants between financiers and organized miners.

This activity will assess existing financial products and lines of credit of financial partners in terms of accessibility and suitability for women and men mining entities and recommendations for their improvement and reconversion processes, like access to local rural savings and credit entities, commercial, national and regional development banks (WB, AfDB), pre-financing from downstream gold buyers, impact investors, and donors and philanthropic investors.

v. *Establish solidarity microfinance funds aimed at women-led Village Saving & Loan Associations (VSLAs) in gold mining communities.*

The project will work with local financiers (for instance, with local rural savings and credit entities) to bring their interest to this sector and at the same time, with formal miners' groups and organizations to build their capacity in developing loan/investment applications for mercury-free processing equipment/investments, based on a variety of financial mechanisms suitable for both parties. This activity includes crafting a guidebook for the gold miners in a user-friendly manner to help them with their loan applications. The proposed financial mechanism has not only been shown to be effective for expanding women-led enterprises in mining communities but can provide additional economic security to diversify livelihoods as desired by female headed households, and members of child labour committees to sustain Child Labour Free Zones (CLFZs) in Tier 1 sites.

Table 7. Women-led Village Savings and Loan Associations (VSLAs) in Gold Mining communities of Ghana.

Kering Gold project (Solidaridad)					
Name	**Members**	**Community**	**District**	**Region**	**Mine**
Golden Ladies	30	Nsuaem	Tarkwa-Nsuaem	Western	Rosda Enterprise
Golden Star	26	Nsuaem	Tarkwa-Nsuaem	Western	Shaloniss Co. Ltd.
Agya Paye	10	Atuntuma	Atwima Mponua	Ashanti	Agya Paye Mining
Peace	30	Bibiani	Bibiani Ahwiaso Bekwai	Western North	Ekom Eya Coop.
Emmanuel	30	Bibiani	Bibiani Ahwiaso Bekwai	Western North	Ekom Eya Coop.
	126 (total)				

The Golden Line (Solidaridad)					
Name	**Members**	**Community**	**District**	**Region**	**Mine**
Western Gold	26	Nsuaem	Tarkwa-Nsuaem	Western	
Ye Ye Kor	16	Gyapa	Wassa Amenfi East	Western	Obeng Mining Co.
Anidaso	25	Ntakam	Bibiani Ahwiaso Bekwai	Western North	Solution Mining
Boafuo Kuo	10	Nkatieso	Bibiani Ahwiaso Bekwai	Western North	Beava Mining
Mmaa	27	Nkatieso	Bibiani Ahwiaso Bekwai	Western North	Beava Mining
	104				

Component 3. Enhancing Uptake of Mercury-free Technologies[125]

The area of focus of Component 3 is the creation of supportive, ASGM mercury-free business models and resource efficient production systems. These models will be applicable to different levels of ASGM organizations within mining territories, financial and technical capacity to achieve high gold recoveries through safe, resource efficient practices. Under a holistic approach, the development of a model operation includes prospecting, environmental licenses, relevant registration, analysis of ore, development of work flows, design of processing equipment train, and suitable financing of equipment.

In order to avoid, reduce, mitigate and manage potential impacts as identified in the SESP (Annex 6) like worker health and safety and pollution risks resulting from project activities, a targeted assessment and management of potential social and environmental risks through a*n Occupational Health and Safety Plan* will be prepared and mitigation measures put in place, prior to the initiation of any project activity that may cause adverse impacts, in particular any actions that may lead to or cause environmental and health effects and impacts on traditional local communities peoples, as clearly indicated in Annex 10, *"Environmental and Social Management Framework"*. Risks will be address under under ESIAs during implementation.

In order for mercury elimination efforts and the adoption of alternative technologies to be cost-effective and sustainable, the project will also support ASGM miners in their regularization and formalizing processes under Outcome 1. This is important as miners will need to reach the stage of formalization to be able to access formal financing to access mercury-free technologies. Formalization also leads to more sustainable income opportunities and safer working conditions, and this will benefit the sustained phase-out of mercury in the long-term. Finally, to further increase income for ASGM miners who produce mercury-free gold, the project will also work on establishing partnerships with gold buyers and refiners to establish routes to market for mercury-free mined gold. Responsible cyanidation and direct smelting, where deemed viable with appropriate ore characterization will be utilized as priority flowsheets to produce 7.2 tonnes of gold.

Outcome 3 of Component 3 is: Reduced mercury use in ASGM enabled by the increased uptake of mercury-free technologies by miners.

This outcome aims to address the challenge that mercury-free technologies exist but largely remain under-deployed by Ghanaian miners or hardly used. In addition, it will seek to develop models that are applicable to different levels of ASGM organizations (Mining Entities; ME), financial and technical capacity as well as to achieve high gold recoveries, in order to:

- Demonstrate innovative technologies to reduce and eliminate mercury use in ASGM;
- Pilot community mining concept in three selected jurisdictions;
- Pilot strategies for progressive mine closure planning and financial assurance mechanisms (bonds);
- Support community-based investments in alternative livelihoods enterprises that seeks to reduce unsustainable and harmful mining practices; and
- Document knowledge and promote networking to support policy development and influence.

The pilot projects aim to conduct a deep assessment for identifying *"the best available techniques**[126]**"* and determine business models for mercury-free use in the ASGM sector and enable a sustainable environment beyond project´s duration.

Output 3.1: Municipal and District Assemblies, EPA, Mining Entities (ME), academic institutions, and CSO capacity strengthened to characterize ore and implement efficient mineral processing techniques to reduce mercury use across the mine life cycle.

This output aims to strengthen technical national capacity for sound management and elimination of mercury by developing and implementing three pilot projects to demonstrate how to face different technical, financial and logistics gaps and challenges for the environmental disposal of mercury in Ghana's territory, as a means of deviating from the business-as-usual scenario.

The following incremental activities will be carried out to achieve Output 3.1:

i. Conduct detailed geological investigations in blocked-out ASM zones to identify mineralogy and metallurgical properties of gold ore.

Small-scale gold miners use a range of mining methods, depending on the type of deposit and where it occurs but rarely have access to geologic data. To optimize technical interventions strategies for Tier 1 sites, geologic analysis and ore characterization is required early on in project implementation. Geologic analysis can be undertaken through fire assay or with either fire assay or *in situ* support from handheld X-ray fluorescence spectroscopy (XRF) devices purchased under the project to assess ore grade, process controls and verify sound chemicals management interventions. Before undertaking full ESIAs, this activity is intended to verify the mineralogy of ores in Tier 1 deposits identified during the PPG as an early activity during project implementation. As indicated in the SESP,

In line with Ghana's NAP on ASGM, this activity aims to increase the amount and improve the availability of geological data in blocked-out ASM zones set aside by the MC; increase funding to the Ghana Geological Survey Authority (GGSA) to upscale mineral exploration activities for small scale miners; and make relevant data on mineralization available and accessible to the public through electronic means and at MC district offices.

ii. Verify Tier 1 sites with social and environmental criteria based on the ESMF.

Based on the proposed Tier 1 sites and through consultation with stakeholders, the targeted project pilot/demonstration sites will be verified. Due to geographic, geologic and differences in the mine production system, scale and stakeholder relations, mining communities will be assessed under the project by a 'formalization diagnostic' (Output 1.1, Act. iii). Based on the assessment of 'formalization readiness', the project plans to pilot a commodity-specific approach to reduce mercury use, support inclusive finance of miners organizations (i.e., MEs), certify origin and enhance mineral supply traceability for responsible gold through simple technology-assisted measures in Tier 1 sites (Output 2.2.) in coordination with downstream partner Argor-Heraeus utilizing physical and/or chemical traceability techniques.

It is important to recognize that ASGM communities in Ghana are dynamic and can change very rapidly. New land claims (legal or customary), changes in national mining policies and regulation can change who is mining where, redistributing mining hotspots and land-use intensity. As this activity will be implemented beginning in the second year, the PMU will remain flexible in its intervention site selection strategy. The ASGM hotspots (mine level) were initially identified in the regions of Prestea-Huni Valley, Wassa Amenfi East, Adansi North District (Tier 1) and (Tier 2) Bibiani Ahwiaso Bekwai and Birim North, as shown in Table 8. Spatial and contextual analysis carried out during the PPG, has also considered how COVID has influenced workforce dynamics (gender disaggregated), gold production, and average gold price in these key areas in response to lockdowns, leading to market disturbances and periodic supply chain collapse. Annex 3 includes a summary of findings on Tier 1 hotspots that could serve as potential sites under this planetGOLD+ Child Project.

Table 8. Gold+ criteria for proposed Tier 1 and Tier 2 sites

Criteria	Description	Site Name				
		Tier 1 Sites			Tier 2 Sites	
		Prestea-Huni Valley	Wassa Amenfi East	Adansi North District	Bibiani Ahwiaso Bekwai	Birim North
Gold production	Access to economically viable gold deposit	Yes	Yes	Yes	Yes	Yes
	Established gold extraction and processing units	Yes	Yes	Yes	Yes	Yes
	Est. annual Au production[2]	7,294kg	6,209kg	10,505kg	6,312kg	4,984kg
Workplace Dynamics	Primary ASGM workforce (miners, processors)[127]	170,000	135,000	175,000	160,000	110,000
	Secondary ASGM workforce (services, equipment)[128]	850,000	675,000	875,000	800,000	550,000
	Women secondary livelihoods (% workforce)	TBC	10%	TBC	TBC	TBC
	Preventative measures: Child labour	Licensed sites	Licensed sites	Child protection committee(s)	Licensed sites	Licensed sites
Hazardous Chemicals	Mercury use (Hg:Au Ratios)[129]	1.2:1 Hard rock	1.2:1 Hard rock	1.3:1 Hard rock	1.2:1 Hard rock	1.2:1 Hard rock
		1.5:1 Alluvial*	1.2:1 Alluvial*	1.3:1 Alluvial*	1.2:1 Alluvial*	1.1:1 Alluvial*
Formalization	Presence of District Mining Center	Yes, Tarkwa	Yes, Asankragwa	Yes, Obuasi	Yes, Bibiani	Yes, Akim Oda
	Presence of informal extraction units	Yes	Yes	Yes	Yes	Yes
	Presence of legally registered Mining Entities (MEs)	Yes	Yes	Yes	Yes	Yes
	Right to exploit alluvial* or hard rock deposit	Yes	Yes	Yes	Yes	Yes
	Access to blocked out ASM zones	Kutukrom and Tinso, Maham	Japa, Nanako (Amenfi East); Ayaboe Hiawa (Amenfi Central), Amoamang (Amenfi West), Nyankaman, Yakase and (Aowin), Elubo block in Jomoro	Gyimiso-Kakraba, Akokeri, Abadwam, Akyease, Adumanu	Dontoko, Edwenase, Asawinso, Mampehia, Bodwease, Nyamebekyere, Juabuso,	Apragya and Twapease
	Coexistence with LSM actor(s)	Golden Star Resources	No, but exploring community mining with prospecting company, Jomoro (Aowin District)	Yes, Anglo Ashanti	Asante Gold	Newmont Akyem (TBC)
Multi-stakeholder Collaboration	Favourable attitude of mining community	Yes	Yes	Yes	Yes	Yes
	Communiy mining licence scheme potential	Priority area	Priority area	Priority area	Yes	Yes
	Favourable attitude of concession owner	Yes	Yes	Yes	Yes	Yes
		Yes	Yes	Yes	Yes	Yes

	Political will of Municipal or District Government					
	Political will of Traditional/Customary Authorities	Yes	Yes	Yes	Yes	Yes
Biodiversity	Avoidance/mitigation of impacts on critical habitats	Yes	Yes	Yes	Yes	Yes
Logistics	Reasonable distance/travel time from urban center	Yes	Yes	Yes	Yes	Yes
	Presence of non-state insurgents/terrorist groups	No	No	No	No	No
	Access to road infrastructure/ basic services	Yes	Yes	Yes	Yes	Yes
	Reliable access to electricity/ network	Yes	Yes	Yes	Yes	Yes

Source: PPG Team 2021

This activity is intended to assess and verify political commitment and alignment to the promotion of mercury-free processing techniques in selected villages/areas in Tier 1 sites. Wherever possible representative MEs or informal miner associations should be consulted through facilitated government outreach to verify arrangements between titleholders and miners, and to build trust and confidence between ASGM stakeholders. As appropriate, representatives from larger sale mining companies and the Ghana Chamber of Mines should be actively engaged in sites verification of formal status. Such 'formalized spaces' offer a framework for facilitating dialogue between legitimate MEs and miners while engaging government and enforcement agencies through a decentralized platform to build local capacity.

In this regard, the planetGOLD+ intervention sites are selected based on recommended intervention area as identified in Ghana's NAP on ASGM. Due to COVID-19 related travel restrictions, detailed definition of the baseline at each site was not possible during the PPG stage. Recommendations for site-level due diligence are provided in Annex 3 to guide project teams early on during FSP implementation noting that additional data on workforce dynamics, hazardous chemicals, concession status, mining rights and multi-stakeholder collaboration criteria are critical for transparent planetGOLD+ site verification.

iii. Design appropriate mineral processing and extraction methods that are mercury-free for Tier 1 sites.

Following ore characterization, specific flow sheets utilizing direct smelting and cyanidation will be developed with close coordination between the University of Mines and Technology (UMaT), the GGSA and Minerals Commission. The success of both processes depends on the geology, mineralogy and metallurgical properties on the gold-bearing ore. Consequently, geological investigation is very crucial to understand and design tailored mineral processing and extraction methods that are mercury-free. When these parameters are known the design of appropriate concentration methods and machinery is easier to extract the gold through direct smelting. Drawing on interactions with stakeholders including miners, any successful mercury-free method must be available, easy to use and affordable and it must be tailored to specific ore types, linked to Output 3.1. Act i.

Table 10 shows estimated gold production from alluvial land and hardrock sites from the NAP and highlights the GEB of 9 metric tons of mercury avoided from ASGM through the adoption of alternatives.

Table 9. Estimated gold production and mercury use in visited districts (2019).

Type of ore	District	Average gold production per miner (miner/yr)	Number of miners *	Total estimated gold production (kg/yr)	Average Hg: Au ratio	Total Hg Use (kg/yr)
Hard rock	Tarkwa	86.4	51000	4,406	1.2:1	5,288
	Obuasi	45.6	8750	399	1.3:1	519
	Asankragwa	60.9	33,750	2,055	1.2:1	2,466
	Bolgatanga	31.5	61750	1,945	1.1:1	2,140
	Akim Oda	22.5	11,000	248	1.2:1	297
Sub-total			166,250	9,053		10,710
Alluvial (Land Base)	Tarkwa	37.5	77,000	2,888	1.5:1	4,331
	Obuasi	82.5	122,500	10,106	1.3:1	13,138
	Asankragwa	61.5	67,500	4,151	1.2:1	4,982
	Bolgatanga	1.5	3,250	5	1.1:1	5
	Akim Oda	61.5	77,000.0	4,736	1.1:1	5,209
Sub-total			347,250	21,886		27,665
Total, t/y			513,500	30.9	1.25	38.4
GEF reduction target		-	-	**7.2 tons**	-	**9 tons**

Source: Ghana's NAP on ASGM (2021)

Based on the Ghanaian situation, the average factor of mercury utilized per unit of gold produced is 1.25. It is estimated from the study conducted during the NAP and refined during the PPG phase, that the amount of gold processed within the project sites is 30.9 t/y. Considering proposed sites[130] for this project, the estimated mercury use for Obuasi, Asankragwa, Tarkwa and Bolgatanga and Akim Oda is 38.4 t/ y (10.7 t in hard rock mining, 27.7 t in land-based alluvial mining). The GEF GOLD+ mercury reduction target for Ghana is 9 t over five years. Components on formalization, financial inclusion and knowledge sharing are measures to ensure results are sustained, resulting in 27 t of mercury avoidance 10 years after project. To reach the GEF reduction target an estimated 7.2 t of mercury free gold would need to be produced during the project life span.

The project promotes responsible cyanidation in accordance with EPA regulations and leading practices set forth in the International CN Management Code (ICMC). Direct smelting of high-grade concentrates has also been selection as the second mercury free flow sheet. Both mercury-free technologies will be optimized following detailed ore characterization and mineralogical analysis

iv. Validate processing and extraction methods with miners and legitimate MEs for Tier 1 sites.

The current mercury free technologies for the ASGM sector in Ghana are direct smelting and small-scale cyanidation. Direct smelting, where circumstances are appropriate and minerology is amenable, can be applied to high grade concentrates while cyanidation can be applied to whole ore. In practice, direct smelting can be utilized for small amounts of high grade concentrates, however given that miners can easily return to mercury use when using direct smelting, careful considerations must be made to ensure production circuits remain mercury-free. The project aims to validate proposed flowsheets and mercury-free technologies with mines and legitimate MEs to ensure adoption and progressive diffusion overtime of changes proposed in the FSP. The validation process will process will involve field-based tests, focus groups, key informant interviews with miners and anonymous surveys to collect negative and positive feedback. To ensure processing methods are appropriate, this activity serves to assess barriers to the adoption of certain technologies and assess perceptions of miners to better inform training approaches, strategies and training modules, while building trust and confidence between executing partners, responsible parties and project stakeholders in Tier 1 jurisdictions.

v. Conduct a gender impact study of introduction of new technology including mitigation measures for female labour displacement.

Gender division of labour creates both risks and opportunities for technical interventions under the FSP. This activity aims to 'do no harm' through careful gender-based analysis of how technology may differentially impact female labour in artisanal and small-scale gold mining. Baseline line defined in the Gender Action Plan (Annex 11) will form the basis to inform the design a gender impact analysis on the introduction of new technologies, with special attention to women who use manual processing techniques and are especially vulnerable to displacement when production systems, mechanization and throughput are increased. Furthermore, possible risks in workplace exposures to harmful chemicals will be further assessment and manage through mine-level due diligence and ESIA recommendation and corresponding management plans.

This activity aligns with Ghana's NAP, Article 7, Annex C (g) Strategies to prevent the exposure of vulnerable populations, particularly children and women of child-bearing age, to mercury used in ASGM, as well as stated objectives to mainstream gender across all technical interventions to leave no miner behind. This risk is identified directly in the risk register (Annex 7) and address with specific mitigations measures as defined in the UNDP SESP.

vi. Conduct alternative livelihoods audit and identify support services for displaced women, men, youth and vulnerable persons.

The project recognizes each mining community is unique and changes overtime. To ensure the project accommodates for all, and adopts an integrated, holistic and multisectoral approach to all interventions under the FSP, an alternative livelihood audit will be duly carried out to identify support services for women, men, youth and vulnerable persons who may be affected by the project. This risk is identified directly in the risk register (Annex 7) and address with specific mitigations measures as defined in the UNDP SESP.

Output 3.2: Assay lab, processing plants and training center(s) established to promote resource efficient gold mining in ASM-LSM zones/areas, with clear provisions for sound tailings and waste management.

The project will provide technical assistance to the installation of at least three (3) mercury-free ore processing pilot plants in three (3) different project locations (with funding structured by the FSP under an innovative financial mechanism or a project co-financier). These training plants will be mercury-free processing facilities where miners can engage in hands-on mineral processing experiments with their own ore, determine gravity of recoverable gold

yields (and prepare samples for analysis in a lab using best practices and technologies), and decide on methods for all the different ores produced. As an alternative to toll mills, off take of direct ore purchase from miners following grade verification with assay technology. These pilots will serve as a proof of concept for technology-assisted mineral supply chain due diligence developed and tested in each of the target locations.

Recently, a private Ghanaian company - Commodity Monitor - has been licensed by the Minerals Commission as service provider for the ASGM sector. They market an integrated mercury-free mineral processing plant which costs roughly USD $50,000. The processing plant consists of crushing, milling and concentration units. The plant has been tested and it has been successful in some selected sites. The project aims to promote private sector innovation and encourage private public-partnerships to scale successful technologies beyond lifetime of the project. The project aims to work with Ghanaian private sector and international partners to support resource efficient production systems and pollution prevention measures.

The selection of the project demonstration sites have followed a set of criteria as described in Annex 14, which includes compliance with overall governance, gender, technical requirements, community participation, climate change vulnerability, potential improvement and security and safety; complementing the geological and technical aspects. During the PPG, the analysis of the proposed sites also considered that the project should not infringe on the protection of critical habitats and biodiversity; as well as cultural heritage. Additional criteria on gold production, workplace dynamics, hazardous chemicals, formalization, multi-stakeholder collaboration, logistics and impact are outlined in Table 8.

The following incremental activities will be carried out to achieve Output 3.2:

ii. Conduct feasibility studies to select suitable sites to establish assay, processing plant and training center.

A feasibility study is a comprehensive study of a mineral deposit in which all geological, engineering, legal, operating, economic, social, environmental and other relevant factors are considered in sufficient detail that it could reasonably serve as the basis for a final decision by a financial institution to finance the development of the deposit for mineral production. In mining, a feasibility study is an evaluation of a mineral reserve to determine whether it can be mined effectively and profitably or not. It includes the detailed study of reserve estimation, mining methods evaluation, processing technique analysis, capital and operating cost determination and the process effect on environment. In this FSP, the feasibility study can be considered in two stages: prefeasibility and detailed feasibility. Both stages are similar in term of content. The difference exists in the accuracy and time required to perform the studies. This activity will be conducted in close coordination with Output 3.1., Act, v related to site-specific ESIAs for processing plants.

Based on results obtained from Output 3.1. feasibility studies will be carried for Tier 1 sites, in close coordination with UMaT and other private sector partners. Specific topics will be confirmed during arly on in implementation but may include Geology and Resource: Mine design and Mineable Reserve; Metallurgy and process facility: Tailings disposal: Infrastructure development; Power supply; Water; Environmental risks; Other key parameters; Cost estimation; Financial Evaluation and Sensitivity Analysis.

iii. Procure and assemble assay lab, processing plant and training facilities in Tier 1 sites.

This activity will develop a procurement plan in accordance with UNDP and UNIDO procedures to purchase, transport and installation of assay labs, processing plants and appropriate training facilities to support demonstrations throughout the lifetime of the project. All technical specifications of materials and equipment will be defined, verified and validated with experts in Output 3.1. Act.i. In alignment with UNIDOs approach to resource efficiency, and requirements of the UNDP SESP all plants will undertake special due diligence and risk mitigation measures where cyanidation plants are installed. Each plant will be equipped with training facilities for classroom lectures of will be furnished with simple equipment to allow for presentations, working sessions and serve as a hub and repository for communications mat4erials developed under the project. Responsible partied UMaT and the GGSA will be encouraged to maintain close coordination with the Minerals Commission, District-level government and relevant multi-stakeholder mechanisms as defined under Component 1 of the project.

iv. Conduct demonstration and trainings for miners.

Once all processing plants are established and operational in Tier 1 sites, systems will be tested to ensure systems are optimized before demonstration and training sessions for miners are held on site. Baseline assessments will be undertaken prior to demonstration trainings, to assess language, literacy and other requirements for Tier 1 sites. This activity target to train 1000 trainers (500 men and 500 women) trained and applying knowledge from training manuals and modules developed under Acv. Iv. All participants will receive certificates of attendance, and for more advanced students attending multiple training sessions and successful completion of several modules may be eligible able to apply for a skills-based training certificate endorsed by UMaT and GGSA to legitimatize, professionalize and ultimately promote the ASGM sector's inclusion in formal education systems vs. project-based educational programs alone. Last, special attention will be paid to ensure gender balanced demonstrations and ensure women, men and youth over the age of 18 have equal access to training opportunities.

v. Develop training manual and modules for accredited ASGM-specific education programs scaled up to professionalize operations.

Decent work deficits are often traceable to shortfalls in good governance, and governments have a crucial role to play. By recognizing ASM as an emerging economy and investing in its potential, ASM-specific education can improve environmental performance, reduce hazards, and safely manage hazardous waste, while professionalizing ASM employment[131]. Improving access to quality education offers a clear path to legitimize informal mining livelihoods, boost productivity, and create incentives to join a formal economy with decent jobs. This activity will focus on strengthening technical capacity for mercury-free processing techniques through implementation of pilot projects to help eliminate worst environmental practices under Article 7, Annex C of the Minamata Convention. Basic modules on exploration, ore characterization, crushing, milling and grinding, gold liberation and process optimization will be presented in accessible workshop formats with complimentary field visits. Mobile Demonstration Units (MDUs), including improved gravity concentration and direct smelting equipment may be used to demonstrate BAT for sluicing of land-based alluvial deposits in remote areas to reach miners.

This activity is intended to build upon technical-economic analysis of the most feasible technologies for Tier 1 sites and develop corresponding awareness raising materials for national and district stakeholders. In addition to completing an inventory of mercury-driven practices in the ASGM sector (Output 1.2, Act. iv), awareness raising materials (i.e., infographic posters, animated videos) on the financial, OHS and environmental benefits of resource efficient alternative technologies, including examples from Tier 1 sites. Utilizing examples of the most feasible technologies, scenarios will focus on optimizing systems for different ores, and understanding environmental hazards (i.e., physical, chemical, biological and occupational). Financial scenarios will be developed based on business as usual and optimized production systems; valuing the experience gained by other child projects under the GEF planetGOLD Global Programme in this matter.

At least 1000 miners (500 men; 500 women) will be trained during FSP execution by professional trainers from UMaT and the GGSA using existing and newly developed training materials and resources, including the use of practical on-site liberation tests to give them the opportunity to observe results firsthand and learn how to obtain such results themselves. The availability of training materials and resources globally assessed in partnership with project partners can be used by this project, and which new ones should be developed with project support, including a module on gender in ASGM.

Among others, this program will consider the following topics: (to be further refined)

- Obtaining mining licenses and environmental permits
- Impact of ASM on the environment
- Occupational, health and safety
- Geology of land-based alluvial and hardrock deposits
- Ore characterization and minerology 101
- Crushing, grinding and gold liberation
- Optimizing gravity concentration
- Mercury-free process 1: Direct smelting
- Mercury-free process 2: Cyanidation
- Waste management and pollution prevention

Component 4. Knowledge sharing and communication outreach

The area of focus of Component 4 provides support on knowledge management and communications, particularly on the topics of formalization and market access and technology transfer to adopt mercury-free recovery technologies. It includes the design of an awareness-raising campaign and information strategy and a programmatic monitoring of FSP global indicators (specifically, GEF Core Indicators 9 and 11 and indicators of the GEF planetGOLD Global Programme), together with a broad dissemination of on-going activities to ensure successful project implementation in accordance with UNDP and GEF procedures. Awareness-raising and gender sensitive training materials will be developed and made widely available in English and other relevant spoken languages of Ghana, as needed.

Outcome 4 of Component 4 is: Knowledge sharing and communication strategies aimed at all ASGM stakeholders to support and increase formalization and mercury reduction developed.

Close coordination and exchange of information and sharing of best practices will be ensured with the GEF planetGOLD+ Global Programme and with the GEF planetGOLD child projects, especially the ones in Africa, which include Burkina Faso, Nigeria, Madagascar, Congo, and Uganda. Knowledge products and lessons learned at local and national levels will be shared with the Global Programme, which will make these experiences available through the planetGOLD platform and other outreach strategies. This will foster a community of practice among participating countries and will allow for the sharing of successful models with a wide range of global actors andstakeholders. This Child Project will participate actively in international meetings and events, such as the Global Forum (organized by the Global Programme), an annual sharing event to facilitate face-to-face (if it is feasible due to the COVID-19 pandemic), meetings between ASGM experts and practitioners, governments, gold buyers and miners to support ongoing experience exchanges, as well as the development of global expertise and capacity-building on ASGM issues and networking and learning, to influence the global ASGM dialogue agenda and policy development (in line with COVID protocols).

The focus of planetGOLD's global component – "knowledge management, communication and outreach" is to "unify and coordinate efforts among all the GEF GOLD child projects and disseminate knowledge generated to a wider audience to help Parties achieve the Minamata Convention obligations to reduce and where feasible eliminate mercury use in ASGM. Under this sub-component, a dedicated planetGOLD website has been developed, hosting a knowledge repository which has materials in the knowledge areas of formalization, technical solutions, awareness raising and access to finance. The website also has links to each of the child project countries, like this FSP, and will be an important source of information for the ASGM situation in Ghana. As an existing coordination mechanism, the MCIC will play an important role in designing and implementing the communications strategy for GOLD+ Ghana and ensuring national coordination. In order to provide input into monitoring and evaluation of the planetGOLD programme as a whole, the project will provide regular reporting to the global project on key indicators, activities and areas of progress. Furthermore, the project will also actively participate in various internal program-wide coordination events, to enhance ongoing communication and knowledge sharing among the projects of the planetGOLD program.

Coordination with Outcome 4 of the EHPMP, WB formalization, related USDoS and other projects to avoid overlap with this FSP is critical. As the EPA is responsible for/involved in implementation of all above mentioned projects, intra-ministerial coordination will be required at least twice a year between implementing actors. A GOLD+ project advisory board consisting of representatives from these projects and organizations should be considered. This will also allow for a holistic approach of efforts regarding ASGM, also benefitting from supplementary activities which will increase overall success of the different projects.

Output 4.1: M&E and adaptive management applied to capture best practices for Hg-free technologies, lessons learned from JAs and related policy processes recorded and disseminated in Tier 1 mining jurisdictions and neighbouring GOLD+ countries.

This output will support capacity building, knowledge sharing and communication across the different components and will include a focus on maximizing the impact of communications at the local miner level. This output proposes using online education and digital marketing tools to support the traditional participatory workshop and training model to help institutionalize sustainable mining methods at the community level; given the sanitary measures imposed by the health authorities, due to the COVID-19 pandemic.

Since the general level of knowledge on mercury is moderate in the Ghanaian ASGM sector and the surrounding communities, it is recommended to develop effective communication aiming at a reduction of exposure in the ASGM sector, resulting in improvements of levels of knowledge and awareness. It will also incorporate important lessons learned from the Minamata disease, in particular the serious adverse health and environmental effects from mercury contamination, and the need to ensure proper mercury management. The information and communication outreach strategy that will be developed and implemented as part of the project will contain important elements related to gender.

The project results as outlined in the Project Results Framework (Section V), will be monitored periodically during implementation to ensure the project effectively achieves these results; these will be reported in a public Mid-term Review and the Final Evaluation Report. Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the UNDP POPP and UNDP's Evaluation Policy.

As a standard practice for every UNDP project, continuous monitoring of FSP results and achievements will be ensured, while the application of adaptive project management after conclusion of the Mid-Term Review will be also warranted. The Project Management Unit (see Section VII below on Governance and Management arrangements for detailed information) will design the project´s Monitoring and Evaluation (M&E) system and will be responsible for implementing the project´s M&E plan, including the project´s Inception Workshop, annual planning workshops and the GEF Project Implementation Report (PIR).

For M&E, technical and institutional capacity, and information will be needed to address climate vulnerability and enhance project and place-based resilience. This Output will develop a Monitoring, Evaluation and Learning (MEL) strategy, implementing and evaluating the selected climate vulnerability management options in the selected project pilot locations over the project lifetime and evaluating the projected impact uncertainties beyond that period.

As indicated in Output 1.2, Act. iv, implementation and monitoring of identified risk management and mitigation measures is required throughout the life-cycle of the project. During project implementation, certain circumstances require the revision of the completed design-stage screening. These include, but are not limited to: (a) where new information becomes available such as through a social and environmental assessment, (b) where there are substantive changes to the project (e.g., changes in design, additional components), or (c) where changes in the project context might alter the project's risk profile. If the revised screening results in a higher risk category then the revised SESP needs to be reviewed by the Project Board or a subsequent Project Appraisal Committee (PAC) process (and where relevant by the GEF). The UNDP Risk Register (Annex 7) should be updated accordingly.

The following incremental activities will be carried out to achieve Output 4.1:

i. Designing and implementing an information and communication outreach strategy.

This activity will develop and maintain extensive social media coverage and campaigns for a range of audiences that provide awareness of the social, economic and environmental dimensions of the sector; in alignment with the planetGOLD Global Communications Strategy[132]. Media campaigns and communication tools with a balanced narrative on *galamsey* will be used to inform the general public, ASGM communities and local schools on the dangers of mercury and cyanide use and possible solutions, also, highlighting the significant development potential of formal ASGM, taking gender-based risks and the unique circumstance of Ghana into account. By the end of the project, public entities, mining communities and the general public will have a more sophisticated understanding of the ASGM sector. The MCIC will play an important role in designing and implementing the strategy, with clear roles for different sub-groups on issues of environmental management, finance, public health, gender, mercury-free gold production, and core themes defined by project stakeholders.

Among others, this approach will include:

Ø Taking advantage of different communication channels including community radio broadcasts in appropriate languages of Tier 1 communities, mobile app technologies, written press and spaces such as District Mining Committee meetings, alongside mining dialogue events and outreach evens facilitated by key partners such as the Ghana Chamber of Mines to share messages on socially and environmentally responsible mining practices, with an emphasis on positive examples of community-based mining practices, allocation of ASM zones for mining entities and examples of ASM-LSM coexistence.

Ø Knowledge sharing and best practices on social and environmental risk management and safeguards will be transversally considered as part of this Component. Lessons learned from JA pilots, underpinned by SESA principles and an integrated, holistic approach at the sub-national scale. It is important to note that a SESA process will be applied to the piloting of the JA to optimize land allocation (Output 1.2).

Ø In line with the NAP on ASGM, developing and implementing an award scheme for miners with good mining and environmental practices in Tier 1 sites to be coordinated through GNASSM, Ghana Chamber of Mines and relevant private sector partners from the larger scale mining industry. Calls for submissions and results will be co-developed and disseminated through jointly issued newsletters from GOLD+ Ghana and the Chamber of Mines as leading voice of the mining industry.

Ø Setting up an interactive platform on artisanal mining (such as telecentres) in ASM communities - where available - to be permanently informed, as a knowledge management space where miners and the community have free access to information about technologies on artisanal mining, on dangerous effects of mercury, the practical processes to eliminate mercury completely from mining and the need to integrated mine closure planning and progressive, regenerative rehabilitation using approaches such as physical land recontouring (technical rehabilitation) and applied nucleation (revegetation).

Ø FSP communications utilize planetGOLD+ and country logo and brand assets for all communication materials, adhere to planetGOLD+ style guide and messaging guide in production of external materials, adapting global messages to national context, share and store both raw and edited photo files, video files, graphics, and other visual assets in a timely manner with the global project via a shared Google Drive for global promotion and dissemination.

Ø Country project communications officer will participate in programme communications network, including regular calls, digital communication platforms, trainings, and notification to the global project of significant comms-related activities or story leads at country level.

Ø Publish at least one original blog article per year on planetgold.org, notifying global project for incorporation in global editorial calendar.

Ø Share relevant (non-confidential) project materials, approaches and documents that may provide relevant information or serve as examples/models to other country projects. Examples of such material may include information on selection of Hg processing systems; due diligence pilot results; training materials of common interest (for instance, gender in ASGM).

Ø Ensure that all public facing documents produced by the country project are either uploaded to the planetGOLD website or link is provided if the document is housed elsewhere.

ii. Creating synergies with the global planetGOLD+ platform.

The Project Management Unit will ensure that the global project will support the online community of practitioners in Ghana that will be established under the planetGOLD Global Programme which promotes and maintains channels of communication among all planetGOLD project teams, and important external but related initiatives on ASGM, in order to share project results and lessons learned from this Child Project. Under this activity, this FSP will contribute to the planetGOLD knowledge sharing platform and website. Under this activity the project will submit data **once per year** to the global project on:

The programme level indicators:

- amount of mercury avoided
- amount of finance mobilized (disaggregated by gender)
- amount of mercury free/ responsible gold sold to formal markets
- number of beneficiaries assisted in formalization by the project (disaggregated by gender)

Additional global environmental co-benefits for which the project has set targets; Key achievements on project-specific outputs and activities, using template provided by global project, including reporting on efforts to ensure that all planetGOLD beneficiary mining entities conform with the planetGOLD Criteria for Environmentally and Socially Responsible Operations; The project will also provide **narrative reporting quarterly** to the global project on key activities and areas of progress toward achieving the program and project-specific indicators, using a template provided by global project.

iii. Following up on monitoring indicators.

This monitoring will include the Project Results Framework with outcome indicators, GEF Core Indicators, planetGOLD Global Programme, baseline and annual target indicators. The monitoring will capture and track progress regarding attainment of the program's results, adherence to the results framework, program functioning as an integrated effort, and how well this Child Project is working together with the other child projects and complementing each other.

iv. Carrying out the "Mid-term Review" (MTR).

The MTR will be carried out after the second submission of the Project Implementation Report (PIR); it will assess the progress of each project activity and attainment of the project's indicators presented in the Project Results Framework (Section V) and Multiyear Workplan (Annex 4). This review will also consider one Gender Assessment of project impact completed as part of MTR and the disbursement of financial resources and co-financing provided by project partners, and it will monitor and assess administrative aspects for the execution of the project. The MTR will also inform the adaptive management of the project and improve its implementation for the remainder of the project's duration.

v. Carrying out the Terminal Evaluation (TE).

The TE aims to evaluate whether all planned project activities have been developed, resources granted by the GEF have been disbursed and spent in line with GEF and UNDP policies and rules, and in accordance with the activities as set out in this Project Document. The Terminal Evaluation will also extract and identify lessons-learned, how to disseminate them most efficiently, and make recommendations to ensure that project results become sustainable.

Output 4.2: Miner, investment and CSO focused communication strategies explored, tested, deployed and scaled up.

The objective of this output will be to implement an awareness raising campaign and information strategy targeting key stakeholders among miners, investors and committed CSOs to create awareness, allow request for and capture of feedback, both at national and mining-community-levels. MEs, GNASSM, Tier 1 financial institutions, commercial banks, impact investors, mining companies and downstream partners (refiners) will be strategically assessed for perceptions through pre- and post-evaluations, interviews and online polling during virtual meetings, and in person through mobile app technology to ass near real time opinions.

The following incremental activities will be carried out to achieve Output 4.2:

i. Implement a strategy on gender perspective that includes a Gender Action Plan on the elimination of mercury.

The project's gender expert, to be retained by the project, will ensure that all activities meet the differentiated needs of female and male miners. Annex 11 presents the Gender Action Plan, as such, the gender aspect should consider triggering entrepreneurial opportunities for women to improve family income and meet basic family needs and avoid exposure to mercury, as well as the protection of populations at risk, especially the most vulnerable (elder population, boys, girls, women of childbearing age and pregnant women), through health-care regulations. As a crosscutting theme, gender will be mainstreams for all activities under Output 4.2, with special attention to the active role of women and youth in technical workshops, training and communications outreach.

ii. Implement a Health Education Programme (HEP).

Since there is a strong need to connect health and social workers in tackling human health monitoring or community health issues, a hands-on Health Education Programme (HEP) will provide health care public workers and teachers - at the community level - with the capacity to assess cases of mercury poisoning in a timely fashion and to effectively manage them, by building proper community preventive health education and neatly supplemented efforts to raise awareness of the health consequences of mercury use and exposure, and mobilizing the community - through teachers and students - in order to lead into a more sustained impact, in close coordination of the Ministry of Health with other umbrella organizations, like the Ministry of Health, and build upon lessons learned from complimentary programs on public health.

The HEP will address the general risk of mercury, groups at high risk, potential routes of exposure (indirectly via diet for inhabitants and directly for gold miners), related health effects, and possible protective or avoidance measures, targeting health promotion and awareness raising for miners, and health care workers for management of mercury-related health effects and other health problems related to ASGM.

iii. *Carry out technical workshops to disseminate the main findings of the FSP with miners, investors and CSOs.*

Among others, the following actions will be implemented duly programmed on an annual basis:

Ø *Miner-to-miner* exchange in order to discuss and share experiences related not only to the implementation of sustainable mercury-free interventions in 'Tier 1' sites but also to resolving grievances related to the enforcement of national and district regulations.

Ø Training workshops so that all miners can learn about improvements in gold liberation, crushing and grinding of gold ores, simple and at the same time more technologically advanced methods to concentrate the ore and eliminate the minerals that are not of interest, appropriate disposal of the by-products, and best management practices to create a safer and more productive mining area.

Ø Publication of technical, economic, and legal information on mercury and mercury compounds, including toxicological, eco-toxicological and safety information (in accordance with Article 17 of the Minamata Convention). This information needs to be adapted to the educational level of the target audience in Ghana (taking into account the most appropriate language for Tier 1 sites).

Ø Systematization of the experiences of artisanal and small-scale miners, their communities, obtaining lessons learned, rescuing all the knowledge accumulated over years, testimonies and life stories and good practices of the sector, for the generation of guides and/or manuals on best practices implemented in the sector, for the knowledge of users. These experiences should integrate technical, financial and social aspects of the ongoing activities and FSP progress.

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

1. This Program is directly aligned with the Chemicals and Waste Focal area, Industrial Chemicals Program which seeks to eliminate or significantly reduce chemicals subject to better management, in this case of mercury in the framework of the Minamata Convention. The relevant focal area element is CW-1-1: *"Strengthen the sound management of industrial chemicals and their waste through better control, and reduction and/or elimination".* A specific objective within the Chemicals and Waste Focal Area, Program 1, is the reduction and elimination of mercury from the ASGM sector, which requires high levels of innovation and integration, with holistic interventions capable of sustaining impact beyond the lifetime of a GEF project. It responds to GEF 7 program principles of building on or using existing networks, regional, national and sub-national institutions.

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

2. As follows, these are the expected contributions from the Baseline, the GEFTF and Co-financing for each component.

Component 1: Formalization optimization of ASGM.

5.1 Contributions from the baseline:

· Ghana signed the Minamata Convention on Mercury in September 2014 and ratified it on March 23, 2017. As part of activities undertaken and planned towards implementation of the Convention, a Minamata Initial Assessment (MIA) was prepared in 2018 and National Action Plan (NAP) for ASGM sector has been developed and official endorsement anticipated in 2021.

· ASGM operations represent a major economic sector for Ghana, accounting for approximately two thirds of national gold exports which are mainly performed on an informal basis, and where mercury use in gold extraction remains a major issue of concern for the country as a whole.

· However, Ghana needs to overcome a sectorial context that encompasses a series of institutional, legal, social, financial, and environmental gaps that delay the national capacity to comply with the obligations under the Minamata Convention, in an environmentally sound management approach.

5.2 Contributions from GEFTF:

· Support capacity building of environmental authorities through the establishment of a programme will provide public environmental authorities with the tools to enhance the reduction/elimination of the use of mercury for ASGM operations over the long term.

· Notwithstanding commitment and political will to reducing, and where feasible, eliminating mercury use, achieving goals of this project will be major challenge without inclusive finance and investing in human capital (skills, knowledge, abilities) of miners and their representative organizations to achieve legalization and facilitate the process of formalization. Of which, financial inclusion, business innovation and technology-assisted mineral supply chain due diligence are critical elements.

· Support, through engagement with the Minerals Commission (MC), relevant agencies in the Ministry of Environment, Science, technology and Innovation (MESTI) and the EPA, can work in partnership to enhance the enforcement of new regulations to accelerate progress on formalization of the ASGM sector. In close coordination with the Ministry of Lands and Natural Resources (MLNR) will forge lasting partnerships at the sub-national level in key mining Directs to ensure coherence with land-use and spatial development plans that are in the process of being issued and/or already released/adopted.

5.3 Contributions from co-financing:

· In Component 1, capacity-building activities, including training and better information management through the promotion of inter-institutional coordination, will allow for the incorporation of innovative approaches along the project continuum not only taking into account the decision making process of the high-level authorities at the national level with policy and regulatory instruments but also including specific actions for the proactive participation of the miners, mainly traditional local communities, to ensure safeguards are put in place as an overall approach for Ghana to comply with the Minamata Convention, Article 7/Annex C to advancing formalization efforts.

· The project's approach will require commitment and collaboration (technically and financially) from District-level Governments, District Mining Committees (DMCs), MEs, the private sector, NGOs and academia to achieve the projected outputs, outcomes and project targets. In particular, support from the LSM operators will be critical to enhance peaceful ASM-LSM coexistence zones and tributer systems.

Component 2: Financial Inclusion and Responsible Supply Chains.

5.4 Contributions from the baseline:

· As described in the Theory of Change, for miners, one of the most significant and pernicious barriers to the development of responsible ASGM practices, is access to finance. The deployment of "mercury-free" investments - over the long-term - will require innovative means of accessing inclusive capital markets and capacity building for capital mining investments -under a holistic approach - to enhance global environmental reasons for those clusters of populations that depend heavily upon this commercial activity.

5.5 Contributions from GEFTF:

· The GEF funding will assure GEBs in terms of mercury reduction that are additional to the baseline by creating meaningful financial opportunities suitable to the ASGM miners.

· Addressing issues related to small-scale gold mining has required, and will continue to require, mobilization of resources, from government budgets as well as assistance from the GEF. Furthermore, innovative financial mechanisms need to be instituted in order to ensure that miners can purchase mercury-free technologies and maintain financial sustainability. GEFTF resources will be applied to support the advancement of ASGM formalization efforts by piloting a commodity-specific Jurisdictional Approach (JA) on responsible gold production and promote peaceful and symbiotic coexistence between ASM and LSM actors.

5.6 Contributions from co-financing:

· The GoG and project partners, mainly the private sector, will provide substantial and significant co-financing for the execution of pilot projects related to the proposed mercury-free interventions including funding in capacity building for reducing mercury contamination related to the ASGM sector.

Component 3: Enhancing uptake of Mercury-free technologies.

5.7 Contributions from the baseline:

· Ghana signed the Minamata Convention on Mercury in September 2014 and ratified it on March 23, 2017. As part of activities undertaken and planned towards implementation of the Convention, a Minamata Initial Assessment (MIA) was prepared in 2018 and National Action Plan (NAP) for the Artisanal Small-Scale Gold Mining (ASGM) sector has been developed and official movement endorsement anticipated in 2021.

· Notwithstanding commitment and political will to reducing, and where feasible, eliminating mercury use, achieving this will be a major challenge without inclusive finance and investing in human capital (skills, innovative knowledge) of miners and their representative organizations to facilitate the process of formalization, of which financial inclusion, business innovation and technology-assisted mineral supply chain due diligence are critical elements.

· In Ghana, traditional intensive use of mercury for gold amalgamation has changed over time shifting from whole ore to concentration amalgamation.

5.8 Contributions from GEFTF:

· The alternative pathway supported by the GEF should facilitate the lack of access to finance to the deployment of BEP/BAT options. A substantial part of the project resources is budgeted under Component 3[133], accounting for 37% of the GEF funding (excluding project management) which is dedicated to this Component. This action is justified by the need to level off throughout the different complexities of the ASGM mining territories, requiring the involvement of a variety of technical services, territorial approaches and governance issues in the different places.

· Being ASGM the largest intentional use sector and source of mercury-emissions in Ghana releases contributing to about 42.5 (low estimate) to 62 (high estimate) tones per year[134], reduction and elimination costs will be allocated with GEF funding to support the disposal of nine (9) tons of mercury used by the miners who do not have sufficient capital neither access to alternative means to cover mercury-free alternatives. As such project resources will be used in the most cost-efficient way, while optimum effectiveness of the project is achieved by bundling project and private sector resources and efforts.

5.9 Contributions from co-financing:

· In partnership with key stakeholders, the project will establish a support programme to implement pilot projects for individual financially retrained mining entities. The project will subsidize at least three pilot projects identified in the proposal (Annex 3 of ProDoc, Tier 1 sites), but it is important to note that the main share of the costs will be borne with key stakeholders, like ASM/LSM partnerships, CSOs, and bilateral cooperation partners also enhancing mercury-free alternatives in Ghana.

Component 4: Knowledge sharing, communication and local capacity building support.

5.10 Contribution from the baseline:

· In the diverse context of Ghana with insufficient institutional coordination between the ASGM and public sectors, complex cultural and territorial environments and uneven development within the country, the flow of communication will help the Ministry of Environment, Science, Technology and Innovation (MESTI), and the EPA to identify complementarity at the beneficiary level, in order to make the execution of this project cost-effective and resource efficient.

5.11 Contribution from GEFTF:

· A knowledge management system will contribute to a cost-effective expansion and reproduction of project results, by unifying and coordinating efforts between this project and all the GEF planetGOLD child projects in West Africa; and disseminate knowledge generated to a wider audience to help Parties achieve the Minamata Convention obligations to reduce and where feasible, eliminate mercury use in the ASGM sector.

· The FSP will build on the GEF planetGOLD program that is currently being implemented, through the use of an existing knowledge platform, lessoned learned, capacity building materials, data bases, proven technologies and market opportunities. It will also build on existing efforts of the UNEP Global Mercury Partnership.

5.12 Contribution from co-financing:

· The proactive participation of stakeholders at all levels will contribute to the cost/effectiveness of the project. A communication and dialogue platform will ensure adequate planning and execution of activities in line with the project's objectives, environmentally sound management and the deployment of mercury-free technologies, as well as the complementarity with national environmental policies.

6) Global Environmental Benefits (GEBs)

The GEF funding will assure Global Environmental Benefits (GEBs) in terms of mercury reduction that are additional to the baseline in each country. The following Global Environmental Benefit (GEB) of the project at the CEO Endorsement stage is the same as presented at the PIF stage, i.e.: six (6) tons of mercury avoided by the project.

The methodology to monitor the GEBs of this project related to this GEB will be implemented as follows. Under Component 3[135] "*Reduced mercury use in ASGM enabled by the increased uptake of mercury-free technologies by miners*", it is estimated that this amount of mercury will be eliminated during the lifetime of the project. Article 7/Annex C of the Minamata Convention states that each Party should report the measures for the elimination of mercury; on behalf of the GoG, is the EPA and at the same time the Implementing Partner of this FSP. Under this capacity, quantities of mercury eliminated by the mining entities in charge of the pilot projects will be directly reported to the EPA through the monitoring plan carried out by the Project Management Unit (PMU), in accordance with Annex 5 "Monitoring Plan" of the ProDoc.

Furthermore, improved mining techniques will reduce negative impacts from unsustainable mining methods on freshwater, globally significant biodiversity (like fresh fish variety) and natural habitats, due to better management of mining processes can reduce erosion and sedimentation.

The number of beneficiaries is estimated based on the number of miners that will be targeted and the average family size. It is assumed that all family members of a household with a miner will benefit from the project. The total number of beneficiaries is **100,000 (450,000 Women and 550,00 men).** This number will be further revised during the implementation phase and duly reported in the annual PIRs.

7) Innovativeness, sustainability and potential for scaling up.

For the global environment, the strategy of this FSP for greater results is intended to seize opportunities for higher impact in three ways:

- Innovation: This is based on a market driven approach based on a holistic approach adapted to the Ghanian context, which means taking into account all facets of the gold supply and value chain and how they work together optimally for to enhance profits and reduce risks for ASGM operations.

- Sustainability: through integration, this project will harness synergies to trigger local capacity for sustainable change in order to institutionalize efforts based on the need to develop long term relationships with miners and LSM operations, as well as to mobilize access to finance ASGM miners, within the framework of national and international guidelines, in order to sustain the foreseen change for mercury reduction.

- Scale up: this innovative approach will also reflect the fact that this FSP will generate significant lessons and best practices for knowledge sharing and communications that can be intensified in the planetGOLD Global Program, in a way to increase the potential to deliver significant global environmental benefits (mercury-free in the ASGM sector worldwide).

Innovativeness

Component 1 with respect to formalization optimization, the innovative project aspects are related to the fact that the project is based on the assumption that most of the necessary public institutional capacity and regulatory structures need to be enhanced to eliminate the use of mercury in the ASGM sector over the long run; additional support will be predominantly required for the end-users, i.e.: the miners that do not have the educational, technical and financial capacities to trigger a permanent, sustainable change .

The proposed FSP is enhancing formalization in its approach. The approach proposed here is based on the notion that holistic, multisectoral and integrated formalization innovations can deepen mercury reduction in ASGM operations, considering the following factors:

Appropriate legal framework, which promotes management of territorial spaces, not people. A holistic integrated approach, which means taking into account all facets of the gold production and supply chain and how they work together optimally for viable ASGM operations. Multisectoral, which means considering all sectors (e.g. forestry, water, health, environment that are important for enabling an optimally functioning ASGM sector with capacity to

reduce mercury-free use and support sustainability). Inclusivity in policy formulation processes that include all stakeholders, including gender mainstreaming. Inclusion of local context in the institutional arrangements (i.e. miners' organizations, national and local authorities). Local capacity at the district and territorial levels for sustainable change.

Under Component 2, the project will put in place a programme that will provide financial and technical support to financially deprived individual business-as-usual technology holders (the miners), to enable and allow them to operate mercury-free production systems in a socially and environmentally sound manner. An additional innovative aspect of Component 2 is the launch of financial schemes targeting the diverse variety of ASGM operations in Ghana to enhance the sector's financial inclusion and stability.

Much of the effort with regards to financial inclusion will be to educate local financial institutions on the opportunity that ASGM presents, de-risking strategies for the sector and how to provide it with appropriate financial products. This is important for the long-term sustainability of the project as it institutionalizes access to finance for ASGM miners at the local level and recognizes that GEF donor funds can only go so far.

Under Component 3, the innovation related resides predominantly in the aspect that with this FSP's support, Ghana would be able build the necessary capacity to launch –for the first time in a holistic manner- very innovative aspects in terms of capacity building and by the implementation of mercury-free pilot projects, following a cost-benefit analysis based on the selection criteria of the Minamata Convention, recommended feasible alternatives and technological requirements that should be put in place.

Sustainability

The project has been designed to create an enabling framework for strengthening the national capacity for ASGM industry formalization in Ghana to minimize risk to mercury exposure of human beings, in an environmentally sustainable market approach within the framework of the Minamata Convention, Article 7. Local stakeholder engagement should demonstrate that the priority for action is alignment of the artisan gold mining activity with government support under the appropriate regulated context. This step is critical for advancement of community-level issues, advocacy, and long-term sustainability.

In this sense, the sustainability of interventions proposed as part of Component 1 lie in the fact that after this project has been fully executed, Ghana has made substantive efforts to ensure that ASGM mining operations can strengthen mineral tenure, issue licences and build the capacity of District Government, District Mining Centers and ASGM actors' assess, plan, and implement sustainable formalization interventions which can be managed in a cost-effective, sustainable way. The approaches provide strategies that will integrate ASGM formalization into community land-use planning, conservation and livelihood security as well as drawing stronger political and stakeholder commitments to advance formalization efforts. Application of integrated land-use planning tools will provide an additional path to ensure the sustainability of this Child Project over the long-term, through optimized land allocation. The establishment of a support programme for individual gold miners who are technically and financially constrained, will be fully engaged; ensuring also a significant reduction of the use of mercury for these stakeholders over the long run.

For Component 2, this FSP has considered the fact that current technologies (grinding mills) will be modified and updated thanks to the availability of innovative financial schemes with the proactive role of financial institutions and impact investors, guaranteeing project sustainability, which aims to phase out the use of these technologies and replace them with feasible, safe and cost-effective alternatives, if feasible. In accordance with these actions, the project will build the necessary incremental capacity for the validation over time of the alternative technologies, and after the project ends, these financiers will continue to finance ASGM operations in a sustainable way, as stipulated by Minerals and Mining Act, 2006 (ACT 703) and relevant mining, environmental, labour and workplace safety regulations, ensuring sustainable operations.

Through the financial scheme developed under Component 2, it is foreseen that legally-established community groups will increase investments in alternative technologies by fostering their business activities in terms of gold recovery, environmental management and by enhancing the collaboration between these groups and interested financiers. The ultimate objective of this component will be to balance benefits for each of the stakeholders to ensure its sustainability.

Under Component 3, the Program should be an opportunity to test new solutions to address the objective of reducing mercury emissions from ASGM, the results of these holistic approaches will be documented in a systematic manner similar to the planetGOLD Global Program where lessons learned from the interventions of the child projects are made available through the planetGOLD Knowledge Management Platform. This allows other ASGM participating countries to identify the management and technical options that best fit their local conditions.

In short, the sustainability after completion of this FSP depends on four main effects aligned with the Development Challenge:

- Ø Improve the institutional and regulatory frameworks. This is in tune with its commitments under the Minamata Convention and in accordance with Ghana's National Action Plan (NAP) on ASGM;
- Ø Increase the flow of local and international investment capital to launch alternatives to the deployment of responsible, mercury-free technologies to sustain the change over time once this FSP is completed;
- Ø Formalization and community-based models linking Hg-free gold production systems with private sector and responsible mining CSOs, improving prospects for sustainability and upscaling, thus decoupling the overall intervention from long term donor dependence; and
- Ø Mercury-free gold processing plants and demonstrations will bring four main benefits to miners and their communities by: a) increasing miner incomes via increased gold recovery rates compared to current practices used, b) decreasing health burdens by reducing miners' exposure to chemical and physical hazards, c) eliminating negative environmental impacts and social stigma of using mercury to process gold ores, and d) promoting safe cyanidation to address an emerging pollution hazard.

Potential for scaling up

The capacity building approach mainstreamed in all components is to ensure knowledge and experiences stay in country within relevant institutions. Under Component 1, to increase the capacity of national and district authorities to assess, plan, and implement sustainable and mercury-free interventions in the ASGM sector and by creating an enabling environment for mercury-free ASGM through improving the national ASGM policy and regulatory framework. When the project comes to an end the increased capacity of national entities and district authorities and the improved and enabling environment to support the community licencing scheme, allocation of ASM zones and where appropriate, models of coexistence, all of which will support societal acceptance of the ASGM sector and encourage the phase-out of mercury use.

For Component 2, the project will partner with commercial banks for high financial needs, Tier 1 financial institutions (including, other impact financiers to make loans/investments for the purchase of mercury-free processing equipment/investments available, more affordable and more easily accessible to formalized ASGM miners. The project will achieve this by supporting lending institutions/entities to develop or improve financial products for the ASGM sector and build their capacity to undertake financial risk assessments, with the purpose of eventually increasing the amount of financing made available through these new or improved financial mechanisms to the ASGM sector. These financial products/mechanisms will continue to exist after the project comes to an end; banking miners is a private sector sustainability proposition that goes beyond donor funds. Where gold deposits exist and miners are well banked, financiers will be available to provide credit and hence continuity and scaling up of program results.

As part of the project, miners will also be trained in how to develop loan/investment applications (also known as 'bankable' documents) for their entities/communities and how to apply for loans. Results of this support will be captured in simple lessons-learned flyers so that information can be easily disseminated and replicated by other mining communities.

The project will demonstrate, by supporting three (3) primary pilot projects in Component 3, that it will be possible to eliminate/avoid the use of mercury to extract gold while increasing the income of miners and their communities. The project will achieve this by supporting three (3) community-based groups at a minimum in introducing more efficient and environmentally friendly mining and processing practices and supporting miners in their formalization processes leading to improved income opportunities and safer working conditions for miners, their families and surrounding communities.

Throughout this process, not only miners and their communities will be trained, but the project will also support the Training-of-Trainers. These trainers will be selected from the mining territories supported by the project but also from project partners (including but not limited to the Ministry of Environment, Science, Technology and Innovation (MESTI) academic institutions, like UMaT and UoG as well as relevant CSOs partners who liaise with or provide services to the ASGM sector frequently. These events will take place at the pilot plants built early in the project that will serve as hands-on training facilities, field gravity recovery analysis and testing laboratories, and will eliminate mercury use and promote responsible cyanide management in leaching circuits in accordance with scale-appropriate adaptations of the CN Code. This will allow these partners to observe and practice improved practices and apply gained knowledge and expertise to support other mining communities in the future. Furthermore, the project will help establish market access for responsible, mercury-free gold with a clear chain of custody, this enabling miners to obtain better prices in accordance with LBMA standards and improve household incomes.

Even though capacity building support will come to an end when the project is closed, the project will have demonstrated that more efficient mercury-free processing and mining practices can increase income. An increase in income is by itself the most convincing argument for replication by other mining territories. Furthermore, trainers will have been trained who can pass on the knowledge and skills obtained on resource efficient mining practices and pollution prevention measures. Results of the support to the district authorities will also be captured in simple lessons-learned flyers so that information can be easily disseminated and replicated by other mining territories.

Throughout the project's implementation, project results, experiences, lessons-learned and best practices will be captured, published, and taken up by the GEF GOLD Global Dissemination Platform, considering the activities planned under Component 4, Output 4.1. The objective of the (UNEP led) GEF planetGOLD Global Dissemination Platform is to unify and coordinate efforts among all the GEF planetGOLD child projects and disseminate knowledge generated (e.g., experiences in formalization, access to finance and market and technology transfer) to a wider ASGM audience to help Parties to the Minamata Convention meet their obligations to reduce and where feasible eliminate mercury use in ASGM. When the project comes to an end these materials and resources will remain available and to serve the wider ASGM community.

In summary, scaling up of project results is being ensured by improving the capacity of the GoG, the district authorities in the mining territories, private sector and miners (among others) in more efficient and lucrative ASGM practices (that also happen to be more environmentally friendly and use less or no mercury) and by facilitating the access of miners to financing/loans that allow them replicate these practices that make sense from a financial point of view (social impact investors) throughout the ASGM Mercury Lifecycle in Ghana.

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[11] World Bank. (2021). Ghana Overview. Retrieved online: https://www.worldbank.org/en/country/ghana/overview

[12] Andrews, T., Gamu, J., Le Billon, P., Oh, C.H., Reyes, D., Shin, J.(2018). The Role of Host Governments in Enabling or Preventing Conflict Associated with Mining. Canadian International Resources and Development Institute (CIRDI), Vancouver, Canada.

[13] Zolnikov, T. R. (2020). Effects of the government's ban in Ghana on women in artisanal and small-scale gold mining. *Resources Policy*, *65*, 101561. https://doi.org/10.1016/j.resourpol.2019.101561

[14] Abdallah, Y. (2017). Gender Norms Perspectives : Women Labour and artisanal small-scale gold mining in Wa East District of Ghana.

[15] World Bank. (2019). Gender analysis from Formalization Project. Accra, Ghana.

[16] **Immediate causes** are the most evident manifestation of the development challenge and determine the status of the problem to be analyzed.

[17] **Underlying causes** are the consequence of a lack of policies and laws, institutional factors and unavailability of resources.

[18] **Root causes** are pervasive and long-standing development performance issues, often related to historical and cultural legacies, which affect development outcomes through attitudes and behavior at different levels, often regardless of policy and legislative changes.
[19] It is important to note that "*formalization*" refers to the overall governance of the ASGM sector; miners themselves are not licensed but rather the site in which they are operating.

[20] These include, mainly licensing, monitoring, and compliance with other existing regulations.

[21] At different times security forces tasked with enforcement of Ghana's mining laws have been deployed into ASGM communities.

[22] Hilson, G., Hilson, A., & Adu-Darko, E. (2014). Chinese participation in Ghana's informal gold mining economy: Drivers, implications and clarifications. *Journal of Rural Studies*, *34*(July 2013), 292–303. https://doi.org/10.1016/j.jrurstud.2014.03.00

[23] Under this FSP Legitimate Mining Entities (MEs) must be identified, evaluated, and verified early on during project implementation to receive access to finance. Legitimate ASM refers to mining entities or miners that are consistent with applicable laws. While in some countries, ASM activities are covered by national laws and regulations, in others, ASM's legality can be unclear. When the applicable legal framework is not enforced, or in their absence, 'legitimacy' of ASM may consider in good faith efforts put forth.

[24] Gender represents an intersection of identity factors, including sex, age, ethnicity, race, nationality, or indigenous status.

[25] ILO. (2020). Exploring the potential for skills partnerships on migration in West Africa and Sahel. Geneva, Switzerland.

[26] There is no clear or universally accepted definition of irregular migration. From the perspective of destination countries, it is the entry, stay or work without the necessary authorization or documentation required by immigration regulations, which often the case in ASGM contexts.

[27] ILO. (2020). Exploring the potential for skills partnerships on migration in West Africa and Sahel.
[28] The Right to Decide: Free Prior Informed Consent in Ghana. (n.d.). Oxfam Ghana. Retrieved from: https://s3.amazonaws.com/oxfam-us/www/static/media/files/FPIC_in_Ghana_FINAL.pdf
[29] ECOWAS Directive on the Harmonization of Guiding Principles and Policies in the Mining Sector of 2009 (ECOWAS Mining Directive 2009) states countries should develop provisions for Free, Prior, Informed Consent but have been unequally implemented in the region.

[30] The 2019 Freedom House Index ranked Ghana, with a score of 83 out of 100 points, as the third freest country in Africa.

[31] World Bank Group. 2015. Rising through Cities in Ghana : Ghana Urbanization Review Overview Report. World Bank, Washington, DC.

[32] World Bank. (2020). Ghana poverty assessment. Washington, DC.

[33] Oxfam (2019). Extreme inequalities in numbers - Ghana. Retrieved online.

[34] African Development Bank. (2019). Republic of Ghana Strategy paper. Retrieved online.

[35] UNDP. (2020). Multi-dimensional Poverty – Ghana. Retrieved online.

[36] UNDP (2017). Multidimensional Poverty in Ghana's ecological zones.

[37] World Bank. (2020). Country Environmental Analysis Ghana. Retrieved online.

[38] World Bank. (2019). Ghana Forest Investment Program (FIN) Enhancing Natural Forest and Agroforest Landscapes Project Document.

[39] The Africa Report. (2019). Ghana now Africa's largest gold producer but reforms await. Retrieved online.

[40] UNEP. 2018. "Global Mercury Assessment 2018". Available at:

https://wedocs.unep.org/bitstream/handle/20.500.11822/27579/GMA2018.pdf?sequence=1&isAllowed=y

[41] Metal Focus. 2019. Gold Focus 2019. Available at: https://www.europeangoldforum.org/wp-content/uploads/sites/8/2019/04/Gold-Focus-2019-compressed.pdf

[42] UNEP Global Mercury Assessment, 2018.

[43] Minamata Convention on Mercury. Article 7 (ASGM), retrieved from: http://www.mercuryconvention.org/Convention/Text

[44] National Action Plan (NAP) on ASGM. (in press). Republic of Ghana. (please confirm preferred citation). Cyanidation of mercury-contaminated sediments is a worst practice under Article 7, Annex C of the Minamata Convention.

[45] Global mining review (2021). Retrieved from: https://www.globalminingreview.com/special-reports/19022021/globaldata-west-africa

[46] McQuilken, J. &, & Garvin, H. (2016). *Artisanal and small-scale gold mining in Ghana. Evidence to inform an 'action dialogue.' Pubs.lied.Org*. https://doi.org/10.13140/RG.2.2.36435.99368
[47] Small Scale Gold Mining Act (1989). Retrieved from: https://asgmresearch.weebly.com/uploads/3/0/1/6/30160743/small-scale_gold_mining_act1989.pdf

[48] Mineral and Mining Act (2006). Retrieved from: https://resourcegovernance.org/sites/default/files/Minerals%20and%20Mining%20Act%20703%20Ghana.pdf.

[49] ASGM Sector Profile for Ghana. (2019). Natural Resources Defense Council, Friends of the Nation and UNIDO. Input for the NAP on ASGM.

[50] Minerals Commission personal communications during PIF design (2020).

[51] Artisanal and Small-Scale Mining Legal Regime in Ghana (2017). United Nations Development Programme (UNDP). Accra, Ghana. Retrieved from: https://www.gh.undp.org/content/dam/ghana/docs/Communications/Report%20on%20illegal%20mining_Final.pdf

[52] Minerals and Mining Policy of Ghana. (2014). Retrieved online: https://www.extractiveshub.org/servefile/getFile/id/798

[53] Hilson, G., Hu, Y., & Kumah, C. (2020). Locating female 'Voices' in the Minamata Convention on Mercury in Sub-Saharan Africa: The case of Ghana. *Environmental Science and Policy*, *107*(March), 123–136. https://doi.org/10.1016/j.envsci.2020.02.003
[54] US Department of Labour. (2019). Findings on the Worst Forms of Child Labor: Ghana. Retrieved

[55] Hilson, G. (2010). Child labour in African artisanal mining communities: Experiences from Northern Ghana. Development and Change, 41(3), 445–473. https://doi.org/10.1111/j.1467-7660.2010.01646.x

[56] International Organization for Migration. (2020). Migration in Ghana. Retrieved from: file:///Users/independentelement/Downloads/mp-_ghana-2019.pdf

[57] CIA World Fact book. (2021). Demographics of Ghana. Population estimated (2020)

[58] International Organization for Migration. (2020). Migration in Ghana: A Profile. Geneva Switzerland.

[59] Chinese miners, equipment distributors (Chang fa) and financers are a defined stakeholder in small-scale gold mining operations.

[60] Crawford G., Botchwey G. (2020) Ghana: Controversy, Corruption and Chinese Miners. In: Verbrugge B., Geenen S. (eds) Global Gold Production Touching Ground. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-030-38486-9_10

[61] UNIDO. (2021). Report of planetGOLD+ Ghana Component 3 technical interventions. Accra, Ghana.

[62] National Action Plan (NAP) on ASGM. (in press). Republic of Ghana.

[63] Amankwah, R., & Ofori-Sarpong,G. (2014). A Lantern Retort for Small-Scale Gold Extraction, *International Journal of Environmental Protection and Policy*. Vol. 2, No. 5, 2014, pp. 161-167. doi: 10.11648/j.ijepp.20140205.13

[64] Ghana defines "forest" as lands that have at least 15% canopy cover, minimum tree height of five meters, and minimum area of one hectare. Closed canopy forest is classified as one with a canopy cover exceeding 60%; open canopy forest is a modified or disturbed natural forest that has 15-59% canopy cover. Open canopy forests are mainly outside of forest reserves (adapted from World Bank and MLNR).

[65] World Bank. (2020). Ghana Country Environmental Analysis. World Bank, Washington, DC.

[66] Mineral Commission. (2019). Mining Policy report.

[67] World Health Organization (WHO). (2016). Environmental and occupational health hazards associated with artisanal and small-scale gold mining. https://apps.who.int/iris/handle/10665/247195

[68] Nakua, E.K., Owusu-Dabo, E., Newton, S. et al. (2019) Injury rate and risk factors among small-scale gold miners in Ghana. BMC Public Health 19, 1368 (2019). https://doi.org/10.1186/s12889-019-7560-0

[69] Tschakert, P. (2009). Digging deep for justice: A radical re-imagination of the artisanal gold mining sector in Ghana. Antipode, 41(4), 706–740. https://doi.org/10.1111/j.1467-8330.2009.00695.x. Local chiefs

[70] Ghana is a constitutional republic with two spheres of government: national and local. Local government is enshrined in the constitution, defined in the Local Government Act 2016 (Act 936). Decentralization is referenced in (Article 240/2).16.2a. Article 35 requires the state *'to take appropriate measures to ensure administrative and financial decentralization and to give opportunities to people to participate in decision-making at every level in national life and government'.* Section 89 of Ghana's Minerals and Mining Act empowers the Minister responsible for Mines, and Minerals Commission act on behalf of public interest to encourage small-scale mining within geographically explicit areas which may be issued by notice in the Gazette, specifying the mineral to mine. Blocked-out ASM areas are designated based on this legal provision and requirements on consultation. Where there is a need for compensation and/or resettlement, Minerals and Mining (Compensation and Resettlement) Regulations, 2012, LI 2175 provides a mechanism for appropriate compensation and resettlement, as required.

[71] Hunter, M. (2020), "Illicit financial flows: Artisanal and small-scale gold mining in Ghana and Liberia", *OECD Development Co-operation Working Papers*, No. 72, OECD Publishing, Paris, https://doi.org/10.1787/5f2e9dd9-en.

[72] Luning, S., & Pijpers, R. J. (2017). Governing access to gold in Ghana : in-depth geopolitics on mining concessions, *87*(4), 758–779. https://doi.org/10.1017/S0001972017000353

[73] Veiga, M. M., Angeloci-Santos, G., Meech, J. A., & Keevil, N. B. (2014). Review of barriers to reduce mercury use in artisanal gold mining. *Biochemical Pharmacology*, *1*, 351–361. https://doi.org/10.1016/j.exis.2014.03.004

[74] Steinmüller, K. (2017). Concepts and Strategies for the Designation and Management of ASM zones: A Contribution to the Formalization of the ASM Sector. Retrieved from: https://www.bgr.bund.de/EN/Themen/Min_rohstoffe/Downloads/studie_management_ASM_zones.pdf?__blob=publicationFile&v=2

[75] Hunter, M. (2020), "Illicit financial flows: Artisanal and small-scale gold mining in Ghana and Liberia", OECD Development Co-operation Working Papers, No. 72, OECD Publishing, Paris, https://doi.org/10.1787/5f2e9dd9-en.

[76] The Copper Mark and Responsible Minerals Initiative. (2020). The Criteria Guide for the Risk Readiness Assessment. See more online.

[77] Defined by OECD DDG as geographic regions where ASGM is linked with human rights abuses, armed conflict or war crimes.

[78] The OECD Due Diligence Guidance (DDG) provides detailed recommendations to help companies respect human rights and avoid contributing to conflict through their mineral purchasing decisions and practices. See more online here.

[79] The LBMA is an independent authority which ensures the highest levels of leadership, integrity and transparency for the global precious metals industry by advancing standards and developing market solutions. Retrieved from: https://www.lbma.org.uk

[80] Retrieved from: https://www.thegef.org/project/development-minamata-convention-initial-assessment-mia-ghana

[81] Retrieved from: https://www.thegef.org/project/national-action-plan-mercury-artisanal-and-small-scale-gold-mining-sector-ghana

[82] Under Article 227 a 'Chief' refers to a person, who, hailing from the appropriate family and lineage, has been validly nominated, elected or selected and enstooled, enskinned or installed as a chief or queen mother in accordance with the relevant customary law and usage.

[83] There is no upper limit on the number of persons stated in the law.

[84] Steinmüller, K.(2017). Concepts and Strategies for the Designation and Management of ASM zones: A Contribution to the Formalization of the ASM Sector. Retrieved online.

[85] National Action Plan (NAP) on ASGM. (in press). Republic of Ghana. (please confirm preferred citation)

[86] Ghana ratified the convention 23/03/2017. Minamata Convention Secretariat. Retrieved from: http://www.mercuryconvention.org/Countries/Parties/tabid/3428/language/en-US/Default.aspx

[87] Average concession size that can be licenced to for ASM operations is roughly 10 hectares. In Ghana, as of 2021 an estimated 15,000 hectares have been set aside for ASM blocked out areas. This FSP will not allocate 'new' land for ASGM activities per se, which may result in physical or livelihood displacement of rural households or traditional local communities, lead to influxes of workers into new areas, cause adverse impacts on critical habitats or biodiversity conservation priorities, or result in damage to cultural heritage sites (see Annex 6).

[88] The policy confines buffer zones to Lands adjacent to rivers, streams lakes and wetlands, and lands at margins of municipal reservoirs and are required to be demarcated on a riparian buffer map. ASGM activities are therefore not encouraged in rivers, streams, lakes, and wetlands, as well as for their relatively small contribution to land-based alluvial and hardrock operations as demonstrated in the NAP on ASGM.

[89] FUNDAMENTALS & ITC-ILO, Mapping interventions addressing child and working conditions in artisanal mineral supply chains, Geneva: International Labour Organization, 2020.

[90] Forced labor is defined as t "forced labor" means work or service that is exacted from a person under threat of a penalty and for which that person has not offered himself or herself voluntarily, but does not include

(a) labor required as a result of a sentence or order of a court;

(b) labor required of a member of a disciplined force or service as his or her duties;

(c) labor required during a period when the country is at war or in the event of an emergency or calamity that threatens life and well being of the community, to the extent that the requirement of the labor is reasonably justifiable in circumstances of a situation arising or existing during that period for the purpose of dealing with the situation; or

(d) labor reasonably required as part of normal communal or other civic obligations.

[91] USDoL CARING Gold project provided an important basis for replication in the ASGM sector as part of formalization efforts and the establishment of responsible supply chains in accordance with OECD due diligence for mineral supply chains.

[92] For the Ghana GOLD+ Child Project, criteria have been adapted to "*optimizing formalization strategies"* with intent to pilot Jurisdictional Approaches (JAs*)* in Tier 1 jurisdictions JAs are a type of integrated landscape approach aiming to reconcile competing social, economic and environmental objectives through multi-stakeholder initiatives implemented within government administrative boundaries.

[93] UNIDO is the lead agency for this component.

[94] UNIDO is the lead agency for this component.

[95] Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt, from *"GEF AGENCY RETREAT: guidance on climate risk screening of GEF projects".*

[96] Artisanal and Small-Scale Mining – Large-Scale Mining (LSM) coexistence refers to the most advanced and inclusive modality of engagement.

[97] As the political and administrative authorities over districts, the primary function of District Assemblies is to promote local economic development including the formulate and execute plans, programs, and strategies for the effective mobilization of the resources necessary for the overall development of the district; promote social development, enshrined in the Local Government Act (2016).

[98] See planetGOLD criteria for socially and environmentally responsible mining. (2021). https://www.planetgold.org/sites/default/files/planetGOLD_Criteria_for_Environmentally_and_Socially_Responsible_Operations_Feb21.pdf

[99] The Code of Risk mitigation for ASM engaging in Formal Trade (CRAFT) aims to facilitate the relationship between the gold industry and the ASM sector, as an enabling tool to advance OECD Due Diligence Guidance while laying out a progressive path toward the mitigation of risks and promoting of responsible mining.

[100] https://www.responsiblemines.org/en/project/model-of-responsible-artisanal-and-small-scale-mining/

[101] Asare, R. A., Kyei, A.,& Mason, J. J. (2013). The community resource management area mechanism: A strategy to manage African forest resources for REDD+. Philosophical Transactions of the Royal Society B: Biological Sciences, 368(1625).

[102] SERVIR Ghana (2021). Service catalogue. Retrieved online: The Monitoring of Artisanal Mining (Galamsey) in Ghana Service.

[103] The EPA and project partners may provide justification for piloting alternative techniques as deemed appropriate during implementation. planetGOLD+ stakeholders, under leadership of the EPA, will receive capacity building support by Conservation International (CI) as lead agency to validate and select the most appropriate tools in line with Tier 1 site-specific ESIAs/ESMPs and cost norms for Component 1.

[104] UNITAR & UN Environment, 2018. Handbook for Developing National ASGM Formalization Strategies within National Action Plans. UNITAR & UN Environment, Geneva.

[105] https://cersgis.org/

[106] For further information, please refer to the following Report: *Review of Jurisdictional Approaches and Considerations for ASGM Programming for the GOLD+GEF Global Program to Reduce/Eliminate Mercury from ASGM. January 2020. NMutemeri Consulting.*

[107] Based on NAP on ASGM (2021) estimates as per Mining District.

[108] Minerals Commission (MC) identified multiple ASGM hotpot villages for Bibiani Ahwiaso Bekwai district as of Sept/Oct. 2021 during PPG consultation. Priority ASGM hot-spots/villages include, Dontoko, Edwenase, Asawinso, Mampehia, Bodwease, Nyamebekyere and Juabuso.

[109] Child labour free zones (CLFZ) are geographical areas where children are systematically withdrawn from labour in small-scale gold mining activities and (re)integrated into childcare or schools. In Ghana, CLFZs have been piloted in landscapes where cocoa and galamsey (small-scale gold mining) provide an important source of livelihood for rural Ghanaians in Western, Ashanti and XXXX regions.

[110] Konstantinos, K. (2020). Social License to Operate in Mining: Present Views and Future Trends. Resources. Retrieved online here.

[111] Legitimate Mining Entities (MEs) refer to verified cooperatives, small-scale businesses or other representative organizations that are complaint with planetGOLD+ criteria for socially and environmentally responsible mining operations. Additional requirements may be added to these criteria to enhance compliance with existing law, regulation and mining policies of Ghana.

[112] Guided by the JA and the SESA (consolidated under climate risk assessment) to assess vulnerabilities at a broader spatial scale, site-level ESIAs will be conducted for selected Tier 1 sites (Districts) comprised of ASGM hotspot/village clusters as assessed during the PPG phase.

[113] UNIDO is the lead agency for this component.

[114] Technologies used by ASGM actors mimic large-scale operations with regards to cyanidation but operate without social and environmental safeguards.

[115] "Financial inclusion" is proffered as the solution for the unbanked; "unbanked" refers to people/entities who do not have access to useful and affordable financial products and services that meet their needs and are delivered in a sustainable and responsible way. https://www.worldbank.org/en/topic/financialinclusion/overview

[116] GHAMFIN is a network of 2143 Non-Bank Financial Institutions' Association, Microfinance Associations (MFAs) and member Financial Institutions (FIs) engaged in the provision of financial and non-financial services. Data from 2020 indicated that GHS 8.3billion (USD $1.36billion at UN Exchange rates GHS 5.955 = 1 USD) in loans were distributed in 2019, where an estimated 15% (GHS 1.2Billion; USD $202M) was dispersed to small-scale miners in the same year. In 2021, this is anticipated to expand to new markets to support the small-scale gold mining industry.

[117] Registered since 2000 as a public limited liability company a mini-central bank for Rural and Community Banks (RCBs).

[118] Building upon previous experience with MDF funds, all planetGOLD+ interventions should aim to further investigate and assess past to finance equipment sharing and lending through active consultation with the MDF as responsible part for Component 2 of the project.

[119] Blended finance' refers to grant contribution (or grant like instruments) that can be used to remove barriers to public or private investments. Blended finance structures are diverse but in general combine official development assistance with other private or public resources, to 'leverage' additional funds and mobilize private capital in frontier markets. In GOLD+, innovative blended finance models aim to serve as a de-risking mechanism for Tier 1 financial institutions, the Minerals Development Fund (MDF) through state-backed loans and grants to sustainably build capacity for MEs to meet social and environmental criteria for responsible, mercury-free mining operations.

[120] Similar model was tested under the World Bank CASM and the MDF providing matched funds can be used as baseline for further insight.

[121] Tier 1 financial institutions are defined as sub-national banks, savings and loan companies and finance houses situated close in geographic proximity to small-scale mining communities and downstream service industries (i.e., transport, equipment, provisions). Given existing relations with miners, these institutions are well-positioned to develop and distribute financial products to legitimate MEs (i.e., cooperatives, small-scale enterprise, or other relevant groups) that are compliant with and meet minimum requirements as defined in planetGOLD criteria.

[122] Refers to the practice of financial institutions exiting relationships with and closing the accounts of clients perceived to be high-risk. With respect to artisanal miners, as many are unbanked or without existing relationships to formal financial institutions MEs often face multiple reinforcing barriers to access legitimate financial products, services, credit, and loans.

[123] In general, these are defined as the ways in which financial resources are made available by a supplier (i.e., donor, financial institution) to organizations that need them, which can have different implications in terms of recovery of capital, expected returns, ownership rights, ect.

[124] planetGOLD Programme. 2021. The planetGOLD Criteria is a CRAFT branch using CRAFT 2.0 (published by ARM, October 2020 www.craftmines.org).

[125] UNIDO is the lead agency for this component.

[126] "Techniques" means technologies used, operational practices and the ways in which installations are designed, built, maintained, operated and decommissioned; as defined by Art. 2, of the Minamata Convention.

[127] Based on NAP estimates (as per Mining District) exclusively for hard rock (primary) and land-based alluvial (secondary) deposits.

[128] 5:1 ratio used for economic spillover effects in line with Hilson and UN Environment (2019) Baseline assessment protocol for ASGM sites.

[129] Based on NAP estimates (as per Mining District) for hardrock and land-based alluvial baseline estimated collected in the field. Under planetGOLD+ proposed alluvial sites, these refer exclusively to land-based alluvial. Project sites will not include dredging operations.

[130] Tier 1 sites will undergo verification with social and environmental criteria in the first year of project implementation. EPA feedback on sites proposed encouraged GOLD+ to select at least one site in the Tier 2 category due to limited information on these areas.

[131] Dales, K. & Ramasamy, J. (2019). Mapping and Assessing the Environmental hazards of Abandoned Mines in Sub Saharan African Countries. UNESCO. Nairobi, Kenya. ISBN: 978-92-3-100360-8.

[132] Please, refer to *"planetGOLD Communications Strategy 2020"* Report.

[133] UNIDO is the lead agency for this component.

[134] National Inventory of Mercury Releases in Ghana (2019).

[135] UNIDO is the lead agency for this component.

1b. Project Map and Coordinates

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

Please, refer to Annex E of this document for detailed geo-referenced information and map where the project interventions will take place.

1c. Child Project?

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

The integrated approach proposed for the Ghana Child Project fully responds to and reflects the planetGOLD+ Programme's ToC as can be deducted from the child project's results framework, around the following components:

§ Optimizing formalization strategies through integrated, holistic, and multi-sector approaches at the landscape scale through commodity-specific Jurisdictional Approach;

§ Accelerating financial inclusion and creation of responsible supply chains;

§ Enhancing uptake of mercury-free technologies through sustainable business models;

§ Foster knowledge sharing, learning, and synthesis of experiences.

All Ghana ´s project components fully align with the programme components, and the child project outputs directly contribute to the PFD and child project outcomes as described in the project's results framework (Section V of the ProDoc). As such the proposed child project proposes suitable and appropriate options to tackle systematic challenges for Ghanawhere the ASGM sector is a more than significant source of mercury and environmental harm.

This child project will achieve tangible and desired transformation including multiple global environmental benefits, highlighting co-benefits of environmental management and compliance of the gold mining sector toward accelerating progress on the Minamata Convention, REDD+, the United Nations Convention on Biological Diversity (UNCBD), the United Nations Framework Convention on Climate Change (UNFCCC), and the RAMSAR Convention in Ghana. As mentioned above, gender mainstreaming will be critical to all project activities, and a Gender Action Plan has been developed to support this.

2. Stakeholders

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

Civil Society Organizations Yes

Indigenous Peoples and Local Communities Yes

Private Sector Entities Yes

If none of the above, please explain why:

Please provide the Stakeholder Engagement Plan or equivalent assessment.

A *Stakeholder Engagement Plan*, described in Annex 9, was undertaken during the PPG to identify key stakeholder public institutions, CSOs, financiers, private companies - in particular - those who will benefit from and be directly involved in the implementation of the project (direct project beneficiaries, i.e., artisanal and small-scale miners) and those who may be impacted (positively or negatively) by the project, such as surrounding communities. Annex 9 describes the process of assessing the interest of the project's key stakeholders and the ways in which these stakeholders may influence or may affect the project's outcomes. This process is important because it enhances national ownership, strengthens project design and integrity, and helps to create foundational relationships that may contribute to constructive problem solving if difficulties or challenging issues arise. Outputs 1.1, 1.2. and 1.3. include specific activities requiring multi-stakeholder dialogue to strengthen and improve relations between district government, mining entities, mining-affected communities, LSM companies, traditional local communities, traditional chiefs, and vulnerable populations, including rural women, youth, and children from disadvantaged socioeconomic backgrounds.

The "*Stakeholder Engagement Plan*" seeks to strengthen UNDP institutional partner capacities for managing social and environmental risks and ensuring full and effective stakeholder engagement, including appropriate mechanisms to respond to complaints from project-affected people. This Plan follows the UNDP Social and Environmental Standards (SES) Guidance Note. For regulations and requirements in Ghana, public consultation and disclosure requirements related to the social and environmental assessment process is a key element of public policies overall, as a guiding process to execute the compliance with *"the Harmonized Commodity Description and Coding System"*, in this specific context, for the use of mercury for artisanal mining operations. Under this regulation, mercury importers are responsible for classifying the hazards, labelling and generating the respective Safety Data Sheet. Thus, given the regulatory framework in which the project will be implemented, it is fully recognized that there are inherent risks for the beneficiaries that FSP interventions will deal with decisions by other stakeholders that may affect them.

Due to risks inherent to Ghana's ASGM sector, a diverse group of stakeholders was engaged during the project preparation stage and their roles clearly stated during its execution, as described in Annex 9. Stakeholders are the miners and public institutions with an *interest* in the project or the ability to *influence* project outcomes, positively or negatively and which are directly or indirectly affected by the project. This Annex also provides an overview of stakeholder interests, importance and influence on project outcomes. Transversally, from the gender perspective, the "*Stakeholder Engagement Plan"* (Annex 9) provides an overview of stakeholder interests, importance and influence on project outcomes or operations that were validated at the PPG stage through a participatory exercise with stakeholders.

The absence of protection for the rights of host mining communities in the Minerals and Mining Act of Ghana (2006) is regarded as a major weakness in existing legislation. There is no official grievance mechanism in place in Ghana. So far, a system has been used whereby complaints in ore managing from ASGM operations can be deposited at the Director of Mining Department of the EPA or designated authority. The EPA has a GRM, which is a system that assists the Agency's clients and the general public to resolve environmental related complaints and grievances in a timely, effective and efficient manner. The goal of the GRM is to make the Agency more accessible and ensure that complaints and grievances from the public are promptly analysed and resolved in a timely and satisfactory manner. The EPA is committed to ensuring that environmental complaints and grievances are addressed at an early stage before it becomes a crisis. The Agency also wants to promote transparency and accountability and increase stakeholder involvement in sound environmental management. All complaints and grievances should be lodged with the EPA:

Attention:

Executive Director; Address: Environmental Protection Agency, Starlets 1991 Street, P. O. Box MB 326, Ministries Post Office, Accra, Ghana.

Telephone: +233 (0302) 664697/664698/662465
E-mail: info@epa.gov.gh

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

To achieve the planned outputs and outcomes of this FSP, it will be necessary to engage various stakeholders, i.e.: National and District policymakers (mainly the Ministry of Environment, Science, Technology and Innovation (MESTI), and Ministry of Lands and Natural Resources (MLNR) of Ghana) with support from other relevant ministries as represented by membership of the Minamata Convention Implementation Committee (MCIC). Their main interest is the achievement of the project's overarching objective of development by carrying out the necessary implementation of national policies, under the mandate of the Minamata Convention, already ratified by Ghana and timely reporting of the Global Environmental Benefits (GEBs) to the GEF, private sector players (mining companies, impact investors and participants in the ASGM mercury market) committed to becoming greener partners as well as integrating gender equality, socio-economic issues and considering relevant risks, including those amid the COVID-19 pandemic.

In short, the implementation of this FSP requires the active participation of numerous and diverse partners. The responsibility of these partners in project implementation and their support for the FSP´s development challenge, are presented in Table 12 below.

Also related to institutional partnerships, there is a group of GEF-financed projects and other initiatives currently under implementation related to the development challenge this project is also addressing, which could provide some additional support to strengthening this institutional partnership approach in the Ghanaian context. Thanks to the involvement of the institutional partners in some of them, under the leadership of the EPA it appears the achievement of the outcomes for this FSP is of mutual benefit. Specifically, this FSP will ensure coordination and count on the capacity built and knowledge gathered from the concurrent projects that are already in progress, as shown in Table 9 below:

TABLE 10: Partners and Stakeholders (as per Annex 9)

Type	Group	Stakeholder	Interest
Public Entities	National Government	Ministry of Environment, Science, Technology and Innovation (MESTI)	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. . It is the focal Ministry for the implementation of Ghana's obligations under the Minamata Convention
		Ministry of Lands and Natural Resources (MLNR)	MLNR has the oversight responsibility for the land and natural resources sector and its functions include policy formulation, coordination, monitoring and evaluation, validation of policies, programmes and project, supervision of sector departments and agencies; and negotiations with development partners. The ministry is thus responsible for the management of Ghana's land, forests, wildlife, and mineral resources which is on direct relevance for the GOLD+ project
		Ministry of Finance (MoF)	The Ministry will assist in the implementation of Component 2 activities through education and collaboration with national and local financial institutions to support products for ASGM actors, conduct capacity assessment financial institutions and capacity building to assist miners to access (revolving) funds.
		Ministry of Local Government, Decentralization and Rural Development (MoLGDRD)	The Ministry formulates policies on Governance including decentralization. It will through local government authorities assists in coordinating multi-stakeholder engagement with District Mining Committees to optimize land allocation through ASM zones and coexistence models with larger scale actors in Tier 1 sites (Component 1)
		Ministry of Gender, Children and Social Protection (MoGCSP)	The Ministry is mandated to coordinate and ensure gender equality and equity, promote the survival, social protection and development of children, vulnerable and excluded and persons with disability and integrate fulfillment of their rights, empowerment and full participation into National development. It will assist in promoting the creation of child labour free zones in Tier 1 sites (Component 1). They will also play important roles in the conduct of a gender impact study of introduction of new technology including mitigation measures for female labour displacement, as well as undertaking alternative livelihoods audit and identify support services for displaced women, men, youth and vulnerable persons (Component 3)
		Ministry of Information (MoI)	The Ministry plays the key role in communicating government development policies and programmes to the public. It is a member of the Minamata Convention Implementation Committee (MCIC) and they will assist in developing and implementing public awareness campaigns on the impact of mercury on human health and the environment (Component 3).
		Ministry of Health (MoH)	The Ministry formulates health policies, set standards and provide strategic direction for health delivery services. It led the preparation of Public Health Strategy for the National Action Plan on ASGM. Alignment will be sought with the public health strategy, prioritizing vulnerable populations as defined in the Minamata Convention (i.e., women of childbearing age, pregnant women and young children). The Ministry will assist in developing training manual and modules for accredited ASGM-specific education programs scaled up to professionalize operations and conduct trainings and awareness raising campaigns to professionalized mining operations (Component 3)
		Ministry of Employment and Labour Relations (MELR)	The Ministry ensures that the occupational safety and health of all workers are guaranteed and assist in developing policies to address issues of vulnerable groups especially women and children to various risks arising from the mercury in artisanal & small-scale gold mining
		Ministry of Trade and Industry (MoTI)	MoTI) is responsible for implementing the Mercury Act and serves as part of the Minamata Implementation Committee.
		National Development Planning Commission (NDPC)	The National Development Planning Commission (NDPC) is established with the core mandate to advise the President on development planning policy and strategy. Among other things, the Commission makes proposals for the protection of the natural and physical environment. NDPC serves on the Minamata Implementation Committee
	Public agencies	Environmental Protection Agency (EPA)	EPA is the leading public body responsible for protecting and improving the environment in Ghana. It is the focal Agency for the implementation of Ghana's obligations under the Minamata Convention. EPA is the Implementing Agency for this FSP, responsible for its delivery and financial management.
		Minerals Commission (MC)	Implement strategies/policies of government regarding small-scale mining and related activities. Monitor and regulate small-scale mining and related issues in the districts. MC will assist in the implementation of formalization efforts, including promoting of the Community Mining Scheme (CMS) establishment of child labour free zones (through the Child Labo

	ur Unit), promote mercury-free processing techniques, and o verall compliance with the Mining Act (2006) under Compon ents 1, 3, & 4.
Ghana Geological Survey Authority (GGS A)	GGSA mandate include geological mapping to identify variou s rock types and possible economic mineral potentials. The Authority is a designated responsible party for activities und er Component 3 in conducting detailed geological investigat ions in blocked-out ASM zones to identify mineralogy and m etallurgical properties of gold ore allowing for estimaion of r eserve potentional and optimizing process flows.
Water Resources Commission (WRC)	Develops and implement integrated water resources manag ement plans to guide the utilization, conservation, developm ent and improvement of water resources. The Commission b e part of the multi-stakeholder approach to conduct and pilo t integrated land-use planning tools to establish ASM zones with private sector and government partners in Tier 1 sites (Component 1). In particular, the Comission has a role to pla y in the provision of riparian buffer zone maps to aovid non-c ompliance with
Lands Commission (LC)	Responsible primarily with the management and administrat ion of state and vested lands. The Lands Commission will su pport activities in piloting integrated land-use planning tools to establish ASM zones with private sector and government partners.
Forestry Commission (FC)	Responsible for the regulation and use of forest and wildlife resources, the conservation and management of those reso urces and coordination of related policies. The Commission will support activities in piloting integrated land-use planning tools to establish ASM zones with private sector and govern ment partner, land-use planning and in carrying out a climate change risk assessment at Tier 1 sites. (Component 1)
Minerals Development Fund (MDF)	The MDF was established by Act, Act 912 passed by Parliam ent in March 2016 to provide a more reliant and predictable source of funding development initiatives in mining commun ities. The mandate of the Fund is to provide financial resourc es for the direct benefit of mining communities, a holder of a n interest in land within mining communities, a traditional an d local government authority within mining communities and an institution responsible for the development of mining in G hana. The broad aim of the Fund is to provide financial supp ort to mining institutions and communities for sustainable d evelopment.
Land Use and Spatial Planning Authority (LUSPA)	The Authority prepares planning layouts for towns and cities and defines Safety Zones/Rights of Way. It also vets and ap proves layouts prepared by prospective developers and spec ifies all reservations based on forecasted land-use plans. It will support activities in piloting integrated land-use planning tools to establish ASM zones with private sector and govern ment partners. (Component 1)
Precious Minerals and Marketing Comp any (PMMC)	The Company operates as Government's assayer with the so le mandate of assaying all gold which leaves the country. It i s also involved in jewelry production. PMMC will assist in de veloping and testing proof of concept technology-assisted s upply chain due diligence (Component 2)
Ghana Revenue Authority (GRA)	The Customs Division of GRA collaborates with the with the EPA in the implementation of chemical regulations including the Minamata Convention on Mercury.
Ghana Health Service (GHS)	GHS and Ministry of Health led the preparation of Public Hea lth Strategy for the National Action Plan on ASGM. Alignmen t will be sought with the public health strategy, prioritizing vu lnerable populations as defined in the Minamata Convention (i.e., women of childbearing age, pregnant women and youn g children). The Ministry will assist in developing training ma nual and modules for accredited ASGM-specific education p rograms scaled up to professionalize operations and condu ct trainings and awareness raising campaigns to profession alized mining operations (Component 3).

		Ghana Extractive Industry Transparency Initiative (GHEITI)	The Governmentt of Ghana and Multi-Stakeholder Group (MSG) address issues of national importance for stakeholders and have made efforts to improve regular and timely disclosures of information, including on beneficial ownership, state participation, contracts, licenses, commodity sales and periodic reporting on the ASM sector. Support the development and implementation of policies to enhance transparency of data and revenues in large and small-scale mining activities in Ghana. Provide advocacy to small-scale mining related activities.
	Sub-National Government	Adansi North District Assembly (Tier 1)	The Municipal and District Assemblies (MDAs) are planning authorities as stated in the Local Governance Act 2016 (Act 936). They have jurisdiction over the project corridors and sites. They grant permits and licenses for development and operation of infrastructure and any other commercial activities. Land demarcation and general development plans of communities lie with the assemblies as well as the communities in consultations with the Traditional Authorities who are custodians of lands in most part of Ghana. The MDAs are key partners in implementing all activites under this project
		Prestea Huni Valley District Assembly (Tier 1)	
		Wassa East Municipal Assembly (Tier 1)	
		Bibiani Ahwiaso Bekwai District Assembly (Tier 2)	
		Birim North District Assembly (Tier 2)	
International Organizations	Cooperation Agency	UNDP	Support the development and implementation of policies for small-scale mining activities in Ghana. Provide advocacy to small-scale mining related activities. Implements projects to improves the formalization o the ASGM sector and provide capacity development for miners and Mining Entities (MEs).
		UNIDO	
		Solidaridad	
		Pact	
		Intergovernmental Forum on Mining, Minerals, Metals, & SD (IGF)	
		USAID	
		NASA	
		SERIV West Africa	
		USDoS	
		USDoL	
		European Union	
		Australian High Commission	
		Canadian High Commission	
		Swiss Embassy	
		ILO Ghana	
		International Cyanide Management Institute (ICMI)	Support adaptation of the International CN Management Code for small-scale operators, where leaching plants are deemed feasible.
		OECD Secretariat	Provide oversight on OECD mineral supply chain due diligence guidance on gold and advocate for coherence between global, reginal and national approaches to responsible mining in Ghana.
	Development Banks	World Bank	Support overall coordination with World Bank projects, IDA credits and GEF-funded projects in Ghana to promote project level cooperation with GOLD+.
Civil Society Organization	NGOs	Friends of the Nation	

s (CSOs)		Solidaridad West Africa	Support the development and implementation of policies for small-scale mining activities in Ghana. Provide advocacy to small-scale mining related activities. Implement projects to i mproves the formalization o the ASGM sector and provide c apacity development for miners
		WACAM	
		Green Advocacy Ghana	
		National Coalition on Mining	
		Agency for Health and Food Security	
		Planetary Harmony Solutions	
		Accra Mining Network	
		Fund for Peace/RECLAIM Project	
		Africa Centre for Energy Policy	
		West Africa Network for Peacebuilding	
		Centre for Public Interest Law	
		Oxfam in Ghana	
		Centre for Social Impact Studies	
		Media Coalition against Galamsey	
		West Africa Network for Peacebuilding	
		Ecological Restoration	
		Kasa Initiative	
	Gender-based Orga nisations	Women in Law and Development in Afri ca (WiLDAF)	Support the development and implementation of policies tha t promotes gender equality and equity in the management of natural resources including artisanal and small-scale mining activities in Ghana. Implement advocacy actions to promote the participation of women in the ASM sector
		Women in Mining	
		African Women International	
	Environmental Orga nizations	Nature Conservation Research Centre (NCRC)	Support the development and implementation of policies for small-scale mining activities in Ghana. Provide advocacy to small-scale mining related activities. Implements projects to improves the formalisation o the ASGM sector and provide c apacity development for miners
		Centre for Environmental Impact Analysi s	
		A Rocha Ghana	
		Centre for Social Impact Studies	
		Green Advocacy Ghana	
		Zoil Services Ltd.	
Academia	Universities	University of Mines and Technology (UM aT)	UMaT is a responsible party in building capacity and promoti ng mercury-free technologies in project intervention sites an d will encourage professionalization of operations (Compon ent 3).
		University of Ghana	The Centre for Remote Sensing and Geographic Information Services (CERSGIS) was established in 1999 by the UoG and EPA. CERSGIS was mandated to provide GIS and Remote Se nsing services using Geospatial technologies to provide deci sion support and planning tools for sustainable social and e conomic development as a partner (Component 1).
		University of Development Studies	Academic institutions for research into technologies that ca n support ASM activities. Assist in developing capacity of s mall-scale miners. Critical to the achievement of project goal s.
		Presbyterian University College	
		Kwame Nkrumah University of Science and Technology	
		University of Energy and Natural Resour ces	
Private sector	Miner Association	Ghana National Association of Small-Sc ale Miners	The umbrella body of small-scale miners' sector in Ghana th at will be direct beneficiaries of this project
	(Upstream) Mining Companies	Ghana Chamber of Mines	
		Newmont Ghana Ltd	

		Anglo Gold Ashanti,	Support in the implementation of the Jurisdictional approach through multi-stakeholder dialogue and promote coexistence between LSM and ASM (Component 1) and facilitate communications to diverse stakeholders on GOLD+ (Component 4).
		Goldfields Ghana,	
		Golden Star Resources,	
		Kinross	
	(Downstream) Refiners	Argor-Heraeus (Swiss based)	Private sector partner with extensive experience in response sourcing from ASGM mines, traders, bullion houses, central and commercial banks, mints and jewellery and watch manufacturers, as well as industrial consumers worldwide. As a key partner, aims to support technology assisted due diligence, derisking, and mine level safegaurds o ensure responsible, Hg-free gold can reach international market with LBMA standards.
	Equipment Service Providers	Commodity Monitor	A licensed service provider for the mining industry promoting the use of mercury-free technology, and preferred vendor by the Minerals Comission.
	Traditional / Local Communities	Traditional authorities	Traditional administration of the project communities and have control/access to over lands. Critical to the achievement of project goals, and to ensure free, prior and inform consultation takes place with Chiefs and customary authorities. Local communities must be engaged as part of project design, and during Tier 1 site verification early on in project implementation.
Other beneficiaries		Opinion leaders	
		Landowners	
Financial institutions	Rural & Community Banks	ARB Apex Bank Ltd.	It is a “mini”-central bank for the Rural and Community Banks. They will assist in the implementation of Component 2 activities through education and collaboration with national and local financial institutions to support products for ASGM actors, conduct capacity assessment financial institutions and capacity building to assist miners to access (revolving) funds.
Media		Graphic Communication Group Ltd,	Investigate and report small-scale mining activities in Ghana.
		New Times Corporation	
		Ghana Broadcasting Corporation,	
		The Ghana Journalists Association,	
		Independent Broadcasters Association	
		Media Coalition against Galamsey	

How information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement.

As indicated above, Outcome 4 of this FSP is fully dedicated to raise awareness of project stakeholders on the elimination of mercury in the ASGM sector. Planned outputs 4.1 and 4.2 to achieve this outcome include the design of an awareness raising campaign and information strategy and a programmatic monitoring of FSP global indicators (specifically, GEF Core Indicators 9 and 11), together with a review of on-going, activities to ensure successful project implementation in accordance with UNDP and GEF procedures, integrating awareness raising and gender sensitive training materials. As well noted above, these actions will be implemented considering a interactive communication with the GEF planetGOLD program, the UNEP Global Mercury Partnership, and other knowledge management platforms worldwide through the support of the UNDP Regional Coordination Unit/Chemicals for Africa.

Select what role civil society will play in the project:

Consulted only;

Member of Advisory Body; Contractor;

Co-financier; Yes

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

Executor or co-executor;

Other (Please explain)

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

Gender equality is intrinsically linked to sustainable development and fundamental in transforming the ASGM sector into a vehicle for inclusive growth. Gender is an overarching variable, in the sense that it is often an intersection of identity factors, including sex, race, class, age, ethnic group, education level etc. Gender norms are established in different socio-cultural contexts, which ultimately determine what is expected, allowed and valued in a woman/man and girl/boy in specific settings. In ASGM systems, gender roles are learned through socialization processes that can change over time. Gendered perspectives will be captured, including data collection through baseline surveys documenting risks and opportunities for men, women, elders, boys and girls, or tribal and indigenous peoples affected by the project.

From the gender perspective, women and men in Ghana participating in the ASGM sector need more information on environmental stresses and more data—disaggregated by sex, age and other factors—is urgently needed to build policies that are more comprehensive. ASGM markets, specifically in the context of this project, are usually male oriented, from the supplier and the producer perspectives, however, the final treatment of the amalgam demands a high level of protection of women from hazardous fumes and this end-use needs to be strengthened. Annex 11 (Gender Analysis) of the ProDoc describes the process of assessing the gender challenges for the project and how these may influence the project's outcomes.

This FSP presents an opportunity to educate women on gender-related risks and maximize the potential benefits from participation in the ASGM sector. The project will mainstream gender equality and women's empowerment throughout its components by ensuring that formalization efforts, access to finance and responsible markets and access to mercury free technologies benefit both men and women. Capacity building of ASGM actors will target both men and women through training and skills transfer.

To ensure that gender is mainstreamed effectively throughout the project, the PPG stage and the Social and Environmental Screening Procedure have identified all potential risks. In the PPG, this aspect was examined through extensive engagement and a Gender Action Plan developed to mainstream gender throughout the project's activities, to upscale the opportunities for women to benefit from training and employment opportunities and develop gender-disaggregated data, accounting for multiple factors (i.e., race, ethnicity, nationality, education level, indigenous status). To ensure equality of results, the project will actively engage women and other vulnerable groups, as change agents and participants, not only as victims of inequalities or forms of discrimination.

The gender analysis (centered on sex and gender variables) is presented in Annex 11, allowed for the identification of the different roles and tasks that men and women perform in daily life and in the ASGM sector that put them at risk of exposure to mercury. The gender assessment also identified irregularities and power relations, inequities and inequalities and helped to recognize the causes of these inequalities.

Based on the outcomes of the Gender Analysis, a Gender Action Plan was formulated to help design project interventions (component/outcomes and activities) that would contribute towards women empowerment and to overcoming gender inequality. The findings from the gender analysis and the project interventions proposed as part of the Gender Action Plan, have been integrated into the overall project's approach and the Project Results Framework. The main elements of the gender action plan, as related to the project's four components, are summarized below:

- **Component 1: Formalization Optimization of ASGM**

Outcome 1: The trainings and workshops provided to the FSP stakeholders as part of their capacity building efforts and formalization process, will include gender sensitization training.

- **Component 2: Financial Inclusion and Responsible Supply Chains**

Outcome 2: Existing financial products of project partners will be assessed in terms of accesibility and suitability for women involved in ASGM mining activities; staff of the financial entities will be trained in the (re)design of these financial products so they suit women and men mining entities' needs; new financial products will be launched that meet the need of women mining entities, while the awareness of women miners will be increased on the availability of various incentives and loan facilities that meet their needs (through awareness raising events).

- **Component 3: Enhancing Uptake of Mercury-free Technologies**

Outcome 3: The socioeconomic baseline surveys and mercury/gold mass balance inventories conducted for each of the three (3) priority project sites, will also collect sex-disaggregated data; of the mining entities selected for project participation at least 40% will contain women miners that will be supported in formalization efforts and in improving ASGM practices; the comprehensive ASGM training curriculum that will be developed with project support and will be used to train miners (men and women), will contain a module on gender awareness and gender responsive assessments in ASGM to encourage a culture change in how women are being viewed in the mining sector; women miners will also receive separate leadership training.

Of the project mining entities supported in their formalization efforts (e.g. gaining access to legal subsurface rights, obtaining a permit to establish/operate a processing plant; designing processing and waste management plan) at least 20% will contain women miners or be women mining entities; the project will also support women's groups interested in mining and the establishment of ASGM associations/cooperatives.

- **Component 4: Knowledge Sharing and Communication Outreach**

Outcome 4: The awareness raising plan that will be developed and implemented as part of the project will contain important elements related to gender. The project's gender expert will ensure that the developed awareness raising plan and its activities meet the needs of female and male miners. The project will conduct a Gender Assessment of project impact as part of the Mid-Term Review. Based on the results of the Gender Assessment and other recommendations coming out of the MTR, the project might further improve its gender related interventions.

On a quarterly basis, project results and information on project progress will be communicated to the GEF planetGOLD Global component. The project's gender expert will support the project in identifying gender specific results and how to present these in reports and publications that summarize results, lessons-learned, best practices and experiences.

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

Yes

Closing gender gaps in access to and control over natural resources; Yes

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women Yes

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

4. Private sector engagement

Elaborate on the private sector's engagement in the project, if any.

The project has a significant number of private sector partners (please, refer also to Section 2 “Stakeholders”). A good sign of private sector engagement in the project’s implementation includes the project’s co-financing (USD 390,000) is being provided by upstream mining partners, with a substantial contribution (USD14.5 million) from a leading downstream private sector partner (gold refiner) to ensure fair market price and traceable supply chains are established in accordance with leading international standards. As such it can be concluded that Private Sector Engagement for this child project is substantial.

The involvement of the private sector in the project will be two-fold. Firstly, regulatory, enforcement and awareness raising activities supported by the project will have as the main target the private sector through various avenues including large scale mining operators, financiers, technology suppliers, among others. The private sector partners who are engaged in the project’s implementation along the ASGM supply chain can be grouped as follows:

Private sector partners to intervene:

· Large-Scale Mining (LSM) companies Gold Empire Resources Limited, Commodity Monitor, alongside other upstream mining stakeholders with an interest in mercury abatement in the ASGM sector, livelihood diversification and taking steps to promote formalization of the ASGM sector in Ghana (ie. Anglo gold Ashanti, Newmont, Kinross and The Ghana Chamber of Mines, as voice of the mining industry in Ghana).

· Banks and credit cooperatives like ARB Apex Bank Ltd., The Central Bank of Ghana and Tier 1 financial institutions within he projects sphere of influence. Rural and Community Banks, as well as finance Houses will be confirmed during inception following selection and verification of Tier 1 project sites.

· Gold refiners like Argor-Heraeus (core responsible sourcing partner to ensure fair market price for Hg-free gold).

5. Risks to Achieving Project Objectives

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

A group of risks has been identified and must be considered during project execution. As per standard UNDP requirements, the National Project Coordinator will monitor risks quarterly and report on the status of risks to the UNDP Country Office (CO) in Ghana. The UNDP CO will record progress in the UNDP ATLAS risk log (Annex 7: UNDP Risk Register). Risks are reported as critical when impact and probability are HIGH (i.e. when impact is rated as 5, and when impact is rated as 4 and probability is rated at 3 or higher). Management responses for critical risks will be reported to the GEF in the annual Project Implementation Report (PIR).

The key risks that could threaten the achievement of project results have been summarized in Table 12 below, considering both internal and external contexts. For further details of this analysis, please refer to the UNDP Risk Register in Annex 7, and an assessment of the social and environmental risks identified in the SESP (Annex 6). The pre-SESP identified 10 risks. During the PPG additional screening resulted in the identification of 13 risks, of which two risks were considered “low”, six were considered “moderate”, and five were considered “substantial” resulting in an overall social and environmental risk categorization of “substantial”.

TABLE 11. Key risks that could threaten the achievement of the FSP results.

Risk Class	Type of Risk	Description of the Risk (Summary)
Social and Environmental (SES)	Residents (including traditional communities) complain that mining is negatively affecting their livelihoods and traditional social structures	This FSP may have adverse effects in terms of inequality or discrimination on the affected populations, particularly people living in poverty who rely upon small-holder agriculture and *galamsey* to enable rural subsistence.
	Perpetuating sexual violence and harassment against women	This practice is common and widespread in workplaces in the ASGM sector and may persist during and after project implementation if not specifically addressed.
	Limiting women's ability to use mineral resources or livelihood displacement	Existing discrimination against women may be recreated, especially regarding access to opportunities and benefits and/or could entail restrictions vis à vis access to resources and productive assets.
	Loss of livelihoods for miners who are not included in the project activities	ASGM is one of the highest intensity land-use sectors in Ghana where impacts are worse for informal and unregulated operations. Considering the extent and scope of the project, possible interventions on critical habitats may not be fully ruled out, causing harm to people and the environment.
	Natural disasters could affect the locations and operations where the planned pilot interventions are carried out	Depending on the location of the gold processing plants, the adverse impact could be on natural habitats if near a protected area, near areas with important biological significance (e.g. areas with many endangered species/unique habitats, restricted range endemics, etc.), or local community if near residences.
	Negative impact on surrounding areas of construction and operation of new processing plants and other facilities	The most important environmental and human health risks are posed by the use of mercury to extract gold from its ores, poor waste management. Cyanidation processing facilities also pose threats to human health and the enviroment, if transport, handling, storage, operations, waste disposal and decomissioning are not accounted for in feasability studies.
	Pollution risks from mining operations or processing plants	The main environmental and health risks are posed by the use of mercury in the ore extraction process, and the emerging threat cyanidation leaching circuts in small-scale mining operations where clear mitigation measures and manahement plans are not securly in place and operational.
	Health and safety risk for the workers in mines and processing plants	ASGM represents one of the most hazardous work environments, especially for the informal ASGM sector.
	Participation of minors in hazardous activities	Child labour is common in poor and rural areas in general and in the ASGM sector in particular.
	Impact of the COVID-19 pandemic	The frequent illegal entrance by gold miners from COVID-19-prone neighboring countries (i.e., Nigeria, Burkina Faso. increases the risk to ITPs in contracting the virus, putting additional pressure on their already vulnerable position.
Political	Unsteady institutional context aggravated by the global pandemic COVID-19	Unexpected situations at the political level, in conjunction with the uncertainties amid the COVID-19 pandemic like limited domestic travel and weak participation of public authorities, may delay the planned execution of some activities during the project's implementation.
	Unstable political climate with military intervention to hault ASGM	Unexpected halt of mining operations leads to social unrest and erodes trust-based relations between miners, government and host communities.
Financial	Uncertainties due to cost recovery	Current operational costs of the miners include a substantial amount to cover the costs due to the use of mercury, however, mercury-free gold extraction processes may indicate a heavier burden in order to cope with higher upfront costs or unable to cope with their already debt condition.
	Stressful national economic context	

		A very critical context may be observed during the FSP execution related to the performance of the national economy, particularly considering unexpected civil unrest, as well as and population migration to rural areas increasing pressure on natural ecosystems and increased human interaction with wildlife and disease reservoirs.
	Corruption in ASGM value chains	Vested interests a series of illegal economic activities such as prohibited trade of mercury, labor exploitation, child labour, illicit gold transactions and links to organized crime networks.
Operational	Limited capacity development of national partners	This project, while being highly innovative, may require new knowledge and skills from the stakeholders involved at the national level. This could generate technical difficulties for the development of the project activities.
Organizational	Limited capacity in project monitoring	Lack of adequate implementation of the project's follow-up and monitoring plan, deficiency in the evaluation of indicators, non-compliance or failure to elaborate action plans, leading to deviations in the expected results of the project.
Strategic	Poor stakeholder outreach during project implementation and unbalanced, media coverage	Public opinion and negative media attention may generate an unfavorable societal perception of the project at local, national, regional levels (emphasizing ECOWAS policies, legal frameworks and leading practice) and global levels.

This FSP has also considered in the analysis of the Theory of Change (ToC), as part of its risk management assessment carried out during the PPG, several global coronavirus (COVID-19) pandemic threats. Incremental project activities will require, by the PMU, regularly scanning for emerging risks across the FSP´s activities to ensure to continue delivering the expected outputs, prevent unintended harm because of the planned activities, and proceed with adaptive management response under this rapidly changing context.

It is important to note that, if required, the risk analysis should be adjusted when more information becomes available during project implementation. It is important to note that, if required, the risk analysis should be adjusted when more information becomes available during project implementation.

This FSP has also considered, as part of its risk management assessment carried out during the PPG, several coronavirus (COVID-19) pandemic threats. Incremental project activities will require, by the PMU, regularly scanning for emerging risks across the FSP´s activities to ensure to continue delivering the expected outputs, prevent unintended harm because of the planned activities, and proceed quickly with adaptive management response under this rapidly changing context.

For this project, the following three risks have been identified due to this pandemic:

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Social (COVID-19) risk: **Potential harm to people and the environment.**

Description: Potential health and safety, including contagious exposure for stakeholders the FSP has planned to engage with, including the staff of the PMU and institutional partners, plus third party workers where the field project demonstrations will take place.

Management strategy: This strategy will be implemented in twofold: i. develop innovative virtual and remote methods for working and implementation, as much as possible, and ii. Since the World has not yet found a vaccine for this virus, for the implementation of those activities that require social gathering, the FSP´s PMU, with assistance from the UNDP CO, will look at COVID-19 as a public health crisis, implementing the solutions for which are social distancing, careful sanitization, widespread testing, access to safety equipment, and immediate competent medical care, if needed.

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Financial (COVID-19) risk: **Reduce the committed cofinancing by the project partners.**

Description: Potential delays of anticipated cofinancing, both in kind and cash sources, due to COVID-19 corporate response, especially from the private sector stakeholders that need to react immediately to adjust their cash flows to cover unexpected labor costs and significant drop of business revenues.

Management strategy:Regular monitoring of this risk by the PMU and carry out period assessment of changing the market context, both at the national and international levels, to ensure the project remains a relevant and trusted partner of the private sector stakeholders.

Organizational (COVID-19) risk: Limited domestic travel.

Description: Immediate impacts from domestic travel restrictions per United Nations and the Government of Ghana requirements and unavailability of land and air transport means.

Management strategy: Develop innovative virtual and remote methods for working and implementation, as much as possible.

During the project implementation, these three COVID-19 related risks should be regularly screened, managed and reported to ensure the Project Coordinator has relevant data from across all activities for timely and effective decision-making and to determine when escalation is required. As part of its track-monitoring role of GEF projects, UNDP, through the Country Office, will track and monitor this global outbreak and its immediate implications for this FSP; if necessary, the UNDP Atlas Risk Register (Annex 7) will be updated consequently. Likewise, indicators convened under the Project Results Framework (Section V) will be adjusted. These two actions will be also tracked, monitored and reported in the Mid Term Review.

Environmental and social risks have been discussed with the executing partners and with a variety of stakeholders through the workshops held during the PPG[1]. These risks were discussed and were analysed in the *"Social and Environmental Screening Procedure"* (SESP, Annex 6) and the ones rated as MODERATE have been reviewed in more detail within the *"Environmental and Social Management Framework"* (ESMF, Annex 10). An assessment and ESMP (and site-specific plans if necessary) must be prepared and mitigation measures in place, prior to the initiation of any project activity that may cause adverse impacts, in particular any actions that may lead to or cause environmental and health impacts and impacts on traditional local communities or tribal peoples.

[1] Please, refer to Section 3 of the "*Stakeholder Engagement Plan*", in Annex 7.

6. Institutional Arrangement and Coordination

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

Describe the institutional arrangement for project implementation.

Implementing Partner: The Implementing Partner (IP) for this project is the Environmental Protection Agency (EPA)[1]. The Implementing Partner (IP) is the entity to which the UNDP Administrator has entrusted the implementation of UNDP assistance specified in this signed project document along with the assumption of full responsibility and accountability for the effective use of UNDP resources and the delivery of outputs, as set forth in this document.

The **Implementing Partner** is responsible for executing this project. Specific tasks include:

· Project planning, coordination, management, monitoring, evaluation and reporting. This includes providing all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary. The Implementing Partner will strive to ensure project-level M&E is undertaken by national institutions and is aligned with national systems so that the data used and generated by the project supports national systems.

· Risk management as outlined in the Project Document;

· Procurement of goods and services, including human resources;

· Financial management, including overseeing financial expenditures against project budgets;

· Approving and signing the multiyear workplan;

· Approving and signing the combined delivery report at the end of the year; and,

· Signing the financial report or the funding authorization and certificate of expenditures.

Responsible Parties: The roles and responsibilities of responsible parties will be defined during project implementation. The project has identified the following responsible parties:

· Minerals Comission (MC) is to act as the responsible party for Component 1 (Optiming Formalization);

· Minerals Develoment Fund (MDF) for Component 2 (Financial Inclduion & Responsible Supply Chains) ; and;

· The Ghana Geological Survey Authority (GGSA) and University of Mines and Technology, Tarkwa (UMaT) for Component 3 (Enhancing the uptake of Mercury-free Technologies).

Project stakeholders and target groups: The stakeholders of the project correspond to a diversity of entities of the Government, Districts, private sector and CSOs, as indicated in the project document. See Annex 9 (Stakeholder Engagement Plan) for additional details.

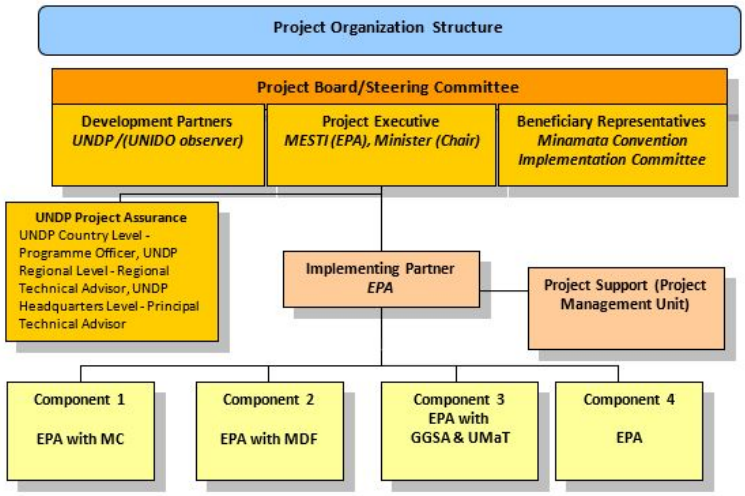
UNDP: UNDP is accountable to the GEF for the implementation of this project. This includes oversight of project execution to ensure that the project is being carried out in accordance with agreed standards and provisions. UNDP is responsible for delivering GEF project cycle management services comprising project approval and start-up, project supervision and oversight, and project completion and evaluation. UNDP is also responsible for the Project Assurance role of the Project Board/Steering Committee. A strict firewall will be maintained between the delivery of project oversight and quality assurance performed by UNDP and charged to the GEF Fee and project execution undertaken primarily by the Implementing Partner and charged to the project management costs.

UNIDO: UNIDO is accountable to the GEF for the implementation of Component 3 of the project. This includes oversight of the execution of Component 3 to ensure that it is being carried out in accordance with agreed standards and provisions. Full or partial ownership of equipment/assets purchased under the project may be transferred to national counterparts and/or project beneficiaries during the project implementation as deemed appropriate by the government counterpart in consultation with the UNIDO Project Manager.

"The present project is governed by the provisions of the Standard Basic Cooperation Agreement between the Government of the Republic of Ghana and UNIDO, signed on 2 December 1999."

UNDP is not accountable for the implementation of Component 3.

Project organisation structure:



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

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

Specific responsibilities of the Project Board include:

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

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

Project Executive: Is an individual who represents ownership of the project and chairs the Project Board. The Executive is normally the national counterpart for nationally implemented projects. The Project Executive for GOLD+ Ghana is the Ministry of Environment, Science, Technology, and Innovation represented by the Environmental Protection Agency (EPA), Executive Director, EPA.

Beneficiary Representative(s): Individuals or groups representing the interests of those who will ultimately benefit from the project. Their primary function within the board is to ensure the realization of project results from the perspective of project beneficiaries. The proposed beneficiary representative for GOLD+ Ghana is the Minamata Convention Implementation Committee (MCIC), comprising the Ministry of Environment, Science, Technology and Innovation (MESTI), as Chair; The Environmental Protection Agency (EPA); Ministry of Health (MoH); Ministry of Information (MoI); Ministry of Trade and Industry (MOTI); Ministry of Finance (MoF); Ministry of Lands and Natural Resources (MLNR), represented by the Minerals Commission (MC); Ministry of Employment and Labour Relations (MELR); Customs Division of the Ghana Revenue Authority (GRA); National Development Planning Commission (NDPC); Ghana National Association of Small-scale Miners (GNASSM); Friends of the Nation (FoN) ; and Ghana Health Service (GHS).

Development Partner(s): The Development Partner(s) is/are: UNDP and UNIDO.

Project Assurance: UNDP performs the quality assurance and supports the Project Board and the Project Management Unit (PMU) by carrying out the objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed, and conflict of interest issues are monitored and addressed. The Project Board cannot delegate any of its quality assurance responsibilities to the Project Manager. UNDP provides a three-tier oversight services involving the UNDP Country Offices, UNDP at regional and headquarters levels. Project assurance is totally independent of project execution.

The Project Management Unit (PMU) will be hosted at the EPA and responsible day-to-day management of the project. The PMU will be composed of a Project Manager (PM) and other project staff who will be appointed by EPA and directly under its supervision. The PMU will regularly provide updates to the PSC and submit monthly progress reports.

Project extensions: The UNDP Resident Representative and the UNDP-GEF Executive Coordinator must approve all project extension requests. Note that all extensions incur costs and the GEF project budget cannot be increased. A single extension may be granted on an exceptional basis and only if the following conditions are met: one extension only for a project for a maximum of six months; the project management costs during the extension period must remain within the originally approved amount, and any increase in PMC costs will be covered by non-GEF resources; the UNDP Country Office oversight costs in excess of the CO's Agency fee specified in the DOA during the extension period must be covered by non-GEF resources.

Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

There is a group of GEF-financed projects and other initiatives in Ghanacurrently under implementation related to the development challenge that this project is also addressing, which could provide some additional support to strengthening this institutional partnership approach. Thanks to the involvement of the institutional partners in some of them, under the leadership of the Ministry of Natural Resources, it seems of mutual benefit the achievement of the outcomes for this project Specifically, this FSP will ensure coordination and count on the capacity built and knowledge gathered from the concurrent projects that are already in progress, as shown in the Table below:

TABLE 12. Other on-going projects related to this FSP

Project	Agency	Main relevance for this FSP
The planetGOLD Global Program	GEF/CI	This Program aims to support the participating countries in fulfilling their commitments under the Minamata Convention. Cost-effective knowledge management practices related to formalization, technical solutions access to financing and awareness raising developed by the first group of participating countries will be adapted to the Ghana context through this FSP. One of the key inputs of this Program to this FSP is "innovation", i.e.: the market does not see mercury usage in isolation, but rather as one of many factors that need to be tackled if they are to trade gold as "ethical". This FSP will build on the GEF planetGOLD Global Program through the use of an existing knowledge platform, lessoned learned, capacity building materials, databases, proven technologies and market opportunities. Through outputs of Component 4, it also enhances the scope of this global platform.
Global Knowledge Management and Exchange of Child Project Results Through Networking and Outreach Activities for the GEF GOLD Program	GEF/UNEP	This GEF project, implemented by UNEP, together with the National Resources Defense Council (NRDC) and UNIDO, aims to facilitate the sharing of technical information and engage in outreach to relevant stakeholders to reduce and where feasible eliminate mercury use in ASGM. It has been initially designed to ensure that lessons learned from the eight individual planetGOLD+ country child projects will be captured and shared between the child projects and other ASGM stakeholders globally. This knowledge sharing platform is assisting countries where ASGM is present to increase capacity to formalize ASGM and approach the process in a holistic manner; provide technical advice with respect to access to finance for the ASGM sector; and increase technical capacity to support mercury reduction efforts through a broad range of guidance material to implement practical projects, which will be consulted during the implementation of the pilot projects of this FSP.
The planetGOLD Global Forum	GEF/UNEP	This FSP will be engaged in the planetGOLD Global Forum by participating in a two-yearly learning and sharing event that will facilitate face-to-face meetings (in line with COVID-19 safety protocols) between ASGM experts and practitioners, governments, gold buyers and miners in support of ongoing of experience exchanges and development of global expertise and capacity building on ASGM issues in Ghana to influence the global ASGM dialogue agenda and policy development.
Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas	OECD	OECD, which launched in 2016 the *"Sourcing Gold from Artisanal and Small-Scale Miners*" policy, will provide practical guidance on how companies should engage and source gold from ASGM miners; reference material that this FSP will access during its implementation.
Fairmined and Fairtrade Gold	ARM	The Alliance for Responsible Mining (ARM) and Fairtrade International have developed international standards for best ASGM best practices, i.e.: "Fairmined" and "Fairtrade Gold", in a move to raise public awareness on the positive impact of their consumer choices. These standards require communities to be formalized and respect social and environmental minimum requirements. ARM has further developed with Code for Risk Mitigation for ASGM engaging in Formal Trade (CRAFT), which is a code for progressive compliance for ASM producers. The above actions will also serve as guidance to the implementation of the activities foreseen in this FSP.
ECOWAS Directive on Harmonization of Guiding Principles and Policies in the Mining Sector	ECOWAS Member States	As an ECOWAS Member State Ghana aims to provide for a harmonized mineral policy and legal framework for Member States. It addresses issues of accountability for mining companies and governments, financial stability, human rights, transparency, social equity, and protection for local communities and the environment. For artisanal small-scale miners (Article 11.6), Member States are directed to put legislation into place that will "*ensure safe, efficient and environmentally sustainable* mining", where Member States are also encouraged to adopt measures to improve legal, economic and technical oversight of artisanal mining activities, and promotes peaceful ASM-LSM relationships. The directive guarantees the principle of FPIC in the case of mining and petroleum development by state parties. Like most national laws, it affirms that minerals in their natural state are the property of the states with human rights obligations arising from mining activities (Article 15). The above commitments as Ghana is an ECOWAS Member State will serve as guidance to the implementation of the activities and stakeholder outreach foreseen in this FSP.
ECOWAS Common External Tariff (CET)	ECOWAS Member States	adopted on 25th of October 2013, was created as part of the goal to achieve economic integration. The objective of the CET is to set the same customs duties, import quotas, preferences or other non-tariff barriers to trade applicable to all goods entering the region. This integrated customs approach could form a basis of regional cooperation on governing mercury trade within the region. Overall coordination between this FSP and WB/SCSD - regarding the activities related to ASGM - will be a major responsibility of the Project Management Unit, in close coordination with the Implementing Partner, EPA.
The African Mining Vision (AMV)	African Union (AU)	The AMV was adopted by Heads of State in 2009. This agreement is concerned with integrating mining into local, national and regional development policies in Africa. Specifically, for ASGM, the AMV framework for action calls for the establishment of resilient ASM communities, through (1) formalizing and upscaling programmes to upgrade knowledge, skills and technology in the ASM sector; (2) mainstreaming ASM into poverty reduction strategies; (3) ensuring gender equality and eliminating child labour; (4) stimulating partnership with government

		and LSM to facilitate access to technology, skills, knowledge and markets; and (5) strengthening ASM associations. UNDP is supporting Ghana in creating a country mining vision to implement the AMV.
EHPMP (GEF-6)	GEF/World Bank	$8.7 million (USD) implemented by the World Bank targeting mercury abatement in ASGM and e-waste sectors (2020-2025). The project aims to promote sustainable inclusive growth by improving access to environmental services through knowledge sharing and capacity building; strengthening human capital by improving health of vulnerable populations, especially women and children; complementing regional initiatives and individual projects, focusing on competitiveness, sustainability, and governance. Components include: (1) institutional strengthening, capacity building and knowledge sharing; (2) policy dialogue support and regulatory enhancements; and (3) demonstrating technological tools and economic approaches in ASGM. Overall coordination between this FSP and WB/SCSD - regarding the activities related to ASGM - will be a major responsibility of the Project Management Unit, in close coordination with the Implementing Partner, EPA.
Landscape Restoration and Ecosystem Management for Sustainable Food Systems	GEF/World Bank	The project's total financing is US$102.76 million, financed by the World Bank's International Development Association (US$75 million credit), the Global Environment Facility (US$12.76 million grant), and the PROGREEN Multi-donor Trust Fund (US$15 million grant). The project has the objective is to strengthen integrated natural resource management and increase benefits to communities in targeted savannah and cocoa forest landscapes. Specifically, the project will be implemented through the following components: Institutional Strengthening of Governance for Participatory Landscape Management; Enhanced governance in support of sustainable ASM; Sustainable Crop and Forest Landscape Management; Monitoring and Project and Knowledge Management and Contingent Emergency Response.
ASM Formalization	World Bank	Implemented by the Ministry of Lands and Natural Resources IDA credit project ($34 M USD) on ASM Formalization with complementary aims to (i) enhance regulations and policies at the national level on legalization and formalization; (ii) strengthen institutional capacity and inter-institutional coordination; and (iii) promote sustainable ASM practice by professionalizing the sector through multi-stakeholder dialogue, development of sustainable community-based mining practices, and enabling outcomes, such as strengthening District mining committees, ASM zone management and livelihood diversification. Overall coordination between this FSP and WB/SCSD - regarding the activities related to ASGM - will be a major responsibility of the Project Management Unit, in close coordination with the Implementing Partner, EPA.

UNDP organizes on a yearly basis face-to-face South-South exchanges among all UNDP GEF Chemicals and Waste projects and programmes in the Sub-Saharan African (SSA) Region to facilitate long-term collaboration, exchange and partnerships between projects and countries. Projects that participate in these exchanges include UNDP/GEF projects like those implemented in neighbouring states and others regions, which also focus specifically on Mercury issues and other POPs.

Under Component 4 of this FSP, annual workshops will be organized to create awareness and allow for active feedback. Information on the benefits of formalized ASGM mining operations; acting directly, in an integrated manner, to address immediate causes mentioned above; all of this aligned with the GEF planetGOLD+ Global Program and with GEF planetGOLD Child projects in Burkina Faso and Kenya already under implementation in the African region; and with GOLD+ projects in Nigeria, Madagascar, Uganda, Congo, Mali and Sierra Leone under development, alongside the WB/GEF EHPMP, WB Formalization (IDA credit), WB EITI and other initiatives under EPA leadership.

[1] Executing Entity / Executing Agency

7. Consistency with National Priorities

Describe the consistency of the project with national strategies and plans or reports and assesments under relevant conventions from below:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

The GoG has a strong record of ratifying and domesticating global and regional commitments, including Multi-lateral Environmental Agreements (MEAs) related to sustainable land, forest, and waste management. In 2017, the Government articulated a national vision for a prosperous nation through the creative use of human and natural resources, operating within a democratic, open, and fair society with mutual trust and economic opportunities exist for all. As a prominent advocate for the Sustainable Development Goals (SDGs), the GoG highlighted the alignment of this vision and its national policy frameworks with the 2030 development Agenda, and Agenda 2063.

For the global development agenda, this FSP is aligned with the recently developed Agreement of the Principle 10 of the Rio Declaration, which states that environmental issues are best handled with the participation of all concerned citizens, at the relevant level, recognizing that information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes.

According to the 2021 NAP on ASGM, estimated distribution of small-scale gold mining extraction in Ghana, by district show the greatest concentrations of miners in Dunkwa (175,000) Tarkwa (170,000), Bibiani (160,000), Asankragwa (135,000), Akim Oda (110,000), Assin Foso (95,000), Bolgatanga (65,000), Konongo (45,000), and Wa (45,000), where a land -based alluvial accounted for the largest share of operations ranging from 45-75%, with the exception of Wa and Bolgatanga that were dominated by alluvial dredging operations. While deep alluvial (dredging in rivers) attracts significant media attention and public concern, new data presented in Ghana's NAP shows that the highest proportional mercury use per ore type occurs in land-based alluvial mining operations, even in the low estimate scenario. Thus, land-based alluvial is a priority. Thus, land-based alluvial is a priority for policy makers to fulfill mercury abatement targets and obligations set forth in the NAP on ASGM (2021). Consequently, this FSP targets land-based alluvial as a leading national priority identified by GEF enabling activities.

Reducing and where feasible eliminating mercury use in ASGM operations are a priority for the GoG. In line with the NAP of ASGM, emphasis on the elimination of worst practices as well as a targeted approach on land-based alluvial operations as largest mercury uses per ore type, followed by hard rock mining[45] will be essential. Considering the scale of land-based alluvial operations, and growth of hard rock mines as surface deposits are deleted, allocation of geologically prospected land for small-scale gold miners is not only a fundamental building block for formalization efforts but will play a critical role in meeting mercury abatement targets[45].

Beyond chemical pollution issues, unregulated alluvial and hardrock mining are threats to forest conservation in Ghana[1]. Based on data from 2001-2015 Ghana's annual deforestation rate was approximately 3.51%, equating to yearly losses of > 315,000 hectares (ha). Total deforestation during this time period surpassed 4.7 million ha, of which over 84% (3.98 million ha) occurred in open forests, compared to 16% (745,326 ha) in closed forests.6 From 2001 to 2010, the majority of deforestation occurred in the High Forest (southwestern Ghana) and Transition Zones (central Ghana), but from 2013-2015 there was a significant increase in forest loss across the Savannah Zone (northern Ghana), a shift that pushed annual average forest loss to over one-half million ha/year. Loss of closed canopy forest signals encroachment into state protected forests, whereas open forest loss typically reflects conversion of private or customary land for agriculture, indicating cropland expansion at the expense of forest cover[2]. Through JA pilots, enhanced sustainability of production landscapes will support Ghana's commitments to Reducing Emissions from Reforestation and Forest Degradation (REDD+), Land Degradation Neutrality (LDN) and advance commitments to enhancing the sustainability of cocoa and small-scale gold mining landscapes.

Improving the sound life-cycle management of chemicals and, in particular, the management of mercury, and other hazardous chemicals will help the Government of Ghana to work towards achievement of SDGs.

The SDGs most relevant to this project are:

TABLE 13: SDGs and their relevance to this FSP

SDG	Relevance to this FSP
SDG 1: End poverty in all its forms everywhere.	By introducing alternatives, best practices, and techniques to minimize the use and release of mercury and improve miner incomes thus alleviating poverty and address some of the underlying socio-economic challenges that are at the core of existing practices that use mercury in the ASGM sector.
SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.	By decreasing the use of mercury and its release into the environment from the ASGM sector, indirectly halting and reducing the build-up of mercury in aquatic food chains that indigenous and traditional local communities disproportionately upon as sources of protein.
SDG 3: Ensure healthy lives and promote well-being for all at all ages	By reducing the use of mercury in the ASGM sector, and minimizing its releases, to ultimately protect human and environmental health. Reduction in mercury release will also substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.
SDG 5: Achieve gender equality and empower all women and girls.	At the policy formulation level, inclusivity and gender mainstreaming have been included to highlight that women and girls as historically vulnerable populations must be a part of this process and have their interests and concerns accounted for in ASGM related policies. This FSP provides an opportunity to ameliorate some of the inequities in political power and access to and control over resources that women in this sector encounter.
SDG 6: Clean Water and Sanitation.	Improving water quality by reducing pollution, protecting surface waters and soils from mercury contamination, through promotion of environmentally responsible practices that reduce siltation and avoid the use of Hg in mining activities. GOLD+ Tier 1 sites selection will avoid working in alluvial deposits due to the adverse impacts on unregulated dredging operations and recurrent bans on alluvial mining.
SDG 8: Decent work and economic growth.	Achieve higher levels of economic productivity through diversification, technological upgrading and innovation by focusing on high-value added and labour-intensive sectors. Supporting the development of workplace safety standards and procedures, introducing personal protective measures, and addressing the underlying socio-economic causes that lead to vulnerability due to livelihood informality and limit transition from mercury in the ASGM economy. More recently, of relevance is to contribute to the mitigation of COVID-19 impacts in ASGM mining communities and including mine-level safeguards and containment measures.
SDG 12: Ensure sustainable consumption and production patterns.	Through the reduction of mercury pollution and mercury-containing wastes by introducing alternative processes and technologies that are mercury-free, cost-effective and in line with responsible mining practices that are resource efficient and reduce pollution hazards. Cyanidation of mercury contaminated tailings will be avoided and had not been observed in Ghana. Process controls and efforts to minimize metal enrichment in tailings with potentially harmful elements (PHEs), especially Arsenic (As) and Lead (Pb) through ore characterization, mineralogical analysis, and pollution prevention measures.
SDG 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.	Through decreasing the use and release of mercury from ASGM activities, preventing mercury from entering water sources, and reducing the accumulation of mercury in marine food chains to harmful levels.
SDG 15: Life on land.	By optimizing existing mine sites and land allocation through blocked out ASM zones, aims to avoid clearing of forest, savannah, and terrestrial ecosystems, thus reducing biodiversity loss and encourage regenerative mining practices by planning for closure early in the mine lifecycle. As part of mine closure planning, topsoil retention can conserve native seed banks, reduce the spread of invasive species and enable resource efficient revegetation through low-cost approaches such as applied nucleation and assisted regeneration to improve management of production landscapes and promote safe, post-mining land use.

The project is also consistent with national strategies and plans or reports and assessments under relevant conventions from below:

- Minamata Convention Initial Assessment (MIA) in Ghana (2019)
- National Action Plan (NAP) on ASGM in Ghana (endorsed 2021)
- Minamata Convention on Mercury
- Stockholm Convention On Persistent Organic Pollutants (POPs)
- Convention on the Elimination of All Forms of Discrimination against Women (CEDAW)
- United Nations Framework Convention on Climate Change (UNFCCC)
- United Nations Convention on Biological Diversity (UNCBD)
- Rotterdam Convention on the Prior Informed Consent
- Cartagena Protocol on Biosafety

[1] Ghana defines “forest” as lands that have at least 15% canopy cover, minimum tree height of five meters, and minimum area of one hectare. Closed canopy forest is classified as one with a canopy cover exceeding 60%; open canopy forest is a modified or disturbed natural forest that has 15-59% canopy cover. Open canopy forests are mainly outside of forest reserves (adapted from World Bank and MLNR).

[2] World Bank. (2020). Ghana Country Environmental Analysis. World Bank, Washington, DC.

8. Knowledge Management

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

The global project of planetGOLD focuses on knowledge management and increased access to information among project partners and the wider ASGM community, particularly on the topics of formalization, market access and technology transfer; this Child Project falls under this guidance. Through the implementation of communication strategies and activities, it will also inform and educate the general public and decision makers in Ghanaon the mayor issues, challenges and solutions related to the ASGM sector.

The knowledge management approach will build on the planetGOLD platform, which will continue to be the hub of the knowledge gathered by the planetGOLD and GOLD+ child projects. Learning and exchange amongst different country projects will be enabled by global events supported by the GOLD+ global project, such as the Global Fora (continuing the Global Fora that are organized by planetGOLD). The Knowledge and Communication component of GOLD+ will also include an increased focus on maximizing the impact of communications at the local level within countries through the implementation of Component 4 of this FSP. This component proposes using online education and digital marketing tools to support the traditional participatory workshop and training model to help institutionalize sustainable mining methods at the community level.

Under the foreseen activities in Output 4.1, the project will implement a "*M&E and adaptive management applied to capture best practices for Hg-free technologies, lessons learned from JAs and related policy processes recorded and disseminated in Tier 1 mining jurisdictions and neighbouring GOLD+ countries*". making use of social media, the preparation of publications, scientific papers, articles, lessons learned reports, among else, (detailed in Annex 9 "Stakeholder *Engagement Plan*"). In particular, knowledge –both at the national and international fora- will be gathered, managed and disseminated through the list of incremental activities which will capture lessons-learned and experiences and publish them in publications and lessons-learned reports (Output 4.1, Activities i. and ii.). The timeframe for the implementation of these activities can be found in Annex 4 -Multi-year Work Plan- (attached to the UNDP Project Document).

This FSP in Ghana will provide access to information and opportunities for exchange among Parties and other ASGM Practitioners by informing the GEF planetGOLD projects as well as the wider ASGM community about experiences in formalization, access to finance and market and technology transfer, including but not limited to access and use information, technical materials, guidance, and lessons learned to assist the development and implementation of the Global Program.

Component 4, Output 4.1, will also help educate the general public in Ghana about ASGM as a global issue. This output will use targeted communication to garner support among the public, gold consumers, governments, and the financial sector, for sector reforms, increased access to finance and improved markets for ASGM gold. It will create outreach materials that are highly accessible to both specialized and general audiences, and deploy these assets through a carefully planned media strategy. This Output will also coordinate a specific public relation campaign in conjunction with a downstream user or users of gold, specifically jewelers, to increase awareness and demand for responsible gold trade.

The communication strategy should serve as a platform for dissemination, providing lessons learned and technical information material for other countries to implement large-scale, best practices for the elimination of mercury, with broad dissemination at the state level. All knowledge management activities will be gender mainstreamed; this includes integration of gender dimensions into the FSP´s training activities, for instance, through the presentation of sex-disaggregated data, activities related to reducing gender, and gender mainstreaming in training programs in line with the Gender Action Plan.

In addition to that, it should be noted that UNDP annually organizes meetings for Government Officers and Project Coordinators of all the UNDP-GEF funded Chemicals and Waste Projects in the Sub-Sharan Africa (SSA) Region. In these meetings, lessons learned, and best practices are shared among all the projects in this region.

Finally, UNDP will ensure that relevant information and lessons learned will be collected as input for the Mid-term Review and Terminal Evaluation.

9. Monitoring and Evaluation

Describe the budgeted M and E plan

The project results, corresponding indicators and mid-term and end-of-project targets in the project results framework will be monitored annually and evaluated periodically during project implementation, supported by Component 4: (Output 4.1, Activities i.). If baseline data for some of the results indicators is not yet available, it will be collected during the first year of project implementation. The Monitoring Plan included in Annex 5 details the roles, responsibilities, and frequency of monitoring project results.

Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the UNDP POPP and UNDP Evaluation Policy. The UNDP Country Office is responsible for ensuring full compliance with all UNDP project monitoring, quality assurance, risk management, and evaluation requirements.

Additional mandatory GEF-specific M&E requirements will be undertaken in accordance with the GEF Monitoring Policy and the GEF Evaluation Policy and other relevant GEF policies[1]. The costed M&E plan included below, and the Monitoring plan in Annex 3, will guide the GEF-specific M&E activities to be undertaken by this project.

In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report.

The project results as outlined in the Project Results Framework (Annex A) will be monitored annually and evaluated periodically during project implementation to ensure the project effectively achieves these results.

In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report.

M&E Plan and Budget

GEF M&E requirements	Indicative costs (US$)	Time frame
Inception Workshop	*$15,000*	Within 60 days of CEO endorsement of this project.
Inception Report	None	Within 90 days of CEO endorsement of this project.
M&E of GEF core indicators and project results framework	*$10,000*	Annually and at mid-point and closure..
GEF Project Implementation Report (PIR)	*$10,000*	Annually typically between June-August
Monitoring of *Environmental Social and Management Framework and Plan*	*$60,000*	On-going.
Supervision missions	None	Annually.
Independent Mid-term Review (MTR)	*$30,000*	June 2025
Independent Terminal Evaluation (TE)	*$30,000*	May 2027
TOTAL indicative COST	$155,000	

[1] See https://www.thegef.org/gef/policies_guidelines

10. Benefits

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

The Government of Ghana (GoG) has a strong record of ratifying and domesticating global and regional commitments, including Multi-lateral Environmental Agreements (MEAs) related to sustainable land, forest, and waste management. In 2017, the Government articulated a national vision for a prosperous nation through the creative use of human and natural resources, operating within a democratic, open, and fair society with mutual trust and economic opportunities exist for all. As a prominent advocate for the Sustainable Development Goals (SDGs), the GoG highlighted the alignment of this vision and its national policy frameworks with the 2030 development Agenda, and Agenda 2063.

The project's goal is to minimize risks to mercury exposure to human beings and the environment due to the use of mercury in the ASGM sector in compliance with the Minamata Convention, recognizing the multi-dimensional impacts of artisanal and small-scale gold mining on the environment, health and rural poverty.

At the District level, the implementation of coordinated demonstration actions with the private sector in the field will show the opportunities of institutional integration and coordination, private-driven investments, will demonstrate that the positive results of these pilot interventions would serve to improve and enforce current regulation for environmentally sound management of mercury in the ASGM sector. Innovative market interventions offer alternative solutions to other West African parties of the Minamata Convention and will follow and integrate these strategies in their efforts to phase out chemical hazardous substances. For this, a public awareness and communication strategy for the elimination of mercury, related wastes and safer alternatives should result in direct gains for the citizens and the environment.

Additional economic and social benefits that will be brought on by the project:

· Reduced health impact from the exposure to hazardous chemicals, particularly the use of mercury for the amalgamation of gold for gold mining as well as for gold extraction. The project estimates to increase awareness of about 360,000 people, of which 180,000 females and 180,000 males.

· Considered newly identified risks related to the global pandemic amid the COVID-19 virus that may affect the implementation of the project, especially to Indigenous and Tribal Peoples.

· Job creation through opportunities enhanced in the deployment of mercury-free technologies.

· Improved policy, regulatory, monitoring and analysis frameworks, to safeguard human health and the environment.

How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

In the BAU national context of the Ghana economy, limiting the country´s capacity on elimination of mercury in the ASGM sector will put a heavy burden in the compliance of international regulations committed by this country with the Minamata Convention. The Global Environmental Benefits (GEB) of the project at the CEO endorsement stage, are the same as presented at the PIF stage. The positive impacts of the project will include the following reduction:

Ø Nine (9) tons of mercury avoided.

11. Environmental and Social Safeguard (ESS) Risks

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

Overall Project/Program Risk Classification*

PIF	CEO Endorsement/Approval	MTR	TE
	High or Substantial		

Measures to address identified risks and impacts

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

Project Information

Project Information	
1. Project Title	*GEF GOLD+: Advancing formalization and mercury-free gold in Ghana*
2. Project Number (i.e. Atlas project ID, PIMS+)	*PIMS+ 6555 - GEFID*
3. Location (Global/Region/Country)	Global Programme – Child project: Ghana
4. Project stage (Design or Implementation)	Design
5. Date	September 2021

Part A. Integrating Programming Principles to Strengthen Social and Environmental Sustainability

QUESTION 1: How Does the Project Integrate the Programming Principles in Order to Strengthen Social and Environmental Sustainability?

Briefly describe in the space below how the project mainstreams the human rights-based approach

Based on Article 25, of the UN Human Right Declaration *"Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family…."*. A healthy environment without toxic chemicals is a pre-condition for the full enjoyment of human right. The lack of an adequate management of chemical hazards, like mercury, is a threat for humankind. This chemical substance pollutes air, water and soil that enters into direct contact with populations and its direct resources (food production systems), potentially contaminating and threatening their lives and well-being. Under this overarching principle, this project recognizes the important lessons learned from the Minamata disease, in particular the serious adverse health and environmental effects of mercury contamination, and the need to ensure proper management of mercury in the Artisanal Small Gold Mining (ASGM) sector.

This child project is a continuation of UNDP's efforts to reduce the use of mercury in and the long-term development of the ASGM sector. The approach proposed for this project is based on the notion that holistic multi-sectoral integrated formalization innovations can deepen mercury reduction in this sector. It will adopt the following key success factors:

- Appropriate legal and policy framework, that promotes management of ASGM spaces not people.
- A holistic integrated approach, which means considering all facets of the gold production and mercury supply chain and how they work together optimally for viable ASGM operations.
- Multisectoral, which means considering all sectors, e.g. forestry, water, health, environment, that are important for enabling an optimally functioning ASGM sector with capacity to reduce mercury-free use and supports sustainability.
- Inclusivity in policy formulation processes that include all stakeholders, including gender mainstreaming.
- Inclusion of local context in the institutional arrangements (i.e. miners' organizations, traditional and local-municipal authorities).

This project aims to minimize the risk to mercury exposure in human beings and environment for AGSM in Ghana that do not have the technical and financial capacities to manage and mitigate this environmental risk, in compliance with the Minamata Convention, following an environmentally sustainable market approach, which will deliver multiple benefits at the local, national and global levels through institutional strengthening, elimination of mercury in this sector and generating and disseminating information.

Strengthening local institutions and actors through joint implementation will be one of the engagement strategies of the project. Local communities and other economic actors within the landscape will be engaged for integrated land use planning, developing road maps and monitoring plans.

ASGM miners and their representatives will be core partners of this GEF planetGOLD+ and will be involved throughout the project. Their willingness to participate in mercury-free interventions is naturally important. To attain maximum buy-in, the miners have been involved in the identification and implementation of locally defined solutions. They will also be the recipients of training, finance and technology transfer at the child project level.

Through this approach, the project will contribute to several SDGs including:

- **SDG 1: End poverty in all its forms everywhere** by introducing alternatives, best practices and techniques to minimize the use and release of mercury, and also address the underlying socio-economic challenges that are at the core of existing practices that use mercury in the ASGM sector.
- **SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture** by decreasing the use of mercury and its release into the environment from the ASGM sector, indirectly halting and reducing the build-up of mercury in the food chain.
- **SDG 3: Ensure healthy lives and promote well-being for all at all ages** by reducing the use of mercury in ASGM sector, and minimize its releases, to ultimately protect human and environmental health.
- **SDG 8: Decent work and economic growth** through supporting the development of workplace safety standards and procedures, introducing personal protective measures, and addressing the underlying socio-economic causes that led to the use of mercury in the ASGM sector.

Briefly describe in the space below how the project is likely to improve gender equality and women's empowerment

An estimated 30% of the world's artisanal miners are women and they occupy a number of roles ranging from labor-intensive mining methods to the processing aspects of artisanal mining. Consistent with the GEF Policy on Gender Mainstreaming, the UNDP Gender Equality Strategy (2018-2021) and UNDP Guidance Document: *"Gender and Chemicals"*, the proposed Full Size Project (FSP) recognizes the gender dimensions of mercury use and exposure risks in ASGM as women often perform the most toxic jobs (i.e. mixing the mercury in panning and Hg:Au burning) as these activities require less strength. This Project presents an opportunity to educate women on the related health risks and maximize the potential benefits from participation in the ASGM sector.

The Project includes gender dimensions that are key to its success. At the policy formulation level, inclusivity and gender mainstreaming have been included to highlight that women should be a part of this process and have their interests and concerns accounted for in ASGM related policies. This provides an opportunity to ameliorate some of the inequities for an integrated policy-making that women in this sector encounter.

A Gender Analysis and Action Plan has been developed for the project with the following actions in mind that will improve consideration of women in decision-making and strengthen the monitoring of gender-related information:

- Focus on the structure and improve the knowledge of the project's technical team and key stakeholders concerning gender mainstreaming that allows for effective monitoring and participatory evaluation mechanisms.
- Guarantee the participation of women in decision-making processes of public policies and in the activities of the project, taking into account their needs and expectations not only within the spaces of family and community dialogue, but also within the schemes of formal and informal labor, as well as to working conditions to which they contribute.
- Consider quantitative and qualitative research methods to strengthen the information of the project with data disaggregated by gender, age, roles and other related data, which allows effective decision making.

Mainstreaming gender is planned for every component of the project. To this end, a detailed country-specific gender analyses will form part of the socio-economic assessments for child projects; the unique health risks mercury poses to women due to both, their roles on several ASGM mining tasks and the potential adverse effects of prenatal mercury exposure, through community level communications; and women will be strongly encouraged to participate in all ASGM miner training activities, from business skills to clean technology skills transfer. These efforts should provide the basis for healthier and more empowered women in the ASGM sector.

The project will thus contribute to **SDG 5: Achieve gender equality and empower all women and girls**.

The following are key indicators which include a gender dimension:

· Number of direct project beneficiaries for which the risk of mercury exposure has been reduced.

· Number of miners supported in their formalization process (disaggregated by gender).

· Amount of funds (in USD) made available to ASGM through financial mechanisms (disaggregated by gender).

· Number of miners trained in mercury-free processes (disaggregated by gender).

· Number of people reached with awareness raising materials, by mode of communication (e.g. online, in-person, via SMS, WhatsApp, etc.) and by gender.

Boosted with the implementation of a communication strategy, this FSP anticipates reducing the direct exposure to hazardous chemicals of 100,000 beneficiaries (45,000 females and 55,000 males).

Briefly describe in the space below how the project mainstreams sustainability and resilience

This FSP aims to achieve the long-term goal *"to prevent the exposure of humans and the environment to harmful chemicals and waste of global importance"* through reducing and eliminating the use of mercury in the ASGM sector and minimizing mercury releases to the environment from mining and gold processing.

As designed, the project is consistent with the GEF-7 Chemicals and Waste elements CW-1-1: *"Strengthen the sound management of industrial chemicals and their waste through better control, and reduction and/or elimination"* and CW-2-4: *"Strengthen the capacity of countries to report to the Minamata Convention"*.

In this regard, this FSP will achieve Global Environmental Benefits in terms of reduction and elimination of nine (9) tons of mercury, it will contribute to the achievement of the Sustainable Development Goals and will enable more favorable national and municipal environmental policies. Under this Principle, this FSP contributes to the following SDGs:

· **SDG 6: Clean Water and Sanitation** by protecting water resources from contamination.

· **SDG 12: Ensure sustainable consumption and production patterns** through the reduction of mercury pollution and mercury-containing wastes by introducing alternative processes and technologies that are mercury-free, cost-effective and in line with best available technology guidelines.

· **SDG 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development** through decreasing the use and release of mercury from ASGM activities, preventing mercury from entering water sources, and reducing the build-up of mercury in the food chain.

Based on Principle 15 of the Rio Declaration on Environment and Development (1992), "*....where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation",* this planetGOLD+ Child project aims at managing the environmental dimensions of chemical exposure of mercury in artisanal mining operations to humans and the environment. As a precautionary approach, mercury accumulates in the food chain, leading to ecosystem impacts worldwide and exposure of people who are not involved in gold mining activities.

In response to the SES Programming Principle of *"Vulnerability and Resilience"*, this project is also pertinent to be proactive to reduce vulnerability and to strengthen resilience of the involved local communities to emergency situations, conflicts, anticipated impacts of climate change, and disaster risks. Due to the geographic location of Ghana in the Central American Isthmus, sensitivity of the project, especially for the pilot projects and the surrounding communities, may be affected by the occurrence of increased natural disasters due to landslides, erosion, floods or extreme weather conditions or greater vulnerability thereto, generating environmental, social and operational complications for the execution of the planned field activities, in consequence, this FSP fully considers the implication of climate change in the design and its implementation..

Briefly describe in the space below how the project strengthens accountability to stakeholders

This FSP will implement "downstream activities" with physical interventions through the pilot projects as well as "upstream" through policy and regulatory strengthening and capacity building. Both present social and environmental risks that may adversely impact the achievement of the proposed outcomes. Overall, the project strengthens accountability for both, upstream and downstream stakeholders, by implementing a "*Stakeholder Engagement Plan*" and an "*Environmental Social Management Framework*" to ensure a thorough understanding of the sector and roles of the various stakeholders, and to inform them of progress on the work undertaken under this project.

UNDP remains accountable for ensuring application of its Social and Environmental Standards for the project activities implemented. Nevertheless, accountability -in the context of Ghana- should be highlighted in two fold: one is the timely response of grievances or objections from potentially affected stakeholders, in particular marginalized individuals and local communities participating in artisanal mining activities in specific territories, which are characterized by their low-poverty levels and informality; and second, UNDP adherence to quality assurance by using GEF funds that flow through UNDP accounts.

The project will engage all relevant stakeholders through implementing the Stakeholder Engagement Plan that has been prepared for the project. In addition, the Project Board will ensure that the project's Grievance Redress Mechanism is in place, accessible to the public and to project stakeholders and that all grievances are addressed in a timely and acceptable manner in line with the UNDP SES.

UNDP is also accountable to the GEF for the implementation of this project. This includes oversight of project execution to ensure that the project is being carried out in accordance with agreed standards and provisions. UNDP is responsible for delivering GEF project cycle management services and is also responsible for the Project Assurance role of the Project Board/Steering Committee.

Part B. Identifying and Managing Social and Environmental Risks

QUESTION 2: What are the Potential Social and Environmental Risks? *Note: Complete SESP Attachment 1 before responding to Question 2.*	QUESTION 3: What is the level of significance of the potential social and environmental risks? *Note: Respond to Questions 4 and 5below before proceeding to Question 5*			QUESTION 6: Describe the assessment and management measures for each risk rated Moderate, Substantial or High
Risk Description ***(broken down by event, cause, impact)***	***Impact and Likelihood (1-5)***	***Significance*** ***(Low, Moderate Substantial, High)***	***Comments (optional)***	***Description of assessment and management measures for risks rated as Moderate, Substantial or High***
Risk 1: The project could inadvertently exacerbate or reinforce existing inequalities or discrimination on affected populations, particularly people living in poverty or marginalized individuals. **Related to:** - Human Rights; P.3, P.5, P.6, P.7 - Accountability; P.13, P.14 - Standard 6: Indigenous Peoples; Q 6.1, Q6.2, Q6.3, Q6.5	I = 4 L = 3	**Substantial**	This FSP may have adverse effects in terms of inequality or discrimination on the affected populations, particularly people living in poverty who are reliant on *galamsey* (small-scale gold mining) and agriculture or traditional communities. In Ghana, *galmasey* activites are embedded in rural economic structures, where smallholder agriculture and rural mining dominate livelihood portfolios for women, men and youth. There is ample evidence that shows how proceeds from *galamasey* are directly and indirectly reinvested in crop production, provide inputs to sustain agriculture and enable seasonal transitions between rural mining and agriculture. Restrictions on ASGM activities may lead to unintended constraints for rural communities in Tier 1 sites, as many households (at lea st) depend seasonally on mining as an essential source of income. As the project, intendeds to work in blocked out ASM zones, where *galamsey* is already well integrated into rural structures, project activities will not lead to displacement or resettlement of mining or agricultural land users as ASM zones have been intentionally set aside by the Minerals Commission as designated authority by the Ministry of Lands and Natural Resources (MLNR).	As this has been rated as a Substantial Risk project, an Environmental and Social Management Framework (ESMF) has been carried out in the PPG (Annex 10) and accordingly, pilots to develop Jurisdictional Approaches (JA) to optimize land allocation (Output 1.2) will incorporate a **Strategic Environmental and Social Assessment (SESA)** process to ensure that all potential environmental and social impacts, including the risk of discrimination and marginalization, have been taken into account. These include occupational health and safety issues,, water management issues, pollution prevention and mine waste and potential livelihoods impacts. The SESA will engage affected communities result in relevant social and environmental management measures incorporated into the relevant JA. Should any of the SESAs find that this risk is relevant to traditional communities, the Project will take steps to ensure relevant requirements of Standard 6 are applied, including obtaining FPIC and developing a Traditional Communities Framework as part of the relevant JA. A comprehensive Stakeholder Engagement Plan (Annex 9) and Gender Strategy and Action Plan (Annex 11) have also been prepared during the PPG. During the selection of contaminated sites for mercury avoidance, surrounding communities will be closely involved and engaged through these plans**,** by ensuring effective engagement among stakeholders by preparing and disseminating information, fostering cooperation and enhancing capacities at the district level. During the PPG, site selection criteria were used to identify the most active ASGM communities, alternative agricultural land uses and presence of blocked out ASM zones endorsed by the Minerals Commission to mitigate the risk of livelihood displacement. Output 3.1., Act iii further addresses land-use conflict risks through the design and validation of mine closure plans for all Tier 1 sites to avoid the risk of abandonment. Furthermore, the proximity of LSM operations to project sites and community relations will be evaluated as part of site-specific ESIAs to be carried out. Legacy risks related to negative or conflicted land-use histories in mining areas, are addressed under Output 1.3., Act i. and Act vi, which collectively aimed to reduce the likelihood of conflict escalation and build capacity local positively managing community relations. The project promotes women´s participation in decision-making in general, while a gender-sensitive approach will be used in all project activities implemented. This approach will also benefit decision-making of women in mining within their own communities while considering their culture and traditions. Evidenced by previous bans on *galamsey activities* and COVID-19 supply chains disruptions, women reliant on direct and indirect liveli

				hood benefits were disproportionately affected and wil l be empowered to equally participate in community co nsultations. When formalizing mining activities, continuous efforts will be made to integrate consensus-based decision m aking into existing societal structures. An agreement s hould be reached regarding land use with other women and men users. A participatory process to reach agree ments with farmers, who are in many cases miners the mselves, and in Northern regions pastoralists about la nd-use during the life of the ASM spots and post-minin g land-use transitions will be implemented and describ ed in the Stakeholder Engagement Plan (Annex 9). For inidividal sites, consensus shall be sought with non-mi ning stakeholders using a participatory approach abou t an equitable distribution of water resources. A Water Management Plan for the coexistence of the miners wi th other water users will be developed and implemente d as part of the ESIA. Furthermore, sites under planetG OLD+ Ghana will exclusively work in land-based alluval and hardrock sites to avoid sensitive issues related to water pollution, river dredging and increased sediment loading caused by mining in alluvial deposits, rivers an d inland waterways. The ESMF was developed in accordance with UNDP an d GEF guidelines and standards, and ensures that enga gement will be culturally appropriate, promoting princi ples of Free, Prior and Informed Consent (FPIC) into G hana's mining laws, consistent with Economic Commu nity of West African States (ECOWAS) Guiding Principl es and Policies in the Mining Sector (ECOWAS Directiv e) sets for member states[1]. However, should the risk on traditional communities be confirmed through the S ESA and/or ESIAs, the Project will take steps to ensure relevant requirements of Standard 6 are applied such a s a Traditional Communities Framework and/or Plan, i ncluding clarification of Free Prior Informed Consent (FPIC) requirements. Moreover, the Grievance Redress Mechanism (GRM) proposed can be utilized when the mining ASGM community believe they are excluded, or when they have a problem or grievance with respect to implementation. The GRM is in accordance with UND P's policies and will include the views of mining comm unities.
Risk 2: Exclusion of certain groups o f miners from participating in project demonstrations, exacerbating huma n rights issues and leading to conflic t **Related to:** - Human Rights; P.3, P.5, P.6, P.7 - Accountability; P.13, P.14, P.15 - Standard 6: Indigenous Peoples; Q 6.1, Q6.2, Q6.3, Q6.5	I = 4 L = 2	**Moderate**	The Project's pilot activitie s, however, will not likely le ad to physical displaceme nt or resettlement of peopl e because pilot projects sit es have been selected by a rigorous screening of exist ing ASGM operations willin g to switch to mercury-free processing techniques, foll owing the due diligence re garding selection and valid ation.	In accordance with the GOLD+ global component and programmatic expectations, the project in Ghana will e nsure that all planetGOLD beneficiary mining entities (MEs) conform with the planetGOLD Criteria for Enviro nmentally and Socially Responsible Operations throug h review of the planetGOLD Environmental and Social Risk Assessment Report and the Mitigation Report. ME s must demonstrate respect, the individual and collecti ve culture, cultural heritage sites, views, and livelihood s of mining communities. It is worthy to note, planetGO LD+ site selection criteria were developed based upon these requirements for MEs. For this reason, sites requ ire verification as a safeguard requiring additional due diligence, recognizing that the specific means of imple mentation. As this has been rated as a Substantial Risk project, an **Environmental and Social Management Framework** (ESMF) has been carried out in the PPG (Annex 10) an d accordingly, a SESA will be undertaken when piloting the development of JA to optimize land allocation (Out put 1.2) and an **Environmental and Social Impact Ass essment** (ESIA) will be undertaken such that a site-spe cific Environmental and Social Management Plan (ESM P) will be developed for pilot demonstratins (Output 3. 2). The ESIA/ESMP process will take place ahead of th e implementation of the pilot demonstrations such tha t an ESMP will be in place prior to commencement of t he respective pilot. Based on the findings of the ESIA, t

				he ESMPs will likely include an Occupational Health an d Safety Plan, a Water Management Plan and other pla ns as necessary. When formalizing mining activities, continuous efforts will be made to integrate consensus-based decision m aking into existing societal structures. An agreement s hould be reached regarding land use with other women and men users. A consensus shall be sought with non-mining stakeholders using a participatory approach ab out an equitable distribution of water resources. A Wat er Management Plan for the coexistence of the miners with other water users will be developed and implemen ted as part of the ESIA. Should the JA SESAs or any of the ESIAs find that this risk is relevant to traditional communities, the Project will take steps to ensure relevant requirements of Stan dard 6 are applied, including obtaining FPIC and develo ping a Traditional Communities Framework (for JAs) o r Plan as part of the relevant site-specific ESMP. A comprehensive Stakeholder Engagement Plan (Anne x 9) and Gender Strategy and Action Plan (Annex 11) were prepared during the PPG. These plans will ensure that all interested miners and workers have been given the opportunitiy to participate in the project without dis crimination. In addition. A Grievance Redress Mechani sm (GRM) will be set up during Project Inception and di ssimenated to all project stakeholders.
Risk 3: Project inadvertently perpetu ates or increases risk of sexual viole nce and harassment against women **Related to:** - Gender Equality and Women's Em powerment; P.9	I = 5 L = 4	**Substanti al**	According to the WHO, in c ontexts where artisanal mi ning occurs outside of for mal governmental regulati on, especially when carried out in remote locations, w oman can face additional r isks due to their social isol ation and vulnerability to p hysical and sexual abuse. Lack of access to safe and equitable employment opp ortunities in the ASGM sec tor can further enhance th ese vulnerabilities[2]. Thes e conditions may persist d uring and after project imp lementation if not specific ally addressed.	This issue will be investigated in the ESIA for the pilot demonstrations and if applicable, measures incorporat ed into the site-specific ESMPs to mitigate these condi tions. In addition, the Stakeholder Engagement Plan (Annex 9) and Gender Strategy and Action Plan (Annex 11) we re prepared during the PPG. These plans will outline w ays to combat gender-based violence and harassment against women and include measures to raise awaren ess that sexual violence and harassment is unaccepta ble and promote the development of measures to com bat sexual and gender-based violence and harassment, protect victims and encourage them to denounce aggr essors to competent authorities.
Risk 4: Project inadvertently exacerb ates or reinforces existing discrimin ation against women. **Related to:** - Gender Equality and Women's Em powerment; P.10, P.11	I = 3 L = 3	**Moderate**	In general, women have un equal access to ore deposi ts, mining entities, finance, equipment and more lucra tive roles in the gold minin g value chain. These inco me disparities can translat e into broader inequalities, leaving women behind. So cial factors, mainly the occ upational roles determined by the gender, affect the ty pe of exposure to mercury for ASM gold extraction, a nd the differentiated impa cts on the health of men, w omen and young children. This could be interpreted a s a situation of discriminat ion and affect fair particip ation, yet with a gender per spective.	The SESAs undertaken for Output 1.2 will take this risk into consideration, alongside Output 3.1., Act. V (gende r impact assessment focused on labour displacement resulting from the adoption to new technologies) and Act. Vi (alternative livelihoods audit for women, and vul nerable populations). In addition, during the PPG phase, a Gender Action Pla n was prepared based on a Gender Analysis. This plan focuses on four lines of work (Annex 11): (i) Strengthening capacities to understand and ap ply the approach of gender mainstreaming by pro viding gender training for PMU, other governance structures and relevant local leadership (ii) Protection from gender-differentiated exposure to mercury and other hazardous wastes. (iii) Participation and empowerment of women pro moting women´s participation in decision-making in general and monitor the effectiveness of gend er mainstreaming during project implementation.

			Also, women's income opportunities in Ghana are limited by restricting or prohibiting them from accessing gold resources, from engaging in gold producing activities, or from joining miners' representative organizations.	(iv) Introduce gender aspects in project monitoring, communication and evaluation actions.
Risk 5: Potential loss of income for miners who decide not to take part in the Project or otherwise transition to sustainable mining practices. **Related to:** - Human Rights; P.3, P.5, P.6, P.7 - Accountability; P.13, P.14, P.15 - Standard 5: Displacement and Resettlement, Q5.2, Q5.4 - Standard 6: Indigenous People; 6.1	I = 2 L = 2	**Low**	There is a chance that some miners and workers may experience a loss of livelihoods because they decide not to participate in the project activities or otherwise transition to sustainable mining practices.	A comprehensive Stakeholder Engagement Plan (Annex 9) and Gender Strategy and Action Plan (Annex 11) were prepared during the PPG. These plans will ensure that all interested miners and workers (both formal and informal) have been given equal opportunitiy to participate in the project without discrimination. If any risks are identified affecting traditional communities, consultations will apply the relevant requirements of Standard 6 (e.g. Traditional Communities Plan, FPIC). This risk will be mitigated by carrying out the following activities: Component 1, Outcome 1, Output 1.1. Activity iii.: During the implementation of the FSP, will carry out a formalization diagnostic in compliance with the guidelines established by international protocols (CRAFT) will be enhanced, as well as national legislation and applicable international agreements signed by Ghana considering Minamata Convention. The Code of Risk mitigation for ASM engaging in Formal Trade (CRAFT) aims to facilitate the relationship between the gold industry and the ASM sector, as an enabling tool to advance OECD Due Diligence Guidance while laying out a progressive path toward the mitigation of risks and promotion of responsible mining. During training opportunities, both formal and informal miners will be engaged to communicate the opportunities and realities of achieving CRAFT Code compliance under the project. Furthermore, Output 3.1., Act iii. will enhance the capacity of regulatory agencies to deliver services to miners in Tier 1 districts providing direct benefit for local project beneficiaries and indirect benefits for miners in proximate communities or villages through enhanced service delivery and competence of Municipal and District Government, as well as District Mining Committees (DMCs) for Tier 1 intervention sites. Component 2, Outcome 2, Output 2.1: The project will provide training and capacity building of the FSP stakeholders to build confidence prior to carry out any field intervention based on the Overarching Principle: *Leave No One Behind*. Component 3, Outcome 3, Output 3.1., Activity iv under this FSP will ensure miners are consulted to validate all proposed technologies for Tier 1 sites; combined with Act. V, will conduct a gender impact study of introduction of new technology including mitigation measures for possible female labour displacement, complimented by Act. Vi to conduct an alternative livelihoods audit and identify support services for displaced women, men, youth and vulnerable persons. Component 4, Outcome 4, Output 4.2, and corresponding activities empahsize miner, District Government and local financial institution focused communication strategies, to improve the d*efacto* situation for all miners by focusing on the development opportunity the sector can bring, vs. overemphasis on adverse environmental impacts, which is currently observed through negative, damaging national media coverage of ASGM.
Risk 6: Natural disasters could eventually affect the locations and operations where the planned demonstration projects are carried out. **Related to:** Standard 2: Climate Change Mitigatio	I = 3 L = 3	**Moderate**	Sensitivity of the project may be affected by the occurrence of natural disasters due to landslides, erosion, floods or extreme weather conditions or greater vulnerability thereto, generating environmental, social and	Within the framework of the project, it is planned to build capacity with the involved stakeholders, as well as with the project staff, for the immediate response to manage this climate change-related risk, primarily in the surroundings of the facilities of the pilot projects, including vulnerability factors to natural events and climate change.

n and Adaptation; Q2.1, Q2.2			operational complications for the execution of the pla nned field activities. More frequent and intense extreme weather events m ight also slow down the rat e of environmental recover y in the ASGM areas.	The verification of sites for the implementation of the pilot and demonstration projects (Output 1.2., Activity i ii) will consider that the infrastructure to be built is not situated in areas classified as high-risk due to landslid es, erosion, floods or extreme weather conditions. As described in Act. Iii, Output 1.2 of the ProDoc, the F SP will perform climate change vulnerability assessme nts and implement climate adaptation strategies. This activity will assess – for each technical design of merc ury-free processing facilities – a natural disaster risk a ssessment that could eventually affect operations in th e geographic location where pilot projects will be imple mented. It will include four steps, as the STAP guidanc e on Climate Risk Screening, i.e.: hazard identification, assessment of vulnerability and exposure, risk classifi cation and risk mitigation plans. Risk assessments will consider not only the duration of the FSP but also the li fetime of the expected Global Environmental Benefits; again, for each of the pilot project sites. Sustainable ba nking principles being developed by Bank of Ghana in c ollaboration with the International Finance Cooperatio n (IFC), Ghana Association of Bankers and the Environ mental Protection Agency to build sustainable financia l systems in Ghana within the national context of green ing the economy of Ghana. The initiative also seeks to place green economic policies of Ghana in line with th e SDGs and ambitions under the Paris Agreement. Thr ough this cooperation agreement, IFC and the Bank of Ghan a have developed an Environmental and Social Risk M anagement (ESRM) for Ghana's banking sector toward s greening Ghana's economy, including responsible sm all-scale gold mining[3]. As such, climate risk assess ments anticipated under GOLD+ play key role in de-risk ing investments for financial institutions while serving as an innovative financial assurance mechanism for m ining projects. In accordance with the ESMF, and as part of the SESA for the development of the JA (Output 1.2, Activity iii), t he multisector integrated approach the project will perf orm climate change vulnerability assessments and im plement climate adaptation strategies. The demonstra tion ESIAs/ESMPs (Output 3.2) will also include asses sment of climate risks and identification of relevant m anagement measures specific to the proposed demon stration pilots, including any new processing plants.
Risk 7: Negative impact of constructi on and operation of new processing plants and other facilities supported through the project on natural areas or cultural heritage sites **Related to:** - Standard 1: Biodiversity Conserva tion and Sustainable Natural Resourc es Management; Q1.1, Q1.2, Q1.3, Q1. 7, Q1.14 - Standard 4: Cultural Heritage; Q4. 1, Q4.3	I = 3 L = 3	**Moderate**	The project plans to establ ish small and medium size d cyanidation plants using a technology that allows f or a small footprint (maxi mum of 4 acres) that will li kely be located on already disturbed land. The gold pr ocessing plants may be lo cated on or near natural ha bitats or protected areas o r near areas with importan t biological significance (e. g. areas with many endang ered species/unique habit ats, restricted range ende mics, etc.) or sites of cultu ral heritage importance.	In accordance with the ESMF, selection of the location of proposed processing plants and other facilities will ensure that the project does not infringe on critical hab itats and sites of high biodiversity or cultural heritage i mportance. During the PPG critiera for the avoidance o f selecting sites in critical habitats and cultural heritag e was integrated into Tier 1 site selection to promote s ustainable land management, forest conservation and the protection of biological diversity and cultural herita ge. The JA SESAs and the Tier 1 ESIAs will look at thes e potential impacts of any new processing plants and i dentify preferred alternatives including for the siting of any new processing plants, applying the mitigation hier archy to avoid impacts where possible. The site-specific ESMPs, based on Tier 1 ESIAs, will in clude measures to protect biodvierstiy and natural res ources from disruption and pollution during constructi on and operation and to improve mining practices that aim to avoid or reduce impacts on surrounding critical habitats, protected areas, high value conservation area s or cultural heritage sites through application of a miti gation hierarchy to avoid, minimize, restore or (where r elevant) offset adverse impacts and control any negati ve effects on the environment. In Ghana, during the PP G special attention has been paid to avoiding selection

				of sites with forest reserves, protected areas, biodiversity conservation areas and cultural heritage sites designated under law. Component 3, Outcomes 3, Output 3.1., under Act., ii. will verify Tier 1 sites with social and environmental criteria based on each site-specific ESIA in accordance with the ESMF.
Risk 8: Pollution and emission risks from mining operations or processing plants supported through the project **Related to:** - Standard 1: Biodiversity Conservation and Sustainable Natural Resource Management; Q1.1, Q1.2 and Q1.3 - Standard 3: Community Health, Safety and Security; Q3.2, Q3.4, Q3.6 - Standard 4: Cultural Heritage; Q4.1, Q4.3 - Standard 6: Indigenous Peoples; Q6.1, Q6.2 - Standard 8: Pollution Prevention and Resources Efficiency; Q8.1, Q8.2, Q8.3, Q8.4 and Q8.6	I = 5 L = 3	**Substantial**	The main environmental risks and health risks are posed by the use of mercury in the ore extraction process, in tailings, and in siltation of rivers. Wastewater from ASGM mining operations or processing plants directly discharged into water bodies may contain a high content of suspended solids, high concentrations of mercury or of lubricating and fuel oils used for combustion engines. Elevated contamination of any of the above pollutants puts at risk the health and livelihoods of others who use this water for human consumption or fishing and to the natural ecosystem. It is important to note the special vulnerability of mining communities due to the biomagnification of mercury and the contamination of their foods, such as increased mercury levels in fish as a source of protein for communities. The project's interventions for the elimination of mercury without control may result in negative impacts near the location of the demonstration facilities, during transport and in the interim storage of this element; a context that poses additional challenges for the environmentally sensitive areas (soil and surface water contamination, aquifer mantles, toxicity, bioaccumulation and biomagnification in living tissues), affecting the credibility and image of the leading stakeholders. This may have adverse impacts on the health of surrounding communities, or communities downstream of the pilot areas, including traditional communities that are known to live there.	The ESIA for each pilot demonstration (Output 3.2) will address the issue of wastewater discharge from mining activities including mining operations and processing plants. Treatment before discharge into any water bodies will be undertaken to ensure the reduction of suspended solids, mercury and other chemicals and fuel residues to acceptable limits in line with local or international standards. This will ensure that water quality does not represent a risk for the health and the livelihoods of other water users or a serious ecosystem risk. The impact of suspended solids, mercury and fuel residues (as applicable) on other water users will be evaluated, contamination of waste water with pollutants that represent a high risk will be monitored, and technical improvements to reduce emissions will be designed and implemented. Based on each ESIA, site-specific ESMPs to be developed will thus include pollution prevention and mine waste management measures, calling special attention to the elimitation of worst practices under Article 7, Annex C of the Minamata Convention on Mercury. The reduction of mercury pollution and mercury-containing wastes through the introduction of mercury-free, cost-effective and responsible mining practices, pollution hazards and exposure risks will be minimized. Process controls and efforts to minimize metal enrichment in tailings with potentially harmful elements (PHEs), especially Arsenic (As) and Lead (Pb) will be achieved through ore characterization and mineralogical analysis at each Tier 1 site, to customize and inform detailed pollution prevention measures. Cyanidation of mercury contaminated tailings will be avoided and has not been observed to date in Ghana. Scoped ESIAs will be conducted at each selected Tier 1 demonstration site to inform the site-specific ESMPs that will likley include an Occupational Health and Safety (OHS) Plan, a Water Management Plan, and comprehensive Pollution Prevention and Mine Waste Management Plan, especially where cyanidation leaching facilities are deemed feasible under Output 3.2., Act.,I and potentially a Resettlement or Livelihoods Action Plan. The ESMPs will be put in place prior to commencement of the field project activities, guaranteeing that no activities may cause adverse social and environmental impacts are to proceed until assessments are completed and appropriate mitigation and management measures are in place; however, implementation and monitoring of identified risk management and mitigation measures is required throughout the project life-cycle. Selection of locations of the proposed processing plants and other facilities will be undertaken considering proximity to protected areas, cultural heritage sites and villages to ensure that they will not be adversely impacted. The site-specific ESMPs will address the issue of wastewater discharge from project activities including mining operations and each processing plant. Treatment before discharge into any water bodies will be undertaken to ensure the reduction of suspended solids, chemicals and fuel residues to acceptable limits in line with national or international standards. This will ensure that water quality does not represent a risk for the health and livelihoods of other water users or yield a serious

				ecosystem risk. The impact of suspended solids, chemicals and fuel residues (as applicable) on other water users is evaluated, contamination of wastewater with pollutants that represent a high risk is monitored, and technical improvements to reduce emissions are designed and implemented. This assessment will deal with the temporary storage of by-products of the mining business, specifically mercury and contaminated tailings; the ESMF will propose alternative mitigation means of handling this substance along the ASGM mercury management cycle. ESMPs will also adopt special mitigation measures for the responsible transport, handling, storage, operations, waste disposal and decommissioning of cyanide production facilities in accordance with planetGOLD guidance on small-scale cyanidation facilities. These planetGOLD guidance are adapted from the International Cyanide Management Code (ICMC) as leading certification program on responsible cyanide use in gold mining [4]. In addition, should any of the ESIAs confirm any potential risks on nearby traditional communities, consultations will apply on the relevant requirements of Standard 6 (including FPIC) such that a Traditional Communities Plan will be included in the pursuant site-specific ESMP.
Risk 9: Inappropriate behavior by security personnel needed at the processing plants or other facilities Related to: - Standard 3: Community Health, Safety and Security; 3.8	I = 4 L = 2	**Moderate**	Security guards may be required to secure the processing plants during operation. These staff may not be properly trained on how to properly deal with the local community, which may lead to grievances by residents.	Prior to hiring of any security staff to guard project components (specifically those to be established under Output 3.2), a Code of Conduct reflecting SES requirements will be prepared for the project such that security staff must abide by them. Training will be offered to participating individuals to ensure they are aware of their responsibilities. In addition, the Grievance Redress Mechanism for the project will allow the local community to share any concerns or grievances they may have or report any incidents related to this risk.
Risk 10: Potential physical resettlement or loss of livelihoods during construction of any project facility Related to: - Standard 5: Resettlement and Economic Displacement; Q5.1, Q5.2 - Standard 6: Indigenous Peoples; Q 6.6	I = 4 L = 1	**Low**	Since the location of proposed processing plants or other facilities under this project are still not known, there is a likelihood that they would be situated on inhabited or productive lands potentially leading to displacement or loss of access to land may also be disrupted potentially leading to economic displacement. However, the planned plants utilize a technology that allows for a small footprint (maximum of 4 acres) that will likely be located on disturbed land that has already been designated as ASM zones by the Minerals Commission after a comprehensive consultation process that included representatives of traditional communities. Therefore, the likelihood of this occurrence is low if not non-existent.	In accordance with the ESMF, selection of the location of the proposed processing plants and other facilities to be installed as part of Output 3.2 will aim to ensure that the project does not infringe on residential or productive areas. During the PPG, critiera for the avoidance of selecting sites that are inhabited was integrated into Tier 1 site selection. However, should this be unavoidable, the SESP will be updated accordinagly and ESIA will assess and quantify this risk and to mitigate these impacts and a Resettlement or Livelihoods Action Plan included in ESMPs if found to be needed. In addition, Mining Entities, inclusive of cooperative, small-scale enterprises or other organizations eligible to secure rights and title under existing Ghanain mineral law help to define 'mine level workers', which is inclusive of miners and processors. Within Tier 1 sites, miners can enhance local incomes through offtake agreements with processing centers through direct purchase, also known as toll milling, which enables end-to-end control of processing circuits and limits the potential for livelihood displacement. This is done through the establishment of assay facilities at the mine level.
Risk 11: Health and safety risk for the workers in mines and processing plants whose construction and operation are supported by the project	I = 4 L = 3	**Substantial**	This could occur if miners and workers do not abide by a safety protocol and use the essential Personal Protective Equipment (PPE) appropriate for the work	Labour Management Procedures will be prepared for the project to ensure labour standards and rights are upheld for project workers. In addition, an ESIA will be conducted prior to commencement of the pilot activities associated with establishment of the processing plants (Output 3.2) to assess o

Related to: - Standard 7: Labour and Working Conditions; Q7.6			they perform. Miners may also be exposed to a range of emergency and non-emergency health issues that result from working conditions and the social context of work. In addition, health and safety of workers may be impacted during construction (which is implemented directly by the project through hiring a contractor) and operation if proper measures are not implemented and adequate PPE are not worn by the workers.	ccupational health and safety risks. Based on this assessment, the site-specific ESMPs will be developed to include an Occupational Health and Safety (OHS) Plan to ensure that miners and workers are safe during mining activities and during construction and operation of the processing plant or any facility developed by the project. This Plan will include conditions under which the use of PPE is mandatory. It will ensure that first aid kits are available on site with trained workers, if not health staff, prepared to care for minor injuries. For major injuries, emergency, primary and preventative care miners will have access to health facilities. Likewise, compliance with health, work and environmental regulations, as well as safety standards for the development of activities that include exposure to physical and chemical hazards will be promoted with the beneficiary groups, paying special attention to gendered exposure risks for mercury and cyanide.
Risk 12: Participation of minors in hazardous activities and other working conditions in contravention with national standards and ILO conventions at pilot sites **Related to:** - Standard 7: Labour and Working Conditions; Q7.1, Q7.3, Q7.5 and Q7.6	I = 5 L = 2	**Moderate**	Child labour is common in poor and rural areas in general and in the ASGM sector. If not specifically addressed, persons below 18 years of age in the perimeter of the mine may be engaged in hazardous work, which is classified as “worst forms of child labour”. In addition, persons younger than 15 years old may also be employed or allowed to work in the mines by the Mining Entities or on the construction site of the processing plant and other facilities.	Labour Management Procedures will be prepared for the project to ensure labour standards and rights are upheld for project workers. In addition, the ESIA will assess the likelihood of this risk and prevalence of child labour in selected Tier 1 sites, within ASGM communities of target areas and propose measures to reduce it and through interventions that aim to find working persons under the age of 18 perform tasks appropriate to their age, and eilimate the worst forms of child labour (ILO Convention 182). In order to prevent the use of child labour, forced labour and other working conditions in contravention with the new UNDP/ILO new labour standard and integrate aspects into the planetGOLD+ Ghana, including but not limited to the following actions: i) ESIA to assess risks to project workers and develop labour management procedures at the project pilot sites for construction/establishment of the processing plants (Output 3.2) as part of the site-specific ESMPs. ii) Highlight workers’ fundamental rights, their fair treatment, and the provision of safe and healthy working conditions through developing and implementing an Occupational Health and Safety Plan as part of the site-specific ESMPs. iii) Ensure sound worker-management relationships and cooperation in their design and implementation through putting in place a workplace grievance redress mechanism at all sites. vi) Improve the capacity of Mining Entities (MEs) engaged in the pilot demonstrations to comply with employment and labour laws, rules and regulations and international commitments, including the CRAFT code which includes a module to address the worst forms of child labour in accordance with OECD Annex II Risks for artisanal and small-scale mineral supply chains in Conflict Affected and High-Risk Areas (CAHRAs). v) Promote creation of child labour free zones in Tier 1 sites, under Output 3.1., Act ii building upon lessons learned from positive results, working with the Minerals Commission child Labour Unit to eliminate the prevalence of children in Tier 1 project sites through a coordinated, do no harm strategy. The ESMF will also assess the likelihood of participation of minors in hazardous activities and prevalence of child labor within the ASGM sector in the target mining territories and propose measures to reduce it in line with Output 1.3. Act. Ii.

				iv) Encourage women-led Village Savings and Loan As sociations (VSLAs) in Tier 1 sites to develop affordabl e childcare services for miners and their families, enab led through Output 2.1., Act. v. to establish solidarity m icrofinance funds for VSLAs to improve safety and de-r isk sourcing from ASGM communities. As a nationally stated priority, the project takes a strat egic and coordinated approach to address the issue of child labor and addressing root causes in Tier 1 zones.
Risk 13: Potential community spread of COVID-19 during project impleme ntation **Related to:** - Standard 3: Community Health, Sa fety and Security; Q3.2 - Standard 7: Labour and Working C onditions; Q7.6	I = 4 L = 3	**Substanti al**	Due to the ongoing Covid-19 pandemic, project activi ties may increase exposur e of the local community a nd workers to the disease.	While this FSP will be implementing in a very dynamic and evolving response due to this pandemic, regular m onitoring of this risk by the PMU and carry out period a ssessment of changing the market context, both at the national and international levels, to ensure the project r emains a relevant and trusted partner of the participati ng stakeholders and able to adapt in response accordi ngly. Preventive and mitigation measures, such as adequate outreach and awareness activities, utilizing traditional methods and materials in local languages, combined with provisions of handwashing and other sanitary and hygiene facilities in addition to the already government -enforced human traffic stop to and from the interior m ay help prevent a full-blown spread of the COVID-19 vir us among the local community. In addition, the program budget will cover recurrent co sts for purchasing hand sanitizers, face masks, gloves, etc. for project staff. It will create a COVID-19 repositor y for disseminating information related to COVID-19 wi th program teams and stakeholders.

QUESTION 4: What is the overall project risk categorization?

Low Risk	☐	
Moderate Risk	☐	
Substantial Risk	X	As this has been rated as a Substantial Risk project, a n ESMF was put together in the PPG. Based on this, a SESA apporach will be adopted for Output 1.2 related to pilots for development of JA in Tier 1 jurisdictions. I n addition, a scoped ESIA with site specific ESMP will be carried out prior to the commencement of establis hment of processing plants (Output 3.2). Based on the results of the ESIA, the site-specific ESMP will likely in clude an Occupational Health and Safety Plan, Labour Management Plan, Water Management Plan, Pollution Prevention with special attention to Mercury and Cyan ide, and others, as deemed necessary (such as a Rese ttlement or Livelihoods Action Plan and Traditional Co mmunities Plan). A comprehensive Stakeholder Enga gement Plan and Gender Strategy and Action Plan wer e prepared during the PPG and will complement, both, the ESMF and site-specific ESIAs/ESMPs. A Grievance Redress Mechansim for both the community and work ers at pilot sites will be developed and put in place dur ing project Inception, and ensured equal access for pr oject-affected stakeholders.
High Risk	☐	

QUESTION 5: Based on the identified risks and risk categorization, what requirements of the SES are trig gered? (check all that apply)

Question only required for Moderate, Substantial and High Risk projects

Is assessment required? (check if "yes")	x			*Status? (co mpleted, pla nned)*
if yes, indicate overall type and status		☐	Targeted assessment(s)	
		x	ESIA (Environmental and Social Impact Assessment)	ESIAs (Plann ed)

			x	SESA (Strategic Environmental and Social Assessment)	SESA (Planned)
	Are management plans required? (check if "yes)	X			
	If yes, indicate overall type		x	Targeted management plans (e.g. Gender Action Plan, Emergency Response Plan, Waste Management Plan, others)	Gender Action Plan (Completed)
					Climate risk assessment (planned)
			x	ESMP (Environmental and Social Management Plans which may include range of targeted plans)	Site- specific ESMPs (Planned)
			x	ESMF (Environmental and Social Management Framework)	ESMF (Completed)
	Based on identified risks, which Principles/Project-level Standards triggered?			**Comments (not required)**	
	Overarching Principle: Leave No One Behind				
	Human Rights	x			
	Gender Equality and Women's Empowerment	x			
	Accountability	x			
	1. Biodiversity Conservation and Sustainable Natural Resource Management	x			
	2. Climate Change and Disaster Risks	x			
	3. Community Health, Safety and Security	x			
	4. Cultural Heritage	x			
	5. Displacement and Resettlement	☐			
	6. Indigenous Peoples	x			
	7. Labour and Working Conditions	x			
	8. Pollution Prevention and Resource Efficiency	x			

Final Sign Off

Final Screening at the design-stage is not complete until the following signatures are included

Signature	*Date*	*Description*
QA Assessor		UNDP staff member responsible for the project, typically a UNDP Programme Officer. Final signature confirms they have "checked" to ensure that the SESP is adequately conducted.
QA Approver		UNDP senior manager, typically the UNDP Deputy Country Director (DCD), Country Director (CD), Deputy Resident Representative (DRR), or Resident Representative (RR). The QA Approver cannot also be the QA Assessor. Final signature confirms they have "cleared" the SESP prior to submittal to the PAC.
PAC Chair		UNDP chair of the PAC. In some cases PAC Chair may also be the QA Approver. Final signature confirms that the SESP was considered as part of the project appraisal and considered in recommendations of the PAC.

SESP Attachment 1. Social and Environmental Risk Screening Checklist

Checklist Potential Social and Environmental Risks	
INSTRUCTIONS: The risk screening checklist will assist in answering Questions 2-6 of the Screening Template. Answers to the checklist questions help to (1) identify potential risks, (2) determine the overall risk categorization of the project, and (3) determine required level of assessment and management measures. Refer to the SES toolkit for further guidance on addressing screening questions.	
Overarching Principle: Leave No One Behind **Human Rights**	**Answer (Yes/No)**
P.1 Have local communities or individuals raised human rights concerns regarding the project (e.g. during the stakeholder engagement process, grievance processes, public statements)?	NO
P.2 Is there a risk that duty-bearers (e.g. government agencies) do not have the capacity to meet their obligations in the project?	NO
P.3 Is there a risk that rights-holders (e.g. project-affected persons) do not have the capacity to claim their rights?	YES
Would the project potentially involve or lead to:	
P.4 adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population and particularly of marginalized groups?	NO
P.5 inequitable or discriminatory impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups, including persons with disabilities? [5]	YES
P.6 restrictions in availability, quality of and/or access to resources or basic services, in particular to marginalized individuals or groups, including persons with disabilities?	YES
P.7 exacerbation of conflicts among and/or the risk of violence to project-affected communities and individuals?	YES
Gender Equality and Women's Empowerment	
P.8 Have women's groups/leaders raised gender equality concerns regarding the project, (e.g. during the stakeholder engagement process, grievance processes, public statements)?	NO
Would the project potentially involve or lead to:	
P.9 adverse impacts on gender equality and/or the situation of women and girls?	YES
P.10 reproducing discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	YES
P.11 limitations on women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services? *For example, activities that could lead to natural resources degradation or depletion in communities who depend on these resources for their livelihoods and well being*	YES
P.12 exacerbation of risks of gender-based violence? *For example, through the influx of workers to a community, changes in community and household power dynamics, increased exposure to unsafe public places and/or transport, etc.*	NO
Sustainability and Resilience: Screening questions regarding risks associated with sustainability and resilience are encompassed by the Standard-specific questions below	
Accountability	
Would the project potentially involve or lead to:	
P.13 exclusion of any potentially affected stakeholders, in particular marginalized groups and excluded individuals (including persons with disabilities), from fully participating in decisions that may affect them?	YES
P.14 grievances or objections from potentially affected stakeholders?	YES
P.15 risks of retaliation or reprisals against stakeholders who express concerns or grievances, or who seek to participate in or to obtain information on the project?	YES
Project-Level Standards	
Standard 1: Biodiversity Conservation and Sustainable Natural Resource Management	
Would the project potentially involve or lead to:	
1.1 adverse impacts to habitats (e.g. modified, natural, and critical habitats) and/or ecosystems and ecosystem services? *For example, through habitat loss, conversion or degradation, fragmentation, hydrological changes*	YES

1.2 activities within or adjacent to critical habitats and/or environmentally sensitive areas, including (but not limited to) legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	YES
1.3 changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods? (Note: if restrictions and/or limitations of access to lands would apply, refer to Standard 5)	YES
1.4 risks to endangered species (e.g. reduction, encroachment on habitat)?	NO
1.5 exacerbation of illegal wildlife trade?	NO
1.6 introduction of invasive alien species?	NO
1.7 adverse impacts on soils?	YES
1.8 harvesting of natural forests, plantation development, or reforestation?	NO
1. 9 significant agricultural production?	NO
1. 10 animal husbandry or harvesting of fish populations or other aquatic species?	NO
1.11 significant extraction, diversion or containment of surface or ground water? *For example, construction of dams, reservoirs, river basin developments, groundwater extraction*	NO
1.12 handling or utilization of genetically modified organisms/living modified organisms?[6]	NO
1.13 utilization of genetic resources? (e.g. collection and/or harvesting, commercial development)[7]	NO
1.14 adverse transboundary or global environmental concerns?	YES
Standard 2: Climate Change and Disaster Risks	
Would the potentially involve or lead to:	
2.1 areas subject to hazards such as earthquakes, floods, landslides, severe winds, storm surges, tsunami or volcanic eruptions?	YES
2.2 outputs and outcomes sensitive or vulnerable to potential impacts of climate change? *For example, through increased precipitation, drought, temperature, salinity, extreme events*	YES
2.3 direct or indirect increases in vulnerability to climate change impacts or disasters now or in the future (also known as maladaptive practices)? *For example, changes to land use planning may encourage further development of floodplains, potentially increasing the population's vulnerability to climate change, specifically flooding*	NO
2.4 increases of greenhouse gas emissions, black carbon emissions or other drivers of climate change?	NO
Standard 3: Community Health, Safety and Security	
Would the potentially involve or lead to:	
3.1 construction and/or infrastructure development (e.g. roads, buildings, dams)? (Note: the GEF does not finance projects that would involve the construction or rehabilitation of large or complex dams)	YES
3.2 air pollution, noise, vibration, traffic, injuries, physical hazards, poor surface water quality due to runoff, erosion, sanitation?	YES
3.3 harm or losses due to failure of structural elements of the project (e.g. collapse of buildings or infrastructure)?	NO
3.4 risks of water-borne or other vector-borne diseases (e.g. temporary breeding habitats), communicable and noncommunicable diseases, nutritional disorders, mental health?	YES
3.5 transport, storage, and use and/or disposal of hazardous or dangerous materials (e.g. explosives, fuel and other chemicals during construction and operation)?	YES
3.6 adverse impacts on ecosystems and ecosystem services relevant to communities' health (e.g. food, surface water purification, natural buffers from flooding)?	NO
3.7 influx of project workers to project areas?	NO
3.8 engagement of security personnel to protect facilities and property or to support project activities?	YES
Standard 4: Cultural Heritage	
Would the project potentially involve or lead to:	NO
4.1 activities adjacent to or within a Cultural Heritage site?	YES

4.2 significant excavations, demolitions, movement of earth, flooding or other environmental changes?	NO
4.3 adverse impacts to sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)? (Note: projects intended to protect and conserve Cultural Heritage may also have inadvertent adverse impacts)	YES
4.4 alterations to landscapes and natural features with cultural significance?	NO
4.5 utilization of tangible and/or intangible forms (e.g. practices, traditional knowledge) of Cultural Heritage for commercial or other purposes?	NO
Standard 5: Displacement and Resettlement	
Would the project potentially involve or lead to:	
5.1 temporary or permanent and full or partial physical displacement (including people without legally recognizable claims to land)?	NO
5.2 economic displacement (e.g. loss of assets or access to resources due to land acquisition or access restrictions – even in the absence of physical relocation)?	YES
5.3 risk of forced evictions?[8]	NO
5.4 impacts on or changes to land tenure arrangements and/or community-based property rights/customary rights to land, territories and/or resources?	NO
Standard 6: Indigenous Peoples	
Would the project potentially involve or lead to:	
6.1 areas where indigenous peoples are present (including project area of influence)?	YES
6.2 activities located on lands and territories claimed by indigenous peoples?	YES
6.3 impacts (positive or negative) to the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples (regardless of whether indigenous peoples possess the legal titles to such areas, whether the project is located within or outside of the lands and territories inhabited by the affected peoples, or whether the indigenous peoples are recognized as indigenous peoples by the country in question)? *If the answer to screening question 6.3 is "yes", then the potential risk impacts are considered significant and the project would be categorized as either Substantial Risk or High Risk*	YES
6.4 the absence of culturally appropriate consultations carried out with the objective of achieving FPIC on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	NO
6.5 the utilization and/or commercial development of natural resources on lands and territories claimed by indigenous peoples?	YES
6.6 forced eviction or the whole or partial physical or economic displacement of indigenous peoples, including through access restrictions to lands, territories, and resources? *Consider, and where appropriate ensure, consistency with the answers under Standard 5 above*	YES
6.7 adverse impacts on the development priorities of indigenous peoples as defined by them?	NO
6.8 risks to the physical and cultural survival of indigenous peoples?	NO
6.9 impacts on the Cultural Heritage of indigenous peoples, including through the commercialization or use of their traditional knowledge and practices? *Consider, and where appropriate ensure, consistency with the answers under Standard 4 above.*	NO
Standard 7: Labour and Working Conditions	
Would the project potentially involve or lead to: (note: applies to project and contractor workers)	
7.1 working conditions that do not meet national labour laws and international commitments?	YES
7.2 working conditions that may deny freedom of association and collective bargaining?	NO
7.3 use of child labour?	YES
7.4 use of forced labour?	NO
7.5 discriminatory working conditions and/or lack of equal opportunity?	YES
7.6 occupational health and safety risks due to physical, chemical, biological and psychosocial hazards (including violence and harassment) throughout the project life-cycle?	YES
Standard 8: Pollution Prevention and Resource Efficiency	
Would the project potentially involve or lead to:	
	YES

8.1 the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	
8.2 the generation of waste (both hazardous and non-hazardous)?	YES
8.3 the manufacture, trade, release, and/or use of hazardous materials and/or chemicals?	YES
8.4 the use of chemicals or materials subject to international bans or phase-outs? *For example, DDT, PCBs and other chemicals listed in international conventions such as the Montreal Protocol, Minamata Convention, Basel Convention, Rotterdam Convention, Stockholm Convention*	YES
8.5 the application of pesticides that may have a negative effect on the environment or human health?	NO
8.6 significant consumption of raw materials, energy, and/or water?	YES

[1] Guiding Principles and Policies in the Mining Sector (ECOWAS Directive) sets.

[2] WHO (2016). Artisanal and small-scale gold mining and health. Technical Paper #1: Environmental and Occupational Health Hazards Associated with Artisanal and Small-scale Gold Mining

[3] Partnership for Action on Green Economy (PAGE). Green Finance Study in Ghana: Baseline Report. Retrieved online: here

[4] The International Cyanide Management Code (ICMC) is a voluntary certification program for companies that manufacture, transport and use cyanide in the production of gold and silver, to help them improve the safe management of cyanide compounds in order to limit risks to human health and the environment. Retrieved online here.

[5] Prohibited grounds of discrimination include race, ethnicity, sex, age, language, disability, sexual orientation, gender identity, religion, political or other opinion, national or social or geographical origin, property, birth or other status including as an indigenous person or as a member of a minority. References to "women and men" or similar is understood to include women and men, boys and girls, and other groups discriminated against based on their gender identities, such as transgender and transsexual people.

[6] See the Convention on Biological Diversity and its Cartagena Protocol on Biosafety.

[7] See the Convention on Biological Diversity and its Nagoya Protocol on access and benefit sharing from use of genetic resources.

[8] Forced eviction is defined here as the permanent or temporary removal against their will of individuals, families or communities from the homes and/or land which they occupy, without the provision of, and access to, appropriate forms of legal or other protection. Forced evictions constitute gross violations of a range of internationally recognized human rights.

Supporting Documents

Upload available ESS supporting documents.

Title	Module	Submitted
PIMS_6555_GEFID_10616_PlanetGOLD2_Child_Ghana_Annex 6 -SESP-26Oct2021-clean	CEO Endorsement ESS	
PIMS_6555_GEFID_10616_PlanetGOLD2_Child_Ghana_Annex 10 ESMF-26Oct2021-clean	CEO Endorsement ESS	

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

This project will contribute to the following Sustainable Development Goal (s): SDG 1 (End poverty in all its forms everywhere), **SDG 2** (End hunger, achieve food security and improved nutrition and promote sustainable agriculture), **SDG 3** (Ensure healthy lives and promote well-being for all at all ages), **SDG 5** (Achieve gender equality and empower all women and girls), **SDG 6** (Clean Water and Sanitation), **SDG 8** (Decent work and economic growth), **SDG 12** (Ensure sustainable consumption and production patterns), **SDG 14** (Conserve and sustainably use the oceans, seas and marine resources for sustainable development), **SDG 15** (Life on land).				
This project will contribute to the following country outcome (UNDAFUNMSDF/CPD, RPD, GPD): *Inclusive and sustainable solutions adopted for the conservation, restoration and use of ecosystems and natural resources. (A Sustainable and Resilient Caribbean)* *i. Output 3.1: National and subnational institutions enabled to define and implement policies/plans/strategies for sustainable management of natural resources, ecosystem services, chemicals and waste.* *UNDP Strategic Plan Output: 2.1.1.* *Output: 1.4.1 Solutions scaled up for sustainable management of natural resources, including sustainable commodities and green and inclusive value chains/ 1.4.1.2 Additional natural resources that are managed under a sustainable use, conservation, access and benefit-sharing regime: (f) Amount of chemicals reduced or disposed (metric tons)*				
	Objective and Outcome Indicators **(no more than a total of 20 indicators)**	**Baseline[1]** *Must be determined during PPG phase*	**Mid-term Target[2]** *Expected level of progress before MTR process starts*	**End of Project Target** *Expected level when terminal evaluation undertaken*
Project Objective: To reduce the use of mercury and increase incomes in the ASGM sector in the participating countries through a holistic, multisectoral integrated formalization approach, and increasing access to finance leading to adoption of sustainable mercury free technologies and access to traceable gold supply chains.	*Indicator 1* (Mandatory GEF Core Sub-indicator 9.2) Tons of mercury avoided. *(In accordance with Indicators 1.1.1 and 3.2.1 of the planetGOLD Programme Indicators)*	42.5 (low estimate) to 62 (high estimate) tones per year.	Two and a half (2.5) tons of Hg avoided by the project.	9 tons of Hg avoided by the project.
	Indicator 2 (Mandatory GEF Core Indicator 11) Number of direct project beneficiaries disaggregated by gender as co-benefit of GEF investment[3].	In the framework of the PPG phase workshops, 738 direct project beneficiaries have participated: Female: 233 Male: 505	10,000 direct project beneficiaries (miners and local community members) for which the risk of mercury exposure has been reduced. Female: 4500 Male: 5500	100,000 direct project beneficiaries (miners and local community members) for which the risk of mercury exposure has been reduced. Female: 45,000 Male: 55,000
Project component 1 ***(no indicators required)***	**Formalization optimization of ASGM**			
Project Outcome[4] 1 A higher degree of formalization in the sector through multisectoral, integrated approaches and capacity building of formalization actors	*Indicator 3* Number of miners supported in their formalization process (disaggregated by gender). *(In accordance with Indicator 2.1.1 of the planetGOLD Programme Indicators)*	Insufficient institutional capacity at the regional and local levels for the implementation of policies and regulations that support formalization in the ASGM sector.	250 miners (150 men/100 women) have strengthened their capacities to assess, plan and implement formal mercury-free interventions in the ASGM sector.	750 miners (400 men/350 women) have strengthened their capacities to assess, plan and implement formal mercury-free interventions in the ASGM sector.
	Indicator 4 Number of policies, policy instruments, or regulatory frameworks influenced (at national or sub-national level) to improve ASGM formalization. *(In accordance with Indicator 2.1.2 of the planetGOLD Programme Indicators)*	Mining Act Proposal provides for small-scale gold mining but existing regulations to make it operational are yet to be put in place and fully implemented.	One (1) instrument revised and/or developed to improve the enabling environment for ASGM and mercury phase-out in the ASGM sector.	3 instruments revised and/or developed to improve the enabling environment for ASGM and mercury phase-out in the ASGM sector.
Outputs to achieve Outcome 1	1.1. District Government, District Mining Centers and ASGM actors' capacity strengthened to assess, plan, and implement sustainable formalization interventions in Tier 1 jurisdictions. 1.2. Jurisdictional Approaches (JA) piloted to optimize land allocation through ASM zones and coexistence models in Tier 1 sites. 1.3. Spatial Planning Authority, District Governments, District Mining Committee (DMC), CSO and miner capacity strengthen in ASM zone management & community relations.			
Project component 2 ***(no indicators required)***	**Financial Inclusion and Responsible Supply Chains**			

Outcome 2 Improved income for ASGM miners through the attainment of better gold prices facilitated by transparent and responsible supply chains.	*Indicator 5* Loans/investments for the purchase of mercury-free processing equipment/investments are accessible to legitimatized ASGM miners.	*0*	One (1) new/improved financial product/mechanism (including women friendly financial products) established for the ASGM sector.	Three (3) new/improved financial products/mechanisms (including women friendly financial products) established for the ASGM sector.
	Indicator 6 Amount of funds (in USD) made available to ASGM through financial mechanisms (disaggregated by gender and indigenous people).	In the ASGM selected pilot project areas, none of the ASGM miners have been trained on how to access financing.	USD400,000 made available to ASGM through financial mechanisms (disaggregated by gender and indigenous people).	USD1,200,000 made available to ASGM through financial mechanisms (disaggregated by gender and indigenous people).
	(In accordance with Indicators 3.2.1 and 4.1.1 of the planetGOLD Programme Indicators)	0 ASGM loan applications developed.	35 of loan applications developed (with technical support of the project).	100 of loan applications developed (with technical support of the project).
		0 ASGM loan applications approved.	30% of loan applications (developed with technical support of the project) approved.	50% of loan applications (developed with technical support of the project) approved.
Outputs to achieve Outcome 2	2.1. Opportunities created for ASGM sector with financial institutions to procure/retrofit equipment and invest in business skills for men and women. 2.2. Proof of concept for technology-assisted mineral supply chain due diligence developed and tested in target regions.			
Project component 3 [5] ***(no indicators required)***	**Enhancing uptake of Mercury-free technologies**			
Outcome 3 Reduced mercury use in ASGM enabled by the increased uptake of mercury-free technologies by miners.	*Indicator 7* Number of miners trained in mercury-free processes (disaggregated by gender). *(In accordance with Indicator 1.1.3 of the planetGOLD Programme Indicators)*	*0*	500 Female:250 Male: 250	1000 Female: 500 Male: 500
	Indicator 8 Number of pilot projects implemented and operationalized in target jurisdictions.	*0*	*1*	*3*
	Indicator 9 Amount of responsible gold produced without mercury (in kilograms)	*0*	1,800 Kilograms of gold produced without mercury.	7,200 Kilograms of gold produced without mercury.
Outputs to achieve Outcome 3	3.1. District Government, Mining Entities (ME), academic institutions, and CSO capacity strengthened to characterize ore and implement efficient mineral processing techniques to reduce mercury use across the mine life cycle. 3.2. Assay lab, processing plant and training center(s) established to promote resource efficient mining with clear provisions on ore characterization, tailored mineral processing techniques.			
Project component 4 ***(no indicators required)***	**Knowledge sharing, communication and local capacity building support**			
Outcome 4 Knowledge sharing and communication strategies targeted at all ASGM stakeholders to support and increase formalization and mercury reduction.	*Indicator 10* Number of people reached with awareness raising materials, by mode of communication (e.g. online, in-person, via SMS, WhatsApp, etc.) and by gender. *(In accordance with Indicator 5.1.1 of the planetGOLD Programme Indicators)*	To date none of the miners and inhabitants of the three project priority sites and local communities have been made aware of the dangers of mercury and ways to eliminate/avoid its use in ASGM.	150,000 people (75,000 females and 75,000 males) of whom awareness has been raised on the dangers of mercury and ways to eliminate/avoid its use in ASGM.	300,000 people (150,000 females and 150,000 males) of whom awareness has been raised on the dangers of mercury and ways to eliminate/avoid its use in ASGM.
Outputs to achieve Outcome 4	4.1. M&E and adaptive management applied to capture lessons learned, emphasizing prospecting, sustainable mercury-free gold methods, and sound tailings management. 4.2. Miner, investment and CSO focused communication strategies explored, tested, deployed and scaled up.			

[1] Baseline, mid-term and end of project target levels must be expressed in the same neutral unit of analysis as the corresponding indicator. Baseline is the current/original status or condition and needs to be quantified. The baseline can be zero when appropriate given the project has not started. The baseline must be established before the project document is submitted to the GEF for final approval. The baseline values will be used to measure the success of the project through implementation monitoring and evaluation.

[2] *Target is the change in the baseline value that will be achieved by the mid-term review and then again by the terminal evaluation.*

[3] Provide total number of all direct project beneficiaries expected to benefit from all project activities until project closure. Separate the total number by female and male. This indicator captures the number of individual people who receive targeted support from a given GEF project and/or who use the specific resources that the project maintains or enhances. Support is Defined as direct assistance from the project. Direct beneficiaries are all individuals receiving targeted support from a given project. Targeted support is the intentional and direct assistance of a project to individuals or groups of individuals who are aware that they are receiving that support and/or who use the specific resources.

[4] *Outcomes are medium term results that the project makes a contribution towards, and that are designed to help achieve the longer-term objective. Achievement of outcomes will be influenced both by project outputs and additional factors that may be outside the direct control of the project.*

[5] UNIDO is the lead agency for this component.

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

Responses to the PIF Reviews at the Council Approval Stage

Introduction:

This document submits the responses to the different reviewers of the screening process for the *Global Opportunities for Long-term Development of artisanal and small-scale gold mining ASGM) Sector Plus- GEF GOLD+*, for Ghana, Suriname and Honduras PIFs, in the following order:

#1. GEF Council Members,
#2. STAP, and
#3. Minamata Secretariat.

#1. Responses to GEF Council Members.

Q. #1 from the GEF Council: France supports the GOLD+ program, which addresses a number of areas of concern for France.

For information purposes, the FGEF is co-financing, for example, a project that is being implemented by the WWF in the Guyana Plateau (Guyana, Suriname, and French Guiana). This project aims to reduce the use of mercury in gold mining.

Response (R): Indeed, this comment has been fully acknowledged in the design of the project. The WWF Guianas project aims at supporting the Guyana Plateau governments to align national policy and legislation with the Minamata Convention in order to reduce the use of mercury in the ASGM sector; WWF-Guianas will also establish national and regional platforms to facilitate implementation.

During the PPG stage, the following means of collaboration, exchange of communication and awareness in the ASGM sector of Suriname have been proposed:

Component 3: Enhancing Uptake of Mercury-Free Technologies.

Action: The WWF implemented project will develop an economically, socially acceptable and feasible model, with support from the Alliance for Responsible Mining (ARM), for mercury-free mining, including the establishment of two pilot sites in Suriname and two in Guyana. The planetGOLD+ Suriname will also develop three pilot projects, in different locations, but knowledge learning from both projects will be shared as well as best practices - through the Ministry of Natural Resources - for overall success of both initiatives.

Component 4. Knowledge Sharing, Communication and Local Capacity Building Support.

Action: Collect, analyze and make mercury related data available for the public through an online repository. The planetGOLD+ in Suriname will channel meaningful information gathered with the WWF Guianas project, as needed, for the success of both initiatives.

In addition, as the Ministry of Natural Resources of Suriname is responsible for or involved in implementation of both projects, intra-ministerial coordination will be required at least twice yearly between implementing actors, i.e.: WWF and the UNDP/GEF planetGOLD+ Child project, allowing a holistic approach of efforts regarding the entire ASGM sector.

Q. #2 from the GEF Council: Please see the US comments on the GOLD+ program below which will need to be addressed at CEO Endorsement.

· *Within the Suriname child project, we would like clarity on the significant discrepancy between the cited amount of total annual mercury release from ASGM (0.086 MT) and the project target of reducing Hg use by 6 MT over 4 years.*

R: According to *National Inventory of Mercury Releases in Suriname* (2019), primary mining and processing of gold ores represent the largest source of releases to land (44.858 Kg Hg/year), releases to water 24.346 Kg Hg/year, and to air 18.244 Kg Hg/year; for a total of 88,019 kg HG/year (88 tons). This FSP aims to achieve a Global Environmental Benefit by avoiding six (6) tons of mercury over a 5-year period.

· *Also, in Suriname project, in the next iteration of the child project we would like to see coordination with the U.S. Department of State project also working on ASGM and mercury-free technologies.*

R: Indeed, this comment has been fully acknowledged in the design of the project. Through the Mercury Program carried out by the Office of Environmental Quality of the U.S. Department of State, communication was facilitated with the Artisanal Gold Council's work in Suriname (AGC) in order to enhance the uptake of Hg-free technologies, knowledge sharing and local capacity building support.

AGC will establish two mercury free ASGM pilot sites within the concession of Iamgold mining operation, at Mama Kriki and Roma pits. Shaking tables will be used at these sites as a mercury free alternative for processing ore. These will be added to the already existing set-up of the operations, which include crushers and sluice boxes; incorporating the national university UNASAT, recognizing that this has become a complex matter due to COVID-19

pandemic. AGC has also planned to send one of their experts to the ASGM sites to provided on-the-job training during several months; all this knowledge base will be also shared with the planetGOLD+ project in due time. As a result, coordination basis has been set up for the benefit of the ASGM sector as a whole, between the U.S. Department of State project and the UNDP/GEF Child project.

· *Overall, for Program component 6, Global coordination, knowledge management and outreach, there seems to be a lack of focus on the private sector gold buyers and users. Large companies (refiners, jewelers, electronics) can benefit from GOLD+ data and other insights as they increase implementation of gold sourcing due diligence programs. If this program can better consider and be sensitive to ongoing private sector due diligence policies and programs, then the program's sustainability can be greatly amplified. Eventually, funding for these types of projects, and demand for responsible mercury free gold, will come from the downstream supply chain.*

R: Comment well received. Indeed, this comment has been fully acknowledged in the design of the project. With an outreach communication strategy, the design of this planetGOLD+ FSP makes a clear differentiation between upstream and downstream stakeholders. Private sector engagement has been triggered during the PPG in two avenues: the first avenue is mainly related to the creation of strategic alliances with the two main LSM gold producers, i.e., Newmont Suriname and Rosebel Gold Mines as well as small and medium scale enterprises (SMEs) represented by the *Stichting Houders Mijnbouw Rechten* (SHMR or Foundation Holders Mining Rights) who own the majority of mining rights in Suriname. Collectively, these private sector partners account for diverse production scales that encounter artisanal miners in Suriname.

With Newmont Suriname, the following activities are foreseen:

· Component 1: Newmont formally launched its ASM strategy in November 2020. The goal of the strategy is to formalize the sector and its economy; Newmont has worked with the traditional authorities of the Paamaka Tribe region to establish an ASM platform (cooperation), which can serve as a counterpart to Newmont´s mining operations. This platform has given Newmont permission to continue with the strategy as set out, which will be enhanced during the FSP execution.

· Component 2: Newmont will facilitate contact with banks and equipment suppliers in order to explore suitable financing mechanisms for ASGM investments.

· Component 3: Another goal of Newmont´s strategy is to help reform the sector to consider the environment (including mine restoration) and safety in their operations. Newmont is looking into an opportunity to collaborate with ASM to request a concession and perform exploration to select the appropriate mercury-free technology and improve bankability of the mine operations. Newmont will hire a consultant to assess the appropriate mercury-free mining method/technology based on the local ore and provide a training based on this.

· Component 4: Newmont will provide alternative livelihood training to miners who want to shift to another sector.

With Rosebel Gold Mines (Iamgold mines), the following activities are foreseen:

· Component 3: The current contribution of Iamgold is mainly in the form of facilitating ASGM within the Rosebel mining concession, providing expertise to structure the mine operations, providing training in water management, health and safety, waste management, and more recently, blasting.

· There are three ASGM locations (within the Iamgold concessions) which are facilitated by Iamgold:

i. Mamakreek: a yet unstructured site, which will serve as a pilot site for the project of the Artisanal Gold Council (AGC) focusing on eradication of mercury within the operations. Within this AGC project, Iamgold contributes mainly through ground logistics (± US$20.000);

ii. Roma East and East Tailings Road: these two locations operate according to a protocol developed by Iamgold. At these sites, the community of Nieuw Koffiekamp is facilitated through coordination with the Multi Stakeholder Platform of the Government. Lessons learned from the mercury free pilot at Mamakreek can be expanded into the pilot projects to be carried out by the UNDP/GEF planetGOLD+ project.

With *Stichting Houders Mijnbouw Rechten* (SHMR) the following activities are foreseen:

· Component 1: Exploration and exploitation title holders represent a key stakeholder group to understand the nature of tributer systems and allocate land for ASGM activities. Given SHMR's close proximity to ASGM hotspots the foundation is especially useful in collecting data on gold production, primary and secondary workforce dynamics, socio-economic aspects and other important items including COVID impacts on gold prices, supply chains and patterns of mining activity. This data is often required to support supply organization and enhance transparency to meet downstream expectations. SHMR will play a key role as a coordinated voice for mineral rights holders, and support engagement processes with artisan gold miners in Tier 1 sites.

· Component 2: De-risking investment in the ASGM sector begins with improved access to information and building the capacity of mining entities to comply with mine-level due diligence standards related to planetGOLD criteria for socially and environmentally responsible operations. Under Output 2.1. activity i, educating and collaborating with local and national financial institutions, SHR represents a collective of small businesses in gold mining who generate direct and indirect jobs, and help diversify Suriname's economic base. Despite these benefits, small enterprises in Suriname's mining sector remain significantly underserved by financial institutions, creating recurrent challenges in bringing mines to international markets.

· Component 3: As mine operators who actively engaging with miners and their communities beyond Newmont and Iamgold concessions, SHR provides a conduit to reach miners and sustainably transition from mercury. SHR as a private sector entity can engage miners in capacity building, outreach and build confidence with novel production systems, and thus enabling transition from mercury use through a progressive strategy by working with established, trust-based relationships.

· Component 4: SMEs represented by the SHR (foundation) provide a critical voice to raise awareness of the ASGM sector's development potential. In line with the planetGOLD communications strategy, SHR can help to shift narratives from negative, damaging views of the sector which focus on environmental degradation, mercury pollution alongside other social and governance risks. Reframing narratives toward a positive outlook for small-scale mining operations and mining communities can influence perceptions of financial institutions and enable small-scale gold miners to have reliable, transparent and responsible supply chains aligned with downstream expectations.

The second avenue is precisely to engage the private sector gold buyers and users through large companies (refiners, jewelers, electronics) like ARGOR-HERAEUS. Group that it is a key interested partner in the value chain for all those engaged in the precious metal business: mines, traders, bullion houses, central and commercial banks, mints and jewelry, as well as industrial consumers.

All these three key relevant private-sector stakeholders have been identified and engaged during the PPG and have provided, as a means of interest, letters of cofinancing that can be found in Annex 14 of the ProDoc.

Due to the complexities of organizing face-to-face encounters with selected participants and field visits to the ASGM sites, the PPG team organized online a round of encounters with these stakeholders; to present the scope of the project and to engage them for active participation. Ii is important to note that Annex 9 of the ProDoc presents the Stakeholder Engagement Plan, designed to ensure effective engagement among stakeholders throughout the lifecycle of the project.

· *A related supply chain concern is that in our view, the current program potentially hides supply chain issues under the "lack of access to finance" heading. While they are related, lack of access to finance is not completely a supply chain question, and vice versa. Critical supply chain issues that should be considered include transparency, customs and trade, consumer demand (how do we mainstream responsible gold for the final consumer), responsible production, and coordination with company due diligence measures (OECD DDG). To couple these supply chain issues with another large issue like access to finance dilutes the importance of both of these barriers.*

R: Comment well noted. Financial inclusion and responsible supply chains are linked, as shortfalls in access to legitimate finance for artisanal miners creates cycles of debt bondage, exploitation, human rights abuses and propagates elite benefit capture. The PPG has carried out an in-depth elaboration of the baseline conditions including evidence demonstrating the magnitude of the problem, based on a broad participatory approach with representatives of different ministries, financial institutions, large scale gold mining operations, large private holdings, ASGM mining entities and downstream actors (refiners) in the gold supply chain in Suriname. This overall analysis (including an in depth-analysis of gender and indigenous and tribal people issues in the ASGM sector[1]) now describes how addressing the Development Challenge (based on a Theory of Change analysis) which is consistent with recent national environmental strategies as well as with the National Action Plan (NAP) under the Minamata Convention.

Based on these assessments, activities for outputs under Component 2 were structured following a two-pronged strategic approach. In one way, it will launch a set of activities to educate and collaborate with key potential financiers (upstream and downstream) to design and provide financial products suited to the ASGM sector, integrating all critical supply issues for this sector. On the other hand, to couple the large issue to assist miners with capacity building to access funds, including training mining entities and miners on business and operations management with tools to not only access finance options but also successfully execute their investment plans to create sustainable and more profitable mining operations.

#2. Responses to STAP Comments

· *What activities will be implemented to increase the project's resilience to climate change?*

R: This is a key topic for Suriname. As a matter of fact, Risk 5, identified during the PPG (please refer to Annex 7: UNDP Risk Register, of the ProDoc), is described as *"Natural disasters could eventually affect the locations and operations where the planned pilot interventions are carried out".* Risk and management measures were proposed in Output 1.3, Activity ii) and Output 3.2, Activity iii of the ProDoc are described to be implemented during the FSP execution in order to mitigate this risk.

· *1b. Project Map and Coordinates. Please provide geo-referenced information and map where the project interventions will take place.*

R: Please, refer to Annex 3 of ProDoc, i.e.: "Annex 3 Project Map and Project Sites -Suriname-" for full description of the project interventions.

· *What are the stakeholders' roles, and how will their combined roles contribute to robust project design, to achieving global environmental outcomes, and to lessons learned and knowledge?*

R: A Stakeholder Engagement Plan was developed during project preparation. Please, refer to Annex 9 of ProDoc.

· *What overall approach will be taken, and what knowledge management indicators and metrics will be used?*

R: As a Child Project, the Knowledge Management for the Suriname FSP is a key element –under Component IV- of the global knowledge management component of PlanetGOLD. A group of activities has been integrated under the following outputs for Outcome 4:

4.1. M&E and adaptive management applied to capture lessons learned, emphasizing prospecting, sustainable mercury-free gold methods, and sound tailings management.

4.2. Miner, investment and CSO focused communication strategies explored, tested, deployed and scaled up.

The indicator associated to this outcome is Indicator 10 "*Number of people reached with awareness raising materials, by mode of communication (e.g. online, in-person, via SMS, WhatsApp, etc.) and by gender*", which is in accordance with Indicator 5.1.1 of the planetGOLD Programme Indicators.

Q. #3 from the GEF Council:

Related comment: "*In Honduras, the German Civil Peace Service (CPS) works on environmental conflicts and might be a relevant stakeholder/partner for cooperation".*

This German agency will be approached once the implementation of the project starts.

#3. Responses to the Minamata Secretariat

Related comment: *"Because improved health awareness and health surveillance can be strong incentives for formalization and technology uptake, and will be ever more important in light of Covid-19, it will be important to include community-based health and social actors in all aspects of the program".*

R: The ProDoc has developed full stakeholder engagement plans during the PPG phase and has taken this recommendation into account. Please, refer to the respective annexes in each of three ProDocs.

Related comment: *"Barriers - This section presents a very good discussion of formalization. It would be useful to also include the Minamata Convention definition of ASGM for the purposes of the Convention: "gold mining conducted by individual miners or small enterprises with limited capital investment and production".*

R: This definition has already included, as follows:

Suriname: Page 13.
Honduras: Page 10.
Ghana: Page 14.

Related comment: *"Baseline programs -- Because funding for this project is through the Minamata Convention financial mechanism, it seems odd to articulate the Convention as another partner. Also for this paragraph we note that negotiators deliberately decided to address ASGM through its own article of the Convention".*

R: Baseline programs are assumed to refer to Minamata Convention enabling activities, including Minamata Initial Assessments (MIAs) and National Action Plans (NAPs) on ASGM with related provisions related to Article 7 on ASGM. As GEF enabling activities, MIA and NAPs are intended to provide key baseline of mercury emissions and releases, which sets a foundation for further investments in mercury abatement. Under Article 7, after developing its NAP, a country must submit its national action plan to the Secretariat no later than three years after the Convention enters into force entry into force, or three years after notifying the Secretariat. Thereafter, a party must submit a review of progress in meeting its obligations under Article 7 every 3 years, included in reports submitted under Article 21 of the Convention. Suriname is in the process of finalizing its NAP on ASGM, and while national endorsement timelines have not yet been confirmed then it is feasible GOLD+ activities may overlap with reporting requirements and progress updates for the NAP.

Related comment: *"Gender - Is the gender distribution noted here a widely used metric when very specific community-based data is not available? Or is it simply a placeholder? We note that gender impacts will be more thoroughly evaluated in the child projects. It would also be useful to ensure good estimates of populations "directly" involved (working in ASGM) as well as impacted by ASGM".*

R: The ProDoc has developed a thorough gender analysis and has developed action plans during the PPG phase and has taken this recommendation into account. Please, refer to the respective annexes in each of three ProDocs.

Related comment: *"Component 1: all the participating countries will already be party to the Convention so not clear what the phrase about ratification refers to – we assume implementation of their MC obligations. Regional cooperation was referred to earlier in challenges description and should be a more prominent part of the project, eg, enhancing ECOWAS or UEMOA actions".*

R: We indeed intended to refer to implementation of Minamata Convention obligations. The program will incentivize regional cooperation, and during the PPG phase more details will be provided. All three projects have integrated this comment under activities for Component 4.

Related comment: *"Component 2: The activities on collaborating with local financial institutions should also involve linkages with the formalization efforts, such that formalization schemes and financial products are mutually reinforcing".*

R: We agree with this observation and will ensure that this is the case. All three projects have integrated this comment under activities for Component 2.

Related comment: *"Component 3: In section on enhancing uptake of mercury-free technologies, we note that cyanide is appropriately listed as one of the technologies in the chart. However, no mention is made of the Convention's requirement that ASGM National Action Plans elaborate actions to eliminate "cyanide leaching in sediment, ore or tailings to which mercury has been added without first removing the mercury." This requirement should be prominently featured such that any support for cyanide operations focuses on this critical need".*

R: Indeed, the use of cyanide to process mercury-contaminated tailings is an emerging risk to human health and the global environment. While the environmental fate of cyanide has been well studied, the risks associated with mercury-cyanide complexes remain largely unknown. Techniques for mercury removal from tailings prior to cyanidation are outlined in UN Environments forthcoming guidance document on tailings (in prep). PlanetGOLD Criteria A: Mercury-Free Processing and Management of Chemicals and Wastes (cyanide, mercury tailings) requires that all Mining Entities (ME) operate without mercury and align with Annex C of the Minamata Convention on Mercury (UNEP 2013), including elimination of the worst practice of using cyanide on mercury-contaminated tailings, which may remain from previous operations that used mercury. Responsible cyanide use for small-scale operators is part of technical guidance in development by the planetGOLD global knowledge component, which emphasizes mining principals and standards of practice as defined by the International Cyanide Management Code. As a highly regulated substance in gold mining, cyanide risk management, emergency response, operations and waste management are well documented. Responsible cyanide use in GOLD+ will require appropriate capacity building support for governments, policy makers, MEs and the public to understand major risks and mitigation strategies. To avoid unintended consequences, all GOLD+ projects intending to pilot responsible cyanidation and leaching circuits, will be required to develop clear standards of practice for responsible sourcing, transport, handing and storage, use in leaching circuits, disposal and decommissioning in accordance with planetGOLD cyanide guidance (in prep).

[1] For further analysis, please refer to the following documents elaborated during the PPG:

1. "*Global Opportunities for Long-term Development of ASGM Sector Plus - GEF GOLD+ in Suriname",* PPG, May 2021.
2. "*ITP engagement framework for Gold+project*", PPG, April 2021.

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

PPG Grant Approved at PIF: $**150,000**			
Project Preparation Activities Implemented	***GETF/LDCF/SCCF Amount ($)***		
	Budgeted Amount	***Amount Spent Todate***	***Amount Committed***
Component A: Preparatory Technical Studies & Reviews	40,000	40,000	0
Component B: Formulation of the UNDP-GEF Project Document, CEO Endorsement Request, and Mandatory and Project Specific Annexes	100,000	100,000	0
Component C: Validation Workshop and Report	10,000	1,580	8,420
Total	150,000	141,580	8,420

ANNEX D: Project Map(s) and Coordinates

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

Figure 3.*1*: Ghana planetGOLD+ intervention sites overlain on Administrative Regions and Districts. Figure shows Tier 1: Western Region (Prestea-Huni Valley and Wassa Amenfi-East) and Ashanti (Adnasi North) and Tier 2: Western North (Bibani Ashwiaso Bekwai) and Eastern (Birim North). Proposed intervention sites are overlain with administrative Regions and District boundaries of mining landscapes.

In line with the site selection strategy spatial and contextual analysis within mining landscapes (defined by sub-national Administrative Regions and Districts, in proximity of District Mining Centers (DMCs) delineated by the Minerals Commission (MC). Final selection criteria of pilot projects depend upon several factors, as defined in Table 3.2. In line with UNDP Site Selection Criteria, additional due diligence is required by the Project Management Unit (PMU) prior to project implementation to verify Tier 1 intervention sites with social and environmental criteria.

Table 3.1. Overview of Tier 1: Western and Ashanti Region and Tier 2: West North and Eastern Region proposed for GOLD+ intervention. Table shows Administrative Regions and Districts with corresponding District Mining Centers, type of gold deposit, annual production, ASGM population estimates, proximity to LSM operations, rural livelihood, and land-uses, ASGM hotspots. Table is consistent with maps 3.2. - 3.5 that provide geographic coordinates verified with the Ghana MC.

Criteria	**Proposed GOLD+ Intervention Site**				
Priority	**Tier 1 sites**			**Tier 2 sites**	
Administrative Region	**Western**	**Western**	**Ashanti**	**West North Region**	**Eastern**
Administrative District	Prestea-Huni Valley	Wassa Amenfi East	Adansi North District	Bibiani Ahwiaso Bekwai	Birim North
District Mining Center	Tarkwa	Asankragwa	Obuasi	Bibiani	Akim Oda
Type(s) of gold deposit	Hardrock, Alluvial, Colluvial	Hardrock, Alluvial, Colluvial	Hardrock, Alluvial, Colluvial	Hardrock, Alluvial, Colluvial -	Hardrock, Alluvial, Colluvial
Annual gold production (District Centre Est.)[1]	7,294kg	6,209kg	10,505kg	6,312 kg	4,984kg
ASGM Population (District Centre Est.)[2]	128,000	101,250	131,250	160,000	110,000
LSM operations present	Golden Star Resources	Ganhe Mining Resources Development Ltd.	AngloGold Ashanti, Obuasi Mine	Asante Gold	Newmont Akyem (25km, Akoase)
Rural livelihood and land-uses	Cocoa, coconut, palm oil, rubber, citrus, grains and tubers	Cocoa, palm oil, rubber, citrus, vegetables, grains and tubers	Cocoa, palm oil, citrus, vegetables, grains and tubers	Cocoa, palm oil, citrus, vegetables, grains and tubers	Cocoa, palm oil, citrus, vegetables, grains and tubers
ASGM hotspot 1 (village/area)	Heman	Japa	Adumanu	Dontoko[2]	Anyinam
ASGM hotspot 2 (village/area)	Prestea	Nananko	Akyease	Endwenase	Kwabeng
ASGM hotspot 3 (village/area)	Kutukrom	Amoamang	Abadwam	Aswaniso	Akoase

Figure 3.2.: Tier 1 planetGOLD+ proposed sites in Western Region, Wassa Amenfi East and Prestea-Huni Valley Districts, Asankragwa and Tarkwa District Mining Centers and geographic coordinates of ASGM hotspot/villages for further verification. Figure shows Tier 1: Wassa Amenfi East sub-national Administrative District with geographic coordinates of Nananko, Japa and Amoamang alongside, Prestea-Huni Valley sub-national Administrative District with coordinates of Herman, Prestea and Kutukrom ASGM village/hotspots to be verified during project implementation.

Map

Description automatically generated

Map

Description automatically generated

Figure 3.3.: Tier 1 planetGOLD+ proposed sites in Ashanti Region, Adansi North District and Obuasi District Mining Center with geographic coordinates of ASGM hotspot/villages for further verification. Figure shows Tier 1: Adansi North District sub-national Administrative District with geographic coordinates of Adumanu, Akyease and Abadwam ASGM village/hotspots within the Ashanti Region to be verified during project implementation.

Figure 3.4.: Tier 2 planetGOLD+ proposed sites in the Western North Region, Bibani Ahwiaso Bekwai District and Bibani District Mining Center with geographic coordinates of ASGM hotspot/villages for further verification. Figure shows Tier 2: Bibani Ahwiaso Bekwai sub-national Administrative District with geographic coordinates of Dontoko, Endwenase and Aswaniso ASGM village/hotspots within to be verified during project implementation.

Figure 3.5.: Tier 2 planetGOLD+ proposed sites in Eastern Region, Birim North District and Bakim Oda District Mining Center with geographic coordinates of ASGM hotspot/villages for further verification. Figure shows Tier 2: Birim North sub-national Administrative District with geographic coordinates of Anyinam, Kwabeng and Akoase ASGM village/hotspots within to be verified during project implementation.

Table 3.2. GEF GOLD+ Tier 1 intervention sites and corresponding criteria used to support decision making with emphasis on mineral tenure.

Criteria	Description	Site Name				
		Tier 1 Sites			Tier 2 Sites	
		Prestea-Huni Valley	Wassa Amenfi East	Adansi North District	Bibiani Ahwiaso Bekwai	Birim North
Gold production	Access to economically viable gold deposit	Yes	Yes	Yes	Yes	Yes
	Established gold extraction and processing units	Yes	Yes	Yes	Yes	Yes
	Est. annual Au production[2]	7,294kg	6,209kg	10,505kg	6,312kg	4,984kg
Workplace Dynamics	Primary ASGM workforce (miners, processors)[3]	170,000	135,000	175,000	160,000	110,000
	Secondary ASGM workforce (services, equipment)[4]	850,000	675,000	875,000	800,000	550,000
	Women secondary livelihoods (% workforce)	TBC	10%	TBC	TBC	TBC
	Preventative measures: Child labour	Licensed sites	Licensed sites	Child protection committee(s)	Licensed sites	Licensed sites
Hazardous Chemicals	Mercury use (Hg:Au Ratios)[5]	1.2:1 Hard rock	1.2:1 Hard rock	1.3:1 Hard rock	1.2:1 Hard rock	1.2:1 Hard rock
		1.5:1 Alluvial*	1.2:1 Alluvial*	1.3:1 Alluvial*	1.2:1 Alluvial*	1.1:1 Alluvial*
Formalization	Presence of District Mining Center	Yes, Tarkwa	Yes, Asankragwa	Yes, Obuasi	Yes, Bibiani	Yes, Akim Oda
	Presence of informal extraction units	Yes	Yes	Yes	Yes	Yes
	Presence of legally registered Mining Entities (MEs)	Yes	Yes	Yes	Yes	Yes
	Right to exploit alluvial* or hard rock deposit	Yes	Yes	Yes	Yes	Yes
	Access to blocked out ASM zones	Kutukrom and Tinso, Maham	Japa, Nanako (Amenfi East); Ayaboe Hiawa (Amenfi Central), Amoamang (Amenfi West), Nyankaman, Yakase and (Aowin), Elubo block in Jomoro	Gyimiso-Kakraba, Akokeri, Abadwam, Akyease, Adumanu	Dontoko, Edwenase, Asawinso, Mampehia, Bodwease, Nyamebekyere, Juabuso,	Apragya and Twapease
	Coexistence with LSM actor(s)	Golden Star Resources	No, but exploring community mining with prospecting company, Jomoro (Aowin District)	Yes, Anglo Ashanti	Asante Gold	Newmont Akyem (TBC)
Multi-stakeholder Collaboration	Favourable attitude of mining community	Yes	Yes	Yes	Yes	Yes
	Communiy mining licence scheme potential	Priority area	Priority area	Priority area	Yes	Yes
	Favourable attitude of concession owner	Yes	Yes	Yes	Yes	Yes
		Yes	Yes	Yes	Yes	Yes

	Political will of Municipal or District Government					
	Political will of Traditional/Customary Authorities	Yes	Yes	Yes	Yes	Yes
Biodiversity	Avoidance/mitigation of impacts on critical habitats	Yes	Yes	Yes	Yes	Yes
Logistics	Reasonable distance/travel time from urban center	Yes	Yes	Yes	Yes	Yes
	Presence of non-state insurgents/terrorist groups	No	No	No	No	No
	Access to road infrastructure/ basic services	Yes	Yes	Yes	Yes	Yes
	Reliable access to electricity/ network	Yes	Yes	Yes	Yes	Yes

Source: PPG Team 2021

[1] Based on NAP on ASGM (2021) estimates as per Mining District.

[2] Minerals Commission (MC) identified multiple ASGM hotpot villages for Bibiani Ahwiaso Bekwai district as of Sept/Oct. 2021 during PPG consultation. Priority ASGM hot-spots/villages include, Dontoko, Edwenase, Asawinso, Mampehia, Bodwease, Nyamebekyere and Juabuso.

[3] Based on NAP estimates (as per Mining District) exclusively for hard rock (primary) and land-based alluvial (secondary) deposits.

[4] 5:1 ratio used for economic spillover effects in line with Hilson and UN Environment (2019) Baseline assessment protocol for ASGM sites.

[5] Based on NAP estimates (as per Mining District) for hardrock and land-based alluvial baseline estimated collected in the field. Under planetGOLD+ proposed alluvial sites, these refer exclusively to land-based alluvial. Project sites will not include dredging operations.

ANNEX E: Project Budget Table

Please attach a project budget table.

Expenditure Category	Detailed Description	Component (USDeq.)							Total (USDeq.)	Responsible Entity (Executing Entity receiving funds from the GEF Agency)[1]
		Component 1	Component 2	Component 3	Component 4	Sub-Total	M&E	PMC		
Equipment	Standard office equipment					-		5,000	5,000	Environmental Protection Agency (EPA)
Equipment	Cost of field GPSs and other equipment and office items			67,365		67,365			67,365	Environmental Protection Agency (EPA)
Equipment	Standard IT equipment					-		6,844	6,844	Environmental Protection Agency (EPA)
Grants	Grant instruments for Output 2. 1. Grants will follow UNDP's LVG policy.		1,600,000			1,600,000			1,600,000	Environmental Protection Agency (EPA)
Sub-contract to executing partner	Direct project services from UNDP for a limited set of activities, including personnel hiring, processing of payments and travel, procurement and hiring of consultants.							87,906	87,906	Environmental Protection Agency (EPA)
Contractual services-Individual	30% of the Project Manager's costs: the Project Manager will undertake day-to-day project implementation, administration, procurement and management activities USD$15,000 per year (USD$4,500 per year will be charged to this component), One KM assistant to document and share, in a user-friendly manner, information, lessons, best practices, and expertise generated during implementation; plans for strategi				38,750	38,750			38,750	Environmental Protection Agency (EPA)

	c communications; and knowledge outputs at USD $3,250 / yr									
Contractual services-Individual	One National Consultant for the Financial Inclusion and Responsible Supply Chains at USD$7,000/year, and 25% of the Project Manager's costs: the Project Manager will undertake day-to-day project implementation, administration, procurement and management activities at USD $15,000 per year (USD$5,000 per year will be charged to this component)		60,000			60,000			60,000	Environmental Protection Agency (EPA)
Contractual services-Individual	One National Consultant to support formalization at USD$5,000/year. See annex 8 for additional details, and 25% of the Project Manager's costs: the Project Manager will undertake day-to-day project implementation, administration, procurement and management activities USD$15,000 per year (USD$5,000 per year will be charged to this component)	50,000				50,000			50,000	Environmental Protection Agency (EPA)
Contractual services-Individual	One Project Administrative Assistant at USD$20,000/yr for 5 years, and 20% of the Project Manager's costs: the Project Manager will undertake day-to-day project implementation, administration, procurement and management activities at USD $45,000 pear year (USD$9,000 per year will be charged to this component)					-		156,250	156,250	Environmental Protection Agency (EPA)
Contractual services-Individual	One Project Monitoring & Evaluation Officer engaged for the coordination, implementation, oversight a					-	80,000		80,000	Environmental Protection Agency (EPA)

	nd follow-up of th e Gender Action Plan, Social and E nvironmental Ris ks Management and the Stakehol der Engagement Plan follow-up as well as Mandator y reports producti on at USD$16,00 0/year. Activities include M&E of G EF core indicator s and project res ults framework, G EF Project Imple mentation Report (PIR), and Monito ring of Environme ntal Social and M anagement Fram ework and Plan. See M&E table fo r additional detail s									
Contra ctual s ervices -Individ ual	Labour cost for p reparing and layi ng out Tier 1 site s for detailed geo logical studies			15,350		15,350			15,350	Environ mental Protecti on Age ncy (EP A)
Contra ctual s ervices -Comp any	Consulting firm f or the developme nt of Outputs 2.1 and 2.2		64,000			64,000			64,000	Environ mental Protecti on Age ncy (EP A)
Contra ctual s ervices -Comp any	Construction cos t for Assay Labor atory and 4 Proce ssing plants with Training facilities			945,000		945,000			945,000	Environ mental Protecti on Age ncy (EP A)
Contra ctual s ervices -Comp any	Laboratories prov iding analytical s ervices for under outputs of Output 3.1			19,800		19,800			19,800	Environ mental Protecti on Age ncy (EP A)
Contra ctual s ervices -Comp any	Consulting firms to support Outpu ts 1.1, 1.2 and 1. 3.	516,000				516,000			516,000	Environ mental Protecti on Age ncy (EP A)
Interna tional Consul tants	One International Consultant for th e MTR $18,000 a nd One Internatio nal Consultant fo r the TE $18,000. See M&E budget table on PRODOC section VI					-	36,000		36,000	Environ mental Protecti on Age ncy (EP A)
Interna tional Consul tants	One International Consultant on Fo rmalization at US	50,000				50,000			50,000	Environ mental Protecti

	D$50,000. See annex 8 for additional details									on Agency (EPA)
International Consultants	One International Specialist on Financial Mechanisms at USD$50,000. See annex 8 for additional details		50,000			50,000			50,000	Environmental Protection Agency (EPA)
International Consultants	One International Consultant on mecury free technology for training modules validation, equipment specification preparation and technical support for equipment installation			55,800		55,800			55,800	Environmental Protection Agency (EPA)
Local Consultants	One Local Consultant for Jurisdictional Approaches (JA) at USD$34,000. See annex 8 for additional details.	34,000				34,000			34,000	Environmental Protection Agency (EPA)
Local Consultants	One Local consultant for MTR $12,000 and one Local Consultant for TE $12,000. See M&E budget table on PRODOC section VI.						24,000		24,000	Environmental Protection Agency (EPA)
Local Consultants	One Local Consultant on Access to Finance at USD $50,000. See annex 8 for additional details.		50,000			50,000			50,000	Environmental Protection Agency (EPA)
Local Consultants	Local consultants for mercury free technology development, analytical studies and training.			152,200		152,200			152,200	Environmental Protection Agency (EPA)
Training, Workshops, Meetings	Inception workshop (see M&E budget table for additional details)					-	15,000		15,000	Environmental Protection Agency (EPA)
Training, Workshops, Meetings	Training and Workshops aimed to increase formalization and mercury reduction				100,000	100,000			100,000	Environmental Protection Agency (EPA)
Training, Workshops, Meetings	Training to strengthen capacities to assess, plan and implement formal mercury-free interventions in the ASGM sector.	200,000				200,000			200,000	Environmental Protection Agency (EPA)
				404,407		404,407			404,407	

Training, Workshops, Meetings	Training, workshop and conferences on Mercury-free Gold mining technologies.									Environmental Protection Agency (EPA)
Training, Workshops, Meetings	Training workshops, seminars and meetings to strengthen project management capabilities							30,000	30,000	Environmental Protection Agency (EPA)
Training, Workshops, Meetings	Training, workshop and conferences on access to finance for the promotion of Mercury-free Gold.		186,000			186,000			186,000	Environmental Protection Agency (EPA)
Travel	Travel to support activities carried out under Component 1. Formalization Optimization of ASGM	250,000				250,000			250,000	Environmental Protection Agency (EPA)
Travel	Travel to support activities carried out under Component 2. Financial Inclusion and Responsible Supply Chains		240,000			240,000			240,000	Environmental Protection Agency (EPA)
Travel	Local travel to support activities carried out under Component 3. Enhancing uptake of Mercury-free technologies; Travel cost for international expert to support activities carried out under Component 3. Enhancing uptake of Mercury-free technologies			179,144		179,144			179,144	Environmental Protection Agency (EPA)
Travel	Travel to support activities carried out under Component 4. Knowledge sharing, communication and local capacity building support				256,250	256,250			256,250	Environmental Protection Agency (EPA)
Office Supplies	Basic office supplies for duration of project period					-		6,000	6,000	Environmental Protection Agency (EPA)
Other Operating Costs	Mandatory Audit Services (USD$2,000 per year for 4 years)					-		8,000	8,000	Environmental Protection Agency (EPA)
	UNIDO support services			19,499		19,499			19,499	

Other Operating Costs										Environmental Protection Agency (EPA)
Other Operating Costs	Audio Visual and Print Production Costs to raise stakeholders' awareness on the dangers of mercury and ways to eliminate/avoid its use in ASGM				50,000	50,000			50,000	Environmental Protection Agency (EPA)
Other Operating Costs	Audio Visual and Print Production Cost to support the development of awareness creation materials, training manuals, reports etc (at national or sub-national level) to support the adoption of Mercury free mining technologies.			92,100		92,100			92,100	Environmental Protection Agency (EPA)
Other Operating Costs	Audio Visual and Print Production Costs to support awareness-raising on access to finance for Mercury-free Gold		50,000			50,000			50,000	Environmental Protection Agency (EPA)
Other Operating Costs	Audio Visual and Print Production Costs to support the development of policies, policy instruments, or regulatory frameworks influenced (at national or sub-national level) to improve ASGM formalization.	100,000				100,000			100,000	Environmental Protection Agency (EPA)
	Total	1,200,000	2,300,000	1,950,665	445,000	5,895,665	155,000	300,000	6,350,665	

ANNEX F: (For NGI only) Termsheet

Instructions. Please submit an finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

ANNEX G: (For NGI only) Reflows

Instructions. Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat or the Trustee) in the Document Section of the CEO endorsement. The Agencys is required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

ANNEX H: (For NGI only) Agency Capacity to generate reflows

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies' capacity and eligibility to administer NGI resources as established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).