United Nations Development Programme

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Project title: Improving Environmental Management in the Mining Sector of Suriname, with Emphasis on Artisanal and Small Scale Gold Mining (ASGM)		
Country: Republic of Suriname	**Implementing Partner:** Ministry of Natural Resources (MNR)	**Management Arrangements:** Support for National Implementation Modality (NIM)
UNDAF/Country Programme Outcome*:* **UNMSDF OUTCOME INVOLVING UNDP:** Inclusive and sustainable solutions adopted for the conservation, restoration and use of ecosystems and natural resources. (A Sustainable and Resilient Caribbean) **NATIONAL PRIORITY OR GOAL:** Suriname, through a climate compatible development approach, will have put in place advanced capacities, policies, institutional frameworks, engaged and active citizens for adaptive and agile production systems that can respond to increasing socio-economic, environmental and climatic challenges (INDC 2015). 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: 1.3: Solutions developed at national and sub-national levels for sustainable management of natural resources, ecosystem services, chemicals and waste		
UNDP Social and Environmental Screening Category: *Moderate*	**UNDP Gender Marker: GEN2**	
Atlas Project ID/Award ID number: *00107493*	**Atlas Output ID/Project ID number:** *00107792*	
UNDP-GEF PIMS ID number: 5627	**GEF ID number: 9288**	
Planned start date: April 2018 (estimated)	**Planned end date:** April 2025 (estimated)	
LPAC date:		
Brief project description: The project seeks to improve the environmental management of mining in Suriname, particularly small-scale gold mining, which is the largest driver of deforestation in the country and contributes to biodiversity loss (through habitat degradation and pollution), climate change (through deforestation) and unsustainable land, water and forest management. The project will address policy and institutional constraints to improved management of ASGM as a sector as well as to create an enabling environment for the dissemination of environmentally responsible mining practices. To do so, the project will work at the policy level (Outcomes 1 and 2) with government stakeholders, as well as with miners themselves (Outcome 3) to demonstrate the environmental and economic benefits of environmentally responsible mining practices (ERMPs) and technologies. The model proposed is one that relies on the identification of benefits for miners that arise from the application of ERMPs, including social and economic benefits, as well as the design of a system of national level		

financial, fiscal and regulatory incentives to help re-orient the market towards more responsibly sourced gold. Based on the lessons learned from this model, the project will implement an upscaling strategy that will include knowledge sharing at local and national level, as well as with neighbouring countries (Outcome 4).		
FINANCING PLAN (USD)		
GEF Trust Fund *or LDCF or SCCF or other vertical fund*		7,589,041
Cash co-financing to be administered by UNDP		N/A
Total Budget administered by UNDP		**7,589,041**
PARALLEL CO-FINANCING (*all other co-financing that is not cash co-financing administered by UNDP)*		
UNDP		1,000,000
Ministry of Natural Resources		7,000,000
NIMOS		1,400,000
WWF Guianas		932,000
MZ Medical Mission – Primary Health Care Suriname		1,000,000
Tulane University, School of Public Health and Tropical Medicine		1,600,000
Suriname Environment and Mining Foundation (SEMIF)		2,500,000
Grassalco Mining co,		2,500,000
Newmont Mines		2,200,000
Rosebel Gold Mines		2,000,000
Total co-financing		**22,132,000**
Grand-Total Project Financing (1)+(2)		**29,721,041**
SIGNATURES		
Signature: print name below	**Agreed by Government**	**Date/Month/Year:**
Signature: print name below	**Agreed by National Institute for Environment and Development (NIMOS)**	**Date/Month/Year:**
Signature: print name below	**Agreed by Ministry of Natural Resources**	**Date/Month/Year:**
Signature: print name below	**Agreed by UNDP**	**Date/Month/Year:**

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ACRONYMS

ABS	General Bureau of Statistics (*Algemeen Bureau voor de Statistiek*)
ADEKUS	Anton de Kom (University of Suriname)
AGC	Artisanal Gold Council
ARM	Alliance for Responsible mining
ASGM	Artisanal Small scale Gold mining
ASM	Artisanal small scale mining
Au	Gold (chemical symbol)
BOG	Bureau for public health in Suriname
BGA	Bureau for Gender Affairs
CBvS	Central Bank of Suriname (*Centrale Bank van Suriname*)
CI	Conservation International
CO_2	Carbon dioxide (chemical symbol)
DC	Districts Commissioner (*Districts Commissaris*)
EPIO	Environmental Planning and Information Office of NIMOS
ERM	Environmentally responsible mining
ESIA	Environmental and Social Impact Assessment
FPIC	Free, Prior and Informed Consent
FSP	Full Sized Project
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse gas emissions
GMD	Geology and Mining Department (*Geologisch Mijnbouwkundige Dienst*)
GNI	Gross National Income
GoS	Government of Suriname
GSB	Greenstone Belt
Ha.	Hectare
HFLD	High Forest cover Low Deforestation
Hg	Mercury (chemical element)
M&E	Monitoring and Evaluation
MNR	Ministry of Natural Resources
MRO	Ministry for Regional Development
MTEC	Mining Training and Extension Center
MTR	Mid-Term Review
MZ	Medical Mission Primary Health Care Suriname (*Medische Zending*)
NGO	Non-Governmental Organisation

NIMOS	National Institute for Environment and Development in Suriname *(Nationaal Instituut voor Milieu en Ontwikkeling in Suriname*)
OGS	Commission for the Regulation of the Gold Sector (*Ordening Goudsector*)
PIR	Project Implementation Report
REDD+	Reducing Emissions from Deforestation and forest Degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.
RTA	Regional Technical Advisor (UNDP)
SBB	Foundation for Forest Management and Production Control (*Stichting Bosbeheer en Bostoezicht*)
SEMIF	Suriname Environmental and Mining Foundation
SGMT	School of Geology and Mining Technology
TE	Terminal Evaluation
UN	United Nations
UNASAT	University of Applied Sciences and Technology
UNDP	United Nations Development Program
UNMSDF	United Nations Multi-country Sustainable Development Framework for the Caribbean
US	United States
US$	Unites States dollar
WWF	World Wildlife Fund

I. DEVELOPMENT CHALLENGE

General context

1. The Republic of Suriname is located on the north-eastern coast of South America and is the smallest state of the continent with a land area of approximately 163,000 km^2. It is bordered by Guyana to the west, French Guiana to the east, Brazil to the south and with the Atlantic Ocean to the north with a coastline of 370 km. In 2015, Suriname's population amounted to 567,291 people[1], with 66%[2] of the population living in the urban areas of the capital of the country, Paramaribo and surrounding district of Wanica[3],, 20% in other rural coastal districts and the remaining 14% living in the Interior in tribal communities along rivers.

2. Suriname became independent from the Netherlands in 1975 and has since endured two military coups as well as a civil war, which took place from 1986 to 1992. It is a constitutional democracy with a president, who acts as the chief of state and the head of government. It is composed of 10 administrative districts, which are represented by District council members and a District Commissioner. The political structure is considered weak outside Paramaribo as districts lack political power and budget to address their local issues, despite a decentralization process that began in 2002 aimed at providing more operating budget to districts.[4]

3. As a Dutch colony, Suriname's economy was mostly exploited for sugar and coffee production, however the gold rush took over the economy when the plantation economy declined in the middle of the 19th century. Since the mid-20th century, oil and mining for gold and bauxite have been the main economic drivers of the country, though since 2009, gold has become the economically most important export commodity, surpassing bauxite/alumina, for which production stopped in 2015.

4. As the owner of all subsoil resources and main authority responsible for legal development and control in Suriname, the Government of Suriname (GoS) is a primary stakeholder in any project focused on artisanal small scale mining (ASM). Gold mining is a crosscutting issue with direct and indirect links to virtually all sections of government. Mining falls under the responsibility of the Geological Mining Service (GMD - Geologisch Mijnbouwkundige Dienst), which is part of the Ministry of Natural Resources (MNR). The key government departments and organizations with responsibilities in the gold mining sector are listed under Stakeholder Engagement section (Section IV. iii).

5. The gold mining sector in Suriname is composed of both large-scale mining (LSM) operations and artisanal and small-scale mining operations (ASM). Two multinational gold mining firms are involved in commercial gold production in Suriname, namely IAMGOLD (also known as Rosebel Gold Mines) and Newmont, who represent 35% of the total gold production. In 2015, the amount of gold produced by ASM amounted to 18.9 tons. Artisanal gold mining operations (ASGM) in Suriname are highly mechanized, working with excavators and automated equipment. They are considered artisanal because those conducting the activities benefit from no formal training, the mines are characterized by poor planning and a highly informal nature.

6. Considered a vital sector of Suriname's economy, artisanal small-scale gold mining (ASGM) was believed to provide 15,000 direct jobs as well as a significant number of jobs in subsidiary services in 2016. Mining mostly takes place in Suriname's Greenstone Belt, where the majority of gold deposits are found (see Figures 1 and 2), and which is composed mainly of dryland forest. Unfortunately, due to its largely unregulated and uncontrolled nature, mining, and in

[1] General Bureau of Statistics, 2017. Statistical Yearbook 2015/2016. Suriname in Cijfers no. 327/2017-01 (2015 mid-year population)
[2] http://data.un.org/CountryProfile.aspx?crName=suriname
[3] General Bureau of Statistics, 2016. 7th Environment Statistical Report 2016
[4] Second National Communication to UNFCCC, 2016

particular artisanal small- and medium-scale gold mining, is causing significant negative environmental impacts on forests, freshwater, fauna, as well as social impacts.

7. Virtually all locations where ASGM occurs are either part of a formal concession – titled to a multinational company or to a Surinamese firm or individual – or part of a traditional land claim (Indigenous or Maroon). ASGM equipment owners (i.e. bosses, dono do baranco) typically recognize these claims and comply with the regulations required by the mining title-holder or landlord. However, problems sometimes arise where there is more than one land claimant and there have been a few cases where land is occupied by miners who do not recognize third party rights.

8. Formal mining title-holders are people with a mining title extended by the Ministry of Natural Resources, either directly or through the Geology and Mining Department (GMD). Regardless of whether or not the concession title-holder operates a mining plant, the largest share of the concession is typically sublet to independent small-scale operators, against payment of 10-12% of the recovered gold. It should be noted that by law, the mining title holder is not allowed to sublet the concession, but this practice is tolerated by the Government of Suriname (GoS).[5]

9. A consistent issue across all types of mining has been insufficient acknowledgement of the customary rights of Indigenous and Maroon peoples. The lack of national legislation on indigenous and tribal rights – particularly with regards to land and resources – allows for tensions to easily emerge in interactions among indigenous communities and mine operators.[6]

10. The number of women working in the ASGM sector seems to have increased over the years, and is larger among migrants than among local people. Women are most prominently present in the mining service sector as traveling saleswomen; shop owners; hairdressers and beauticians; owners and managers of hotels, bars, restaurants and brothels; cooks; Commercial Sex Workers (CSW); transport providers (e.g. ATV driver) and so forth. In addition, few women are equipment owners and mine managers, or they may be present as the spouse of a gold miner. Women account for 15-20% of the ASGM population in these various professions, including the ones present in the service sector.[7]

11. Additional information on the social and economic context of Suriname can be found in Annex O.

[5] Heemskerk, M. Negulic, E. and Duijves C. (2016). *Reducing the Use and Release of Mercury by Artisanal and Small-Scale Gold Miners in Suriname*. Report produced for the Artisanal Gold Council, Canada

[6] IGF, May 2017

[7] Heemskerk, M. Negulic, E. and Duijves C. (2016).

Figure 1: Map of Suriname

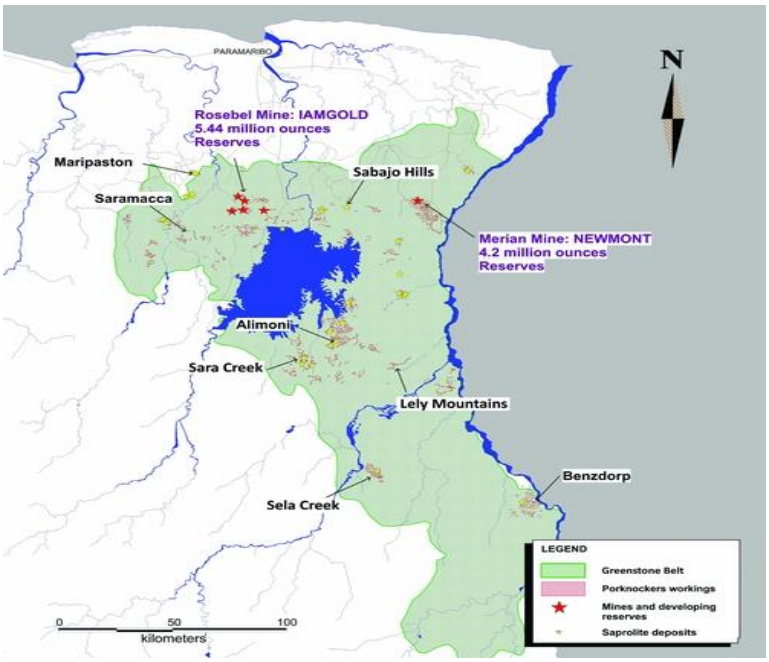

Figure 2: Map showing the Greenstone Belt

Environmental context

12. ***Forests and land use***. Suriname is subdivided into several types of ecosystems; the Greenstone belt (GSB) area, where the majority of gold deposits are found, is mostly comprised of dryland forests (highlands and lowlands)[8]. Nearly all small-scale gold mining activities are practiced in the alluvial creek valleys and on their neighboring colluvial foot-slopes, but some scattered activities are conducted on some of the terraces along the main rivers. The creek valleys and adjacent footslopes have a width of less than one hundred meters to some hundreds of meters at most.

13. With more than 14.8 million ha of forest cover (93% of its total area) based on data from 2016, Suriname is one of the most forested countries in the world.[9] Historical annual rates of deforestation below 0.1%, have allowed the country to be classified as a High Forest cover, Low Deforestation rate (HFLD) country. Forests provide a multitude of environmental and social benefits, including income and food security for local communities, national income from logging and mining, and global environmental benefits such as climate mitigation and biodiversity preservation. Suriname´s forests act as a carbon sink, making it a carbon-negative country (net carbon capture per capita of 3.3 tons).[10] Suriname's forests not only keep about 11 gigatons of carbon stored, but they also absorb 8.8 millions tons of carbon per year, which amounts to about 350 million tons of carbon absorbed since 1972.[11] Suriname's GHG emissions are marginal, at approximately 7 million tons of carbon[12] and a recorded reduction from 5.067 tons of CO2 per capita in 2010 to 3.939 tons per capita in 2013[13.] In addition, Surinamese forests provide a variety of ecological goods, including for example: timber, game, plant material for making household items, firewood, oil from palm fruits, medicinal plants, liana and leaves as thatching material, and sand and gravel for construction purposes, as well as maintaining key ecological services, such as water protection, soil quality and climate regulation.

14. ***Biodiversity***. Suriname's forests are part of the Amazon Biome, the largest tropical rainforest on earth, which houses at least 10% of the world's known biodiversity.[14] At the regional level, Suriname is located within two of WWF's Global 200 eco-regions, which are considered significant for the conservation of global biodiversity and where continuous forest remain intact (Guyana moist forests and Guyana Highlands moist forests). Surinamese forests host significant levels of biodiversity, which can be attributed not only to this significant forest cover, but also the large variety of habitats, temperature, and relatively low population pressures to date.

15. The National Herbarium of Suriname has identified 715 bird species, 187 moss species, 343 fern species, 318 freshwater fish species, 192 mammal species, 175 reptile species, 102 amphibian species, and, 5,100 plant species in Suriname.[15] Since many areas have not been fully explored, the numbers are likely to be even higher. In 2013, a rapid biodiversity assessment conducted by Conservation International in the Palumeu River watershed documented 60 species that are likely new to science and that may exist nowhere else on Earth, among which six frogs, one snake, 11 fish species and a high number of insects, including the Liliputian Beetle (*Canthidium cf. minimum*).[16] Approximately 35 to 40% of the plant species and 20% of the animal species are Guiana Shield endemics[17]. The IUCN Red List has recorded 83 vulnerable and endangered species in Suriname, including for example the Guiana Spider Monkey (*Ateles paniscus*);

[8] Teunissen, P.A. Vegetation and vegetation succession of the freshwater wetlands in The Freshwater Ecosystems of Suriname, edited by Ouboter, P.E. (1993)

[9] Unique Forestry and Land Use (2016) Final Report Background study for REDD+ implementation: Multi-Perspective Analysis of Drivers of Deforestation, Forest Degradation and Barriers to REDD+ Activities. Strengthening national capacities of Suriname for the elaboration of the national REDD+ strategy and the design of its implementation framework.

[10] Unique Forestry and Land Use (2016)

[11] Intended Nationally Determined Contributions (INDCs) from Suriname under UNFCCC, 2015

[12] INDCs, 2015

[13] World Bank - 2013, http://data.worldbank.org/country/suriname

[14] WWF, 2017: http://wwf.panda.org/what_we_do/where_we_work/amazon/about_the_amazon/

[15] Data from 2011, reported by the Ministry of Labour, Technological Development and Environment (2012) in the Fourth National Report to the Convention on Biological Diversity.

[16] Conservation International, 2013, Tropical Eden Revealed: In Southeast Suriname, Scientists Document New Biodiversity and Pristine Ecosystems Vital to Water, Climate and Health Security.

[17] Ministry of Labour, Technological Development and Environment (2009) Suriname Biodiversity Profile

Tayassu pecari (*White-lipped Peccary*); the Green Turtle (*Chelonia Mydas*); the Golden Tilefish (*Lopholatilus chamaeleonticeps*), and the Giant Anteater (*Myrmecophaga tridactyla*).[18]

16. To protect this rich biodiversity, important carbon stocks and the many ecosystem services provided by forests, Suriname has already dedicated 13.5% of its total land area under a national protection system to preserve forests and wetlands and is committed to maintain its HFLD status by expanding protected areas and increasing efforts towards sustainable forest and ecosystem management. As of 2017, Suriname had established 16 legally protected areas (21,426 km2)[19]. The different types of protected areas are i) Multiple Use Management Areas (MUMAs), in which economic activities are allowed as long as long-term specific protection goals are respected; ii) Nature Parks, where mainly recreational activities are allowed; and iii) Nature Reserves, where specific species and ecosystems are protected.[20] Among the established protected areas, there are four MUMAs in coastal areas, one nature park, namely the Brownsberg Nature Park (which is located on the margins of the Greenstone belt), and 11 nature reserves. The Central Suriname Nature Reserve, located in the interior, is the largest protected area (15,920 km2 or 9.7% of the total land area), while most other reserves are no larger than 1,000 km^2 and are located less than 100 km from Suriname's coastal areas.[21]

Threats

17. Despite these efforts and achievements, however, Suriname´s forests are significantly threatened by growth in extractive industries, in particular gold mining. Even though gold mining does not yet account for a large absolute amount of deforestation, on a national level it is the most important driver of deforestation and land degradation. Between 2000 and 2015, gold mining accounted for 73% of total deforestation over the country (59,554 ha), and 95.9% of the mining-induced deforestation.[22] Variations in the price of gold and exhaustion of ore supplies have not slowed down mining-induced deforestation[23]. In the past 15 years, the estimated area impacted by gold mining increased from 8,296 ha in 2001 to 27,254 in 2008, and reaching 53,669 ha in 2014.[24] Between 2008 and 2014, gold mining induced deforestation in Suriname doubled as compared to the 2001-2008 period (+97%)[25], reflecting sharp increases in gold prices (from approximately 371 US$ per ounce in 2001 to 1890$/ounce in 2011, and currently at 1257$ per ounce)[26].

18. Although small-scale gold mining is considered a vital sector to the national economy and seems to bring relatively secure and high revenue compared to other rural livelihoods, it is still largely unregulated and practiced using artisanal techniques that lead to significant environmental and social impacts. As noted above, most artisanal small-scale gold mining (ASGM) is undertaken in creek valleys and on lower hill slopes, thus particularly affecting creek forests. Depending on the geological deposits and the location of the mining site, miners use different methods of mining, including hydraulic[27] and tunnelling[28]. The hydraulic method to exploit alluvial deposits is the most commonly used in

[18] IUCN 2017. *The IUCN Red List of Threatened Species. Version 2017-1*. <http://www.iucnredlist.org>. Downloaded on 30 May 2017.

[19] UNEP-WCMC (2017). Protected Area Profile for Suriname from the World Database of Protected Areas, September 2017. Available at: www.protectedplanet.net

[20] Office of the President of the Republic of Suriname (2016) Second National Communication to the UNFCCC

[21] Ministry of Labour, Technological Development and Environment (2012) The Fourth National Report to the Convention on Biological Diversity.

[22] Data from the SBB (Foundation for Forest Management and Control - *Stichting Bosbeheer en Bostoezicht*), and from LULC working session 2016.

[23] UNIQUE Forestry and Land Use, Final Report Background Study For Redd+ Implementation: Multi-Perspective Analysis Of Drivers Of Deforestation, Forest Degradation And Barriers To Redd+ Activities.

[24] Rahm M., Jullian B., Lauger A., de Carvalho R., Vale L., Totaram J., Cort K.A., Djojodikromo M., Hardjoprajitno M., Neri S., Vieira R., Watanabe E., do Carmo Brito M., Miranda P., Paloeng C., Moe Soe Let V., Crabbe S., Calmel M. (2015). *Monitoring the Impact of Gold Mining on the Forest Cover and Freshwater in the Guiana Shield*. Reference year 2014. REDD+ for the Guiana Shield Project and WWF Guianas.

[25] Rahm et al. 2015.

[26] http://www.macrotrends.net/1333/historical-gold-prices-100-year-chart

[27] Hydraulic mining operations, also called strip mining, take place along streambeds, where miners clear forest to conduct their operations over a 50x50 m area. When that has been mined out they move along the old creek bed, and make another 50x50m working location, with a total cumulative footprint of approximately 5 ha. This creates strips through the forest. Hydraulic operations come in many different sizes, ranging from 1 person with a small 1" pumping system for ground sluicing, to very elaborate plants with two sets of large machines and an excavator to speed up removal of the overburden. For more information, refer to Heemskerk, Negulic and Duijves, 2016, Reducing the Use and Release of Mercury by Artisanal and Small-Scale Gold Miners In Suriname. Review of the Suriname ASGM sector: http://social-solutions.net/data/index.php/menu-styles/reports

[28] The tunnelling method consists in excavating underground minerals by following distinct rock characteristics and veins of ore. According to Dr. Hanspeter Tomschi's *Report on recommended mining technologies and techniques to promote through the project as well as training requirements for ASM*, available upon request. (2017) A definition of drift (tunnelling) mining definition can also be found here: https://en.wikipedia.org/wiki/Drift_mining

Suriname, and it is the method that causes most **deforestation:** for a typical mine, exploration, construction and operations usually end up removing tree cover over approximately 5 hectares of land along streams. The hydraulic method uses more space and requires the land around the stream to be deforested, while the tunnelling method looks for underground deposits and goes deeper in the soil (up to ~ 60 m).

19. As a result of these methods and the consequent removal of riparian forests, ASGM contributes to **erosion and siltation of streams**.[29] ASGM also causes significant water pollution, as the water is used to wash the ore: after separating the ore, tailings are usually allowed to flow into the forest or directly back into the creeks, which subsequently flow into the main rivers. The cumulative impact of many smaller tributaries on larger rivers is substantial. Many rivers and creeks that once provided water that was suitable for human consumption are now deemed unsuitable, and the fish that used to reside in them has gradually disappeared. In the dry season, when rainwater is scarce, diarrhoea and other waterborne diseases, including malaria, are on the increase in ASGM areas.[30]

20. After mining operations are over, miners typically leave the area behind without managing tailings, leaving open pits (between 5 to 20 m) that are typically not refilled, leading to heavy **land degradation**.[31] Based on fieldwork on abandoned mine sites[32], it was determined that the repeated soil movements that are typical of ASGM greatly slow regeneration of forests and lead to qualitatively inferior vegetation cover. Unlike areas in nearby old-growth forest, large parts of mined areas remain bare ground, grass, and standing water, with significant and difficult to reverse impacts on biodiversity, carbon stocks, ecosystems goods and services.

21. In terms of mining impacts on **biodiversity**, high loads of suspended and deposited fine sediment in aquatic systems affect light penetration, temperature adjustment, electrolytes, bottom conditions, and retention of organic matter.[33] Under such conditions, stream biodiversity, in particular fish (for example, *Hoplias aimara* (anjoemara), or Piranha (*Serrasalmus rhombeus*), die off or their growth and reproduction are adversely affected.[34]

22. According to a 2004 study, old mining-affected streams exhibit "low species diversity, low proportion of young fishes, high proportion of mid-channel surface-feeding fishes (sic) and fishes adapted to low light, low proportion of visually orienting fishes and fishes that hide in leaf-litter banks and woody debris, and low relative biomass of food fishes."[35] The study compared disturbed and non-disturbed streams and found a variety of 68 different species were in an undisturbed stream versus 56 different species in a gold affected stream.

23. ASGM is also the largest source of **anthropogenic mercury emissions** and releases to the environment (~1600 tonnes/year), accounting for more than one third of mercury annually released into the environment globally.[36] Virtually all ASGM operations in Suriname rely on gravity concentration and mercury amalgamation of sediments.[37] As in most of

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[29] Wantzen, Karl M. and Jan H. Mol (2013) *Soil Erosion from Agriculture and Mining: A Threat to Tropical Stream Ecosystems*. Review. Agriculture 2013, 3, 660-683.

[30] Heemskerk, M. and Olivieira, M. (2003). *Perceptions of small-scale gold mining impacts: Results from focus group discussions in mining camps and affected communities. Tapanahonie & Brokopondo Regions, Suriname*. Report for WWF-Guianas.

[31] Heemskerk, M. (2011). Small-Scale Gold Mining in the Transboundary Areas of Brazil, Suriname and French Guiana. Social and Environmental Issues. UNDP GSF.

[32] Peterson, G. D. and Heemskerk, M. (2001). *Deforestation and forest regeneration following small-scale gold mining in the Amazon: the case of Suriname*. Environmental Conservation 28 (2): 117–126.

[33] NRCS (1995). *Effects of Sediment on the Aquatic Environment: Potential NRCS Actions to Improve Aquatic Habitat* - Working Paper No. 6. Natural Resources Conservation Service. United States Department of Agriculture

[34] impacts are as follows: (1) because particular matter affects the gills, growth rate are slowed and animals have lower tolerance to disease; (3) by altering the adequacy of spawning habitat and the development of fish eggs, larvae, and juveniles; (2) by disturbing the fish's natural migration patterns; (4) reducing the abundance of fish food since the deposit of fine sediment limits light penetration and primary production, impede the feeding activities of invertebrates, and reduce the habitat of invertebrate prey; (5) affecting hunting's efficiency, particularly in the case of visual feeders; and (6) destructing shelters and hiding places for fish which exposes them to predators. See for example Wantzen and Mol, 2013; Mol, J.H.; Ouboter, P.E. (2004) *Downstream effects of erosion from small-scale gold mining on the instream habitat and fish community of a small neotropical rainforest stream*. Conservation Biology 18: 201–214.

[35] Mol and Ouboter, 2004. Downstream Effects of Erosion from Small-Scale Gold Mining on the Instream Habitat and Fish Community of a Small Neotropical Rainforest Stream, in Conservation Biology, volume 18, No. 1, February 2004

[36] UNEP (2013) *Global Mercury Assessment 2013: Sources, Emissions, Releases and Environmental Transport*. UNEP Chemicals Branch, Geneva, Switzerland.

[37] Heemskerk, M. & Duijves, C. (2014). *Gold miners' knowledge, attitudes and practices with regard to mercury: A study in three small-scale gold mining regions in Suriname*. Report produced for the GOMIAM Research Network and WWF Guianas [Online] Available from: http://social-solutions.net/data/images/reports/Mercury_KAP.pdf [Accessed: March 10, 2017].

the greater Amazon region, the most common ASGM processing methods involve sluicing (with or without excavator), some with the addition of crushing, using hammer mills, to further increase gold liberation and recovery. Worldwide, the mercury (Hg) to gold (Au) ratio used in ASGM varies from roughly 1:1 to >20:1 in selected worst cases.[38] Based on interviews with gold miners in 2016, Heemskerk et al. estimated the mercury-to-gold ratio for Suriname ASGM at 3.3:1.[39] That is, for every kilogram of gold produced, an estimated 3.3 kg of mercury is emitted into the environment. This estimate is in line with an earlier estimated ratio for the Guianas of 3:1, in 2015.[40] Furthermore, due to the association of inorganic mercury with organic molecules within the sediment, turbidity is associated with a higher mercury load, and with facilitated transport of mercury to areas distant to ASGM operations, extending negative impacts further down the watershed, and over the food chain, accumulating in larger fishes.[41]

24. Mercury enters the aqueous (seawater and groundwater) ecosystem both directly, with tailings from mining areas, and indirectly, when evaporated mercury is deposited with rainfall. In the aquatic ecosystem, traces of mercury can be found in water, sediments and aquatic biota. Measurements in Suriname's fresh water bodies show that mercury levels are slightly higher than global background levels.[42] Estimates of mercury releases from gold mining and primary metal production (mainly bauxite) in Suriname in 2016 amount to 174,076 kg of mercury[43].

25. Forest removals for gold mining were estimated between 1,200 ha per year to 3,100 ha per year[44].. According to a 2016 report on the drivers of deforestation in Suriname, "from 2000-2015, gold mining resulted in **GHG emissions** of 55.05 million tCO2 (…). Land-based emissions related to deforestation were believed to amount to 49.35 million tCO2 and 3.29 million tCO2/year on average. The remaining 5.7 million tCO2 (0.38 million tCO2/year) were attributed to diesel fuel consumption to extract gold"[45]. Other atmospheric emissions related to ASGM – other than mercury - are mostly related to fumes from burning fossil fuels. The above-mentioned report estimated that emissions related to diesel fuel consumption in the ASM sector results in average GHG of 91.5 tCO_2/ha.[46]

Barriers

26. The preferred solution to these problems is a situation in which ASGM, where and when it must be practiced, is deployed using environmentally responsible technologies. However, three main **barriers** are undermining effective action to address threats associated with the small-scale gold mining sector in Suriname's interior, namely (i) the lack of institutional, technical and financial capacity of government institutions to monitor and understand impacts and to promote more environmentally responsible practices, (ii) the weak legal and policy framework to guide and incentivize the small-scale mining sector, in particular the gold sector, and (iii) the lack of access by small-scale miners to environmentally responsible gold mining technologies and tools, as well as inadequate incentives to apply them.

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[38] Persaud A., and Telmer K. (2015) *Developing Baseline Estimates of Mercury Use in Artisanal and Small-Scale Gold Mining Communities: A Practical Guide* (Version 1.0), Artisanal Gold Council. Victoria, BC. ISBN 978-0-9939459-4-6.

[39] Heemskerk, M. Negulic, E. and Duijves C. (2016). *Reducing the Use and Release of Mercury by Artisanal and Small-Scale Gold Miners in Suriname*. Report produced for the Artisanal Gold Council, Canada.

[40] Legg et al. 2015.

[41] Legg, E.D., Ouboter, P.E. and Wright, M.A.P. (2015). *Small-Scale Gold Mining Related Mercury Contamination in the Guianas: A Review*. Prepared for WWF-Guianas.

[42] Ouboter, P. (2015) *Review of mercury pollution in Suriname,* Academic Journal of Suriname, 6, 531-543.

[43] Office of the President of Suriname, MERCURY RELEASE INVENTORY, WASTE STORAGE AND DISPOSAL IN THE REPUBLIC OF SURINAME, 2016 available at https://wedocs.unep.org/bitstream/handle/20.500.11822/14106/Inventory%20of%20Mercury%20Releases-Suriname.pdf?sequence=1&isAllowed=y

[44] Estimates vary according to studies and methodologies; there is no single accepted source of data. See for example, Government of Suriname, Second National Communication to the UNFCCC, 2016 (with 2008 data) and Unique - Forestry and Land Use (2016) Final Report Background study for *REDD+ implementation: Multi-Perspective Analysis of Drivers of Deforestation, Forest Degradation and Barriers to REDD+ Activities*.

[45] Unique Forestry and Land Use (2016) Final Report Background study for *REDD+ implementation: Multi-Perspective Analysis of Drivers of Deforestation, Forest Degradation and Barriers to REDD+ Activities. Strengthening national capacities of Suriname for the elaboration of the national REDD+ strategy and the design of its implementation framework*. http://www.surinameredd.org/media/1183/ddfdbplus-study-inception-report.pdf

[46] Unique Forestry and Land Use (2016) Final Report Background study for *REDD+ implementation: Multi-Perspective Analysis of Drivers of Deforestation, Forest Degradation and Barriers to REDD+ Activities. Strengthening national capacities of Suriname for the elaboration of the national REDD+ strategy and the design of its implementation framework*. http://www.surinameredd.org/media/1183/ddfdbplus-study-inception-report.pdf

Lack of institutional, technical and financial capacity

27. Key institutions involved in the mining sector include the National Institute for Environment and Development in Suriname (NIMOS), the Geological Mining Service of the Ministry of Natural Resources (GMD), the Bauxite Institute and the Presidential Commission to Regulate the Gold Mining Sector (OGS) (see Section ii for more details on the project stakeholders). The Geological and Mining Services (GMD) of the Ministry of Natural Resources is currently undergoing a process of upgrading into a fully autonomous agency, through which it will be merged with the Bauxite Institute and OGS, to become a fully autonomous Mining Institute (MINAS). The process is expected to be completed by 2018, after which point, MINAS will replace GMD in all project activities. This activity is receiving support from various partners, including SEMIF.

28. Despite this ongoing reform, all stakeholders suffer from **a lack of sufficient qualified human resources**, including 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 state of licenced and illegal mining. According to the Intergovernmental Gold Forum (IGF) Mining Policy Framework Assessment[47], which was completed in 2017, the lack of resources and qualified personnel to administer the tax system, handle transfer and pricing issues and conduct audits, is exacerbated by the inability of the government to retain senior staff with relevant institutional knowledge. Key institutional actors in the mining sector are functioning with limited resources, including the recently created Environmental Planning and Information Office (EPIO) of NIMOS (in fact, of the 9 foreseen offices of NIMOS, only four are currently operational). EPIO is responsible for environmental planning in the sense of spatial mapping and zoning, the maintenance of databases and information, and for the development of the National Environmental Action Plan. However, since its creation through another GEF-supported project in 2016, the EPIO is still understaffed (1 professional), with limited operational means for attending to matters in the interior.

29. In addition, the **lack of financial resources** from the central government to address negative social and environmental impacts of ASM prevents local governments from conducting effective law enforcement and from promoting environmentally responsible mining methods (ERM) among miners. For instance, the GMD lacks both **technical** and **financial capacities** to analyse and map geological data: the latest geological map dates back to 1977 and is not accessible to the public. Since then, large scale companies have provided updated geological data through reports, however the GMD lacks the technical capacity and knowledge to analyze this data or to provide impartial and independent assessments. MNR and NIMOS also have limited financial resources to go into the field to monitor ASGM practices and their environmental impacts or to carry out any kind of revegetation or restoration. The Suriname Foundation for Forest Management and Production Control (SBB), as of recently, also functions with limited means, meaning that no recent assessment of forest status in the mining areas currently exists, further hindering application of laws and monitoring of impacts.

30. None of the key institutions involved in the mining sector have sufficient monitoring and enforcement capacity, and the authority of staff is often questioned or limited by political pressure. A direct result of this weak monitoring and enforcement capacity is the substantial amount of illegal small and medium-scale mining that is occurring; with or even without concessions or permits, it is frequent that concession conditions are not respected (including subletting, tax evasion, lack of reporting, etc). As such, there is little adherence even to the standards that do exist within the existing legislation. It is common knowledge, though there are no harmonized official data, that more gold is produced from illegal and legal small and medium-scale gold mining than from legal large-scale mining activities.

31. Furthermore, there are a number of governmental and non-governmental institutions (both domestic and foreign) involved in environmental management, including national and international NGOs such as the Suriname Conservation Foundation (SCF), Amazon Conservation Team (ACT), the Artisanal Gold Council (AGC), the Alliance for Responsible Mining (ARM), World Wildlife Foundation (WWF), among others; however limited inter-institutional communication translates into a situation where initiatives are often uncoordinated. Finally, cooperation on mining issues with the

[47] IGF Mining Policy Framework Assessment for Suriname, May 2017

neighbouring countries is still limited despite the fact that both French Guiana and Guyana are also concerned with illegal ASM and ASGM. Existing platforms, such as the Structural Gold Platform, the Sustainable Development Solutions Network, and the Guiana Shield Facility, and some of the existing knowledge sharing and collaboration mechanisms, need to be strengthened in terms of their inter-regional knowledge exchange, and Surinamese stakeholders need to be empowered to take advantage of them better.

WEAK LEGAL AND POLICY FRAMEWORK IN THE MINING SECTOR

32. The Mining Decree E-58 of 1986 is the only legal instrument that governs the mining sector in Suriname. The Decree states that mining should be carried out according to modern international techniques and methods, that worker health and safety (and public health more generally) must be respected and protected by those operating in the industry, and that operations must follow norms for the protection of ecological systems.[48] While efforts have been made in the past to update this legislation, the latest submitted draft dates back to 2004 (Mining Code), but was never adopted.

33. In June 2016, the government established a multi-stakeholder Commission, made up of representatives from government, the private sector and civil society, for the Amendment of the Mining Code (then renamed Mining Law), and mandated to review and update the 2004 draft for submission to parliament in 2017, but this was still pending at time of writing (September 2017). Apart from the Mining Decree and bilateral Mineral Agreements signed between the government and large-scale mining companies, there are only voluntary general guidelines to conduct Environmental and Social Impact Assessments (ESIA) (Environmental Assessment Guidelines Volume II (2005), provided by NIMOS as guidance for large-scale companies to orient activities before exploration begins. However, these ESIA are not required by law. As for ASGM, there are no requirements to carry out ESIA before starting mining related operations on a particular site and strategic sector-based EIAs are not carried out either.[49] Nevertheless, the cumulative impact of many ASM operations are having a substantial environmental impact.

34. An analysis by NIMOS of government institutions found that almost all Ministries have some environmentally related mandate. However, the lack of specific environmental legislation contributes to unclear and overlapping actions or is cause for inaction in addressing environmental issues, including as it relates to regulating and monitoring the mining industry. While the GoS is preparing an Environmental Framework Act to regulate environmental impacts, waste management and pollution reduction, this has been under development since 2002.

35. There is no mining strategy in place to lead the development of the gold mining sector and the current lack of transparency in the system of tax and royalties' collection from the informal ASGM sector has resulted in a large loss of revenues for the government. Signalling willingness to move forward on the issue of transparency, however, the GoS became a member of the Extractive Industries Transparency Initiative (EITI)[50] in May 2017.

36. It is also important to note that many of the policy or legislative instruments listed above only concern part of the mining life cycle. For example, although mine rehabilitation is mentioned in the 1986 Mining Decree, there is no policy or legislation establishing how abandoned or orphaned mines should be treated and how to deal with decommissioning and post-mine transition, in any of the policy documents mentioned above. Therefore, even ongoing efforts to complete the legislative and institutional framework need to be reconsidered or reviewed to ensure all steps of the mining cycle are addressed.

37. The lack of national legislation on indigenous and tribal peoples' rights – particularly with regards to land and resources – allows for tensions to easily emerge in interactions among indigenous and tribal communities and mine

[48] IGF, Mining Policy Framework Assessment, 2017

[49] IGF, Mining Policy Framework Assessment, 2017

[50] The EITI promotes standards for the good governance of mining sector activities, including through the establishment of multi-stakeholdeer groups, reporting and improved access to information. EITI standard and principles include, among others, aspects related to the sustainable management of natural resources, increased understanding government revenues.

operators.[51] Customary land claims are frequently disregarded and *Free, Prior and Informed Consent (FPIC)* procedures are rarely - if ever - applied in Environmental and Social Impact Assessment (ESIA) studies or in exploration and exploitation by large-scale companies.

Lack of access to environmentally responsible mining technologies & tools and inadequate incentives to apply them

38. In addition to the lack of an enabling institutional context, as noted above, the **insufficient awareness and knowledge among mining communities on mining's negative impacts**, coupled with the **lack of capacity on environmentally responsible gold mining techniques**, prevent miners from changing their current mining methods. For miners, economic gain from gold is currently more important and more easily identifiable than the long-term conservation of biodiversity and forests or the maintenance of clean water sources, which they perceive to be without immediate benefits to their families, or whose degradation they accept as inevitable. The interest in shifting to sustainable mining techniques will only gain momentum if these techniques are proven to create benefits for miners in terms of profit or time.

39. Lessons learned from the past experiences with attempted creation of Mining Schools clearly show that a proper system of incentives should accompany any attempt at disseminating environmentally responsible mining (ERM) practices, along with a clear demonstration that these technologies can – if used properly – generate significant economic gain, as well as environmental benefits and indirect social benefits.

40. The figure below represents the problem tree and hierarchy of barriers and root causes explained above.

[51] IGF, May 2017

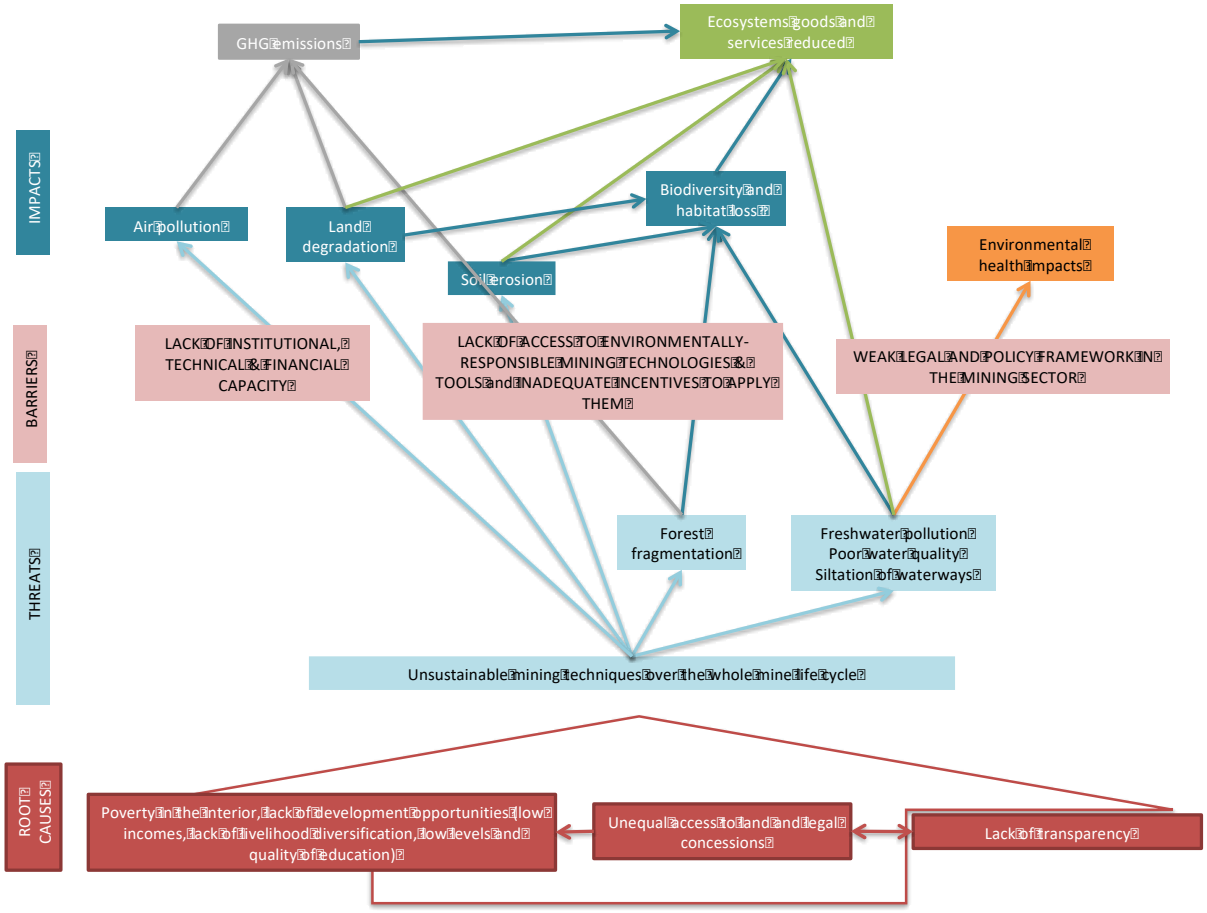

Figure 3: Problem tree

II. STRATEGY

41. In order to achieve the *preferred solution to the challenges presented above, the project will* reinforce Suriname's mining policies and regulations and strengthen institutional capacities in order to create an enabling environment for the adoption of less damaging gold mining practices. This will support the introduction of environmentally responsible mining techniques among small- scale miners along with a set of reinforcing incentives, targeting both the supply and the demand of gold products in Suriname. Environmentally responsible mining practices at each step of the mining cycle will be introduced, from exploration to decommissioning and rehabilitation, to ensure impacts are minimized.

42. The **project objective** is *to improve the management of artisanal and small-scale gold mining in Suriname (ASGM) and promote uptake of environmentally responsible*[52] *mining technologies* to reduce the negative effects on biodiversity, forests, water, and local communities, while also reducing greenhouse gas emissions. The strategy to achieve this objective is to set an enabling environment at the institutional level, which will effectively support on-the-ground actions to improve the management of the artisanal and small-scale gold mining sector. The project will disseminate environmentally responsible mining technologies, practices and methods through a learning-by-doing approach.

[52] Environmentally responsible methods/practices consider and limit potential impacts on the environment.

Monitoring of the project's social and environmental impacts on local communities will enable the sharing of new knowledge and field evidence at the national level and with neighbouring countries facing similar issues.

43. To circumvent the failures and challenges of the past, this project will adopt an approach that includes the following innovative elements:

- Delivering technical training and demonstrating ERM practices along the entire mining life cycle through a "learning-by-doing" approach where technologies are directly applied at mine level;
- Adopting the "mitigation hierarchy" to the suite of environmental impacts in the mining sector: the project will first seek to demonstrate technologies that avoid impacts (for example, improved exploration/ prospection techniques), then those that minimize impacts (e.g., tailings management), and then those that mitigate impacts (e.g. improved processing techniques, proper decommissioning). The project will not include offsetting impacts as this is usually reserved for large-scale mining operations since the cost and effort are not feasible for small-scale miners.
- Using NGOs and respected technical partners to administer and manage MTECs, to circumvent any trust issues and to move from ineffective enforcement-based approaches, towards incentivizing behavioral change;
- Garnering early support and partnerships from large-scale mining companies and concession holders;
- Making the access to social and other incentives conditional to the adoption of ERM practices, but working to demonstrate the clear economic and financial benefits of applying ERM practices.

44. The project's strategy is based on the four following pillars (see also Theory of Change diagram (Figure 3):

1- Setting an enabling environment: The project will first support systemic interventions focused on developing/updating regulations, policies and guidelines to facilitate a more efficient management and monitoring of ASM operations. This will be combined with capacity building at the institutional level to enable better management of negative environmental impacts from gold mining. The project will support efforts to increase sustainable funding opportunities to address the negative social and environmental impacts of gold mining, and for miners to adopt environmentally-responsible mining practices. The project will also support the mandate of certain key institutions for better environmental management, such as the Environmental Planning and Information Office.

2 - Implementing on-the-ground solutions through a learning-by-doing approach at demonstration sites and focusing on the whole mine life cycle. On-the-ground demonstrations will be implemented by the project through the establishment of Mining Training and Extension Centres (MTECs) (see Annex P for details on the MTEC architecture). Learning from past lessons in Suriname, the establishment of these MTECs represents a central strategy foreseen in this project. These would be operated by non-governmental organizations in pilot sites. The MTECs would act as one-stop centres where miners can access a suite of services that will function as incentives, such as for example: access to on-demand training and technical advice on environmentally responsible mining techniques, the ability to purchase or rent spare parts and maintenance services for ERM equipment at concessional prices, and improved access to social services (health, education, non-mining vocational training)[53] . The project will focus on demonstrating environmentally responsible technologies applicable to the whole mine life cycle, including improved exploration, extraction and decommissioning to reduce impacts on habitat, biodiversity and forests. The project will not support the creation of new mines that may require deforestation, therefore demonstration activities will mainly occur on alluvial sites that are being re-mined, as is commonly practiced in Suriname.

3 - Multi-stakeholder engagement: As a third pillar, the project will support engagement from all concerned stakeholders through its work in support of policy strengthening and institutional capacity building. The project will create multi-stakeholder local advisory committees (LAC) for the Mining Training and Extension Centers, which will bring together

[53] these social and economic incentive services will be provided at the MTECs by project partners through cofinancing.

government institutions, civil society organizations, community and village groups, and ASGM groups and associations. The MTECs and their LACs will serve as a platform for dialogue between different stakeholders, allowing all to voice their concerns and to define solutions jointly.

4 - Identification of adequate and sustainable incentives: This project is based on the premise that, in the absence of a comprehensive overhaul of the Surinamese economy and legal frameworks, preventing small-scale miners from conducting their main activity will not be feasible. The project therefore focuses on the adoption of environmentally responsible mining practices, but also seeks to identify suitable incentives for the broader adoption and upscaling of these practices. The project will also work at a pilot scale to put in place at least one other livelihood option besides mining, such as sustainable agriculture. While these activities will be insufficient to replace mining and will therefore not constitute "alternative livelihoods", since this project alone cannot pretend to replace mining in the economic portfolio, they would nevertheless provide avenues for economic diversification, skills acquisition and increased incomes, potentially decreasing the urgency of new mining operations.

Site selection strategy

45. It is important to note that conditions in ASGM areas can change very rapidly. Changing prices of gold, new land claims (legal or customary) and shifting power relations, new governmental policies, and new gold discoveries, can change who is mining where, redistribute the mining hotspots, and modify the locations that are most affected by ASGM. Since it may take about a year before the proposed project can be implemented, it is advisable and necessary to allow for some flexibility in the selection of pilot locations.

46. The project development team conducted an analysis of potential mining districts in which to locate demonstration activities, according to the key criteria below:

- Legality of the mining site (formal concession)
- Safety of the site
- Favorable attitude of the concession owner
- A nearby community
- ASGM operations use mercury
- Focus on alluvial deposits and alluvial mining of tailings
- Presence of an interested group of gold miners
- Geology of the area supports gold occurrences
- Evidence of deforestation caused by hydraulic mining
- High biodiversity impact of mining
- Sufficient exposure and potential to have broader impact
- Accessibility of the site and expense of getting there.

47. From the analysis of these criteria, two areas, situated north of Lake Brokopondo, namely Nieuw Koffiekamp and Companiekreek, were selected as full demonstration sites, areas in which most of the demonstration activities will be showcased, through existing mining operations. In addition to these two sites, a third site will be located in Snesi Kondre's transportation hub (Sipaliwini district), through which many miners pass to reach their mining site – but in which no actual mining is taking place - to provide added visibility and training opportunities for the project's proposed technologies and approaches. The intervention strategy for this latter site will therefore be slightly different. To the maximum extent

possible, the project will use existing infrastructure and partnerships to showcase ERM practices, including for example the existing Mining School building in Snesi Kondre, which was set up by the Suriname Environmental and Mining Foundation, and which is currently unused. Figure 4 below shows the project's sites and Table 1 summarizes the main features of each site.

Table 1: Main features of project demonstration sites

ASGM sites → Criteria ↓	Companiekreek	Nw. Koffiekamp	Snesi Kondre (transport hub)
	Brokopondo North of the Lake		Sipaliwini (Resort Tapanahoni)
Geology and Gold occurrence - must be verified through research prior to project	Suggested by ASGM presence	Suggested by ASGM presence	In surroundings, not at Snesi kondre itself
Traditional communities in the close vicinity	Companiekreek	Nw. Koffiekamp	Langetabbetje just across the river
Presence of several ASGM operations	Yes, est. 10 teams	Yes, many	Yes, in surroundings
Local area inhabitants involved in ASGM	Yes, local, other Surinamese & international	Yes, local and other Surinamese	Yes, local, other Surinamese & international
Access and infrastructure	Good; can be reached in ~2 hr from Paramaribo by car	Good; can be reached in <2 hr from Pbo by car	Medium; can be reached in ~4-5 hr from Paramaribo by 4WD vehicle
Clear license status	Community firm (NV) has applied for concession	In IAMGOLD concession, with a recent agreement	Government land
Number of people	Over 200 permanent residents + migrants and mobile miners	400 registered inhabitants but up to 900 residents, not including migrants and mobile miners	Approximately 30 families in permanent residence, with a large influx of traveling people
Other considerations	Access to a community forest concession (1650 ha); Presence of small subsistence agricultural activities		Subsistence agriculture and poultry farming; supermarkets, shops and fuel station

48. The project will not promote the opening of new mines, while recognizing that miners benefitting from the training are likely to open new sites. For those miners who decide to open new sites, training will be available from the exploration stage, to minimize chemical use and deforestation. However, to the extent possible, the project will focus on demonstrating technologis and practices that apply to optimization of tailings and the re-mining of old or abandoned sites (mining of tailings). Though earnings in absolute terms may be lower in old mining sites, cost-effectiveness is much higher, with minimal set-up and labour costs, compared to new sites that require forest clearing and operations installed. Re-mining old sites also allows miners to recover and reuse mercury left in the site from former gold extraction. Focusing on improved gold recovery from existing sites will help will also reduce the likelihood that miners re-enter these sites once they are exhausted, and will enable future recovery and rehabilitation of the land.

Figure 4: Project sites

Beneficiary targeting strategy:

49. In addition to selecting sites where demonstration of ERM practices would achieve maximum impact and visibility, the project will also carefully target and select the beneficiary groups locally, among the following:

50. Miners : In order to benefit from project activities, miners will be required to demonstrate that they meet basic conditions such as being self-organized in a formally recognized association or group and meet basic registration requirements, as established by the District Commissioners. Lead miners will be identified from within the groups, based on their interest in becoming trainers for their team on ERM techniques. In order to benefit from the project's services and other incentives provided by the project, miner groups and associations will have to undertake a formal commitment to use environmentally responsible methods along the whole mine life cycle; in turn, they will have access to benefits and incentives provided through the MTECs.

51. Communities and villages surrounding mining sites: Village communities present in the vicinity of the demonstration sites will be exposed to awareness raising activities about the negative impacts of current mining techniques, including impacts on freshwater/ drinking water, food supply, mercury use, among others, and the potential benefits of ERM from an environmental, health and economic perspective. They will also receive support to identify and develop alternative livelihoods, including agriculture (e.g., hydroponics, to avoid clearing more forests) through output 3.3.

52. Given the presence of indigenous people in the area of the project, the targeting strategy will also include provisions for a Free and Prior Informed Consent (FPIC) procedure. In addition, an indigenous peoples participation plan will be developed before implementation of activities in the demonstration sites under Outcome 3 as necessary.

53. Government staff : Institutions relevant to ASGM will receive technical training on how to implement environmentally responsible mining techniques as well as institutional and technical capacity building to improve the management of the ASGM sector across the whole mining cycle.

54. The Theory of Change of the Project is illustrated in the Figure below:

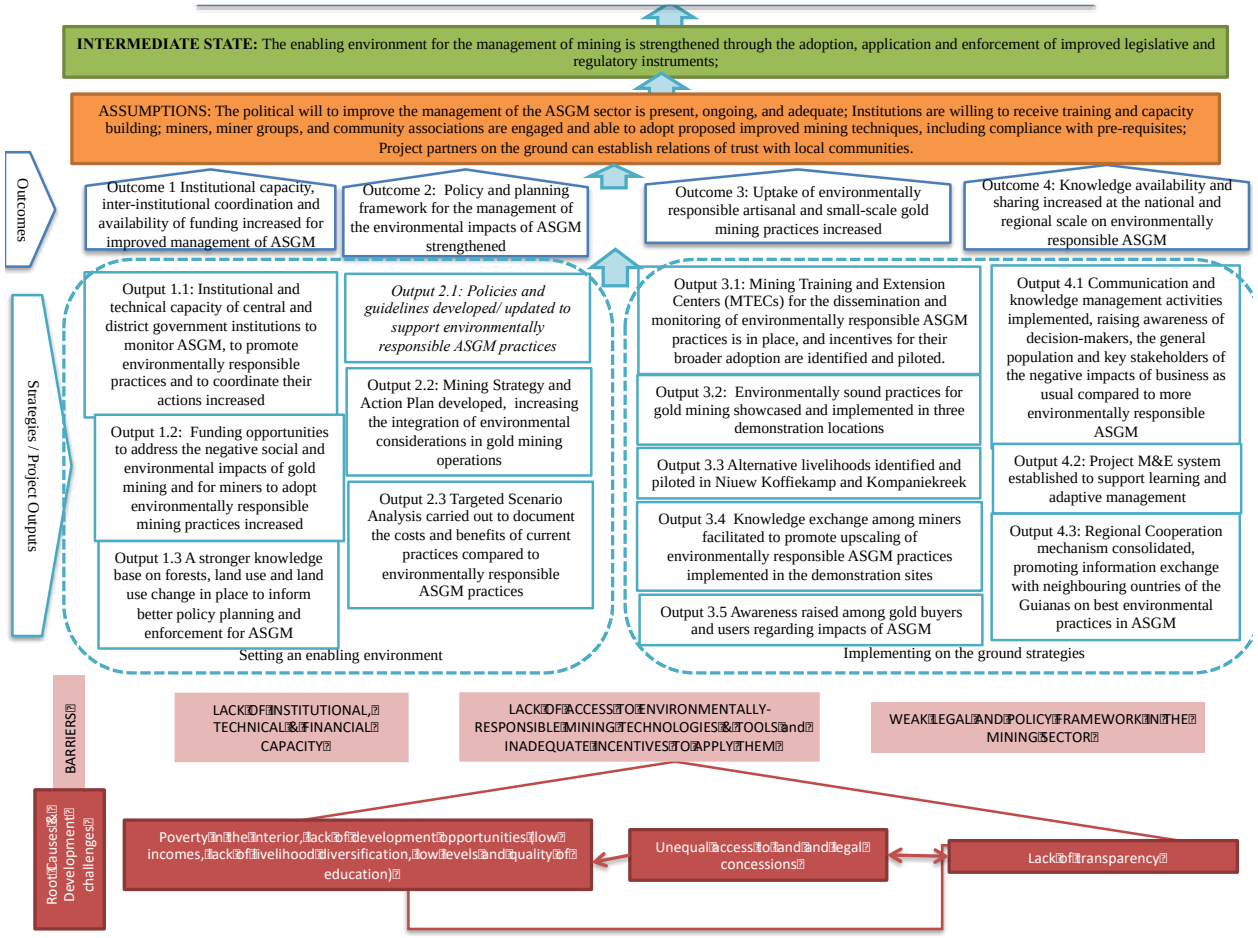

Figure 5: Theory of Change

55. The project has identified the following key assumptions and impact drivers[54], which will facilitate the achievement of the project's long-term impact.

Assumptions:

- Institutions are willing to receive training on improved environmental management of ASGM and the government commits to making the adequate human resources available for the duration of the project and beyond;
- There is sufficient political will to improve the management of ASGM sector including through updated policies and strategies for environmentally responsible gold mining;
- Local mining communities are engaged and willing to adopt proposed improved mining techniques, and can comply with the basic requirements of the project in terms of association and registration;

[54] In this project, « impact drivers » are defined as « significant factors or conditions that are expected to contribute to the ultimate realisation of project impacts. Existence of the Impact Driver (ID) in relation to the project being assessed suggests that there is a good likelihood that the intended project impact will have been achieved. Absence of the ID suggests that the intended impact may not have occurred, or may be diminished.
http://www.funbio.org.br/wp-content/uploads/2012/10/GEF-IMPACT-EVALUATION_Case-Study-Methodology.pdf"

- Project partners operating on the ground gain sufficient trust of mining communities to achieve the project's targets.

Impact Driver:

- Environmentally-responsible mining technologies are proven to provide higher revenue, which will provide incentives for ASM operators to adopt such technologies.

56. This project's theory of change is directly aligned with the UNDP Country Programme for Suriname (2017-2021), particularly its 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") and with the United Nations' 2015 Multi-Country Sustainable Development Framework for the Caribbean (UNMSDF), which promotes the adoption of inclusive and sustainable solutions for the conservation, restoration and use of ecosystems and natural resources. The MCSDF seeks to improve the resilience of vulnerable communities, including traditional and indigenous communities of the country's interior, by building capacities of the local leadership both within the Government and in civil society. The UNMSDF Suriname-specific programme priorities are to increase access to opportunities in "education, health, livelihoods, information and technology, as well as improved social services and the possibility for communities to engage and participate in shaping public policy". This project expects to make a contribution to the achievement of these objectives by helping shape policies for improved ASGM and by increasing access to environmentally responsible livelihoods.[55]

57. The project's Theory of Change also responds to the national development priorities for Suriname that are enunciated in the 2017-2021 National Development Plan, while enabling Suriname to address its environmental and climate change challenges. Related to the mining sector, particularly the small and medium-scale gold mining operations, the NDP foresees a sector that moves from "a opaque, disorganized and environmentally polluting informal sector into a formal sector, which is transparent and where the contribution can be clearly identified in the national economy." The NDP further forsees that miners should be trained in exploration methods and environmentally friendly mining techniques, including mercury-free techniques. This project will make a direct contribution to this vision by working with miners to set up incentives towards formalization and legalization, while increasing gold recovery rates and improving environmental management across the entire mining cycle.

58. As expressed in the Intended Nationally Determined Contribution (INDC) to climate change, which was submitted in 2015, Suriname seeks to "increase its governance capacities especially to define and implement policies/plans/strategies for sustainable management of natural resources, ecosystem services, chemicals and waste, strengthen its institutional structures, and mobilize its citizens." [56]

59. UNDP, through this project, will support the Government of Suriname in filling its capacity gaps at the institutional level, and partner with experienced organizations to address the lack of technical capacity and incentives for improved mining methods and the lack of awareness on current unsustainable gold mining methods and their negative impacts on Suriname's forests, biodiversity and human health.

Lessons learned and innovation

60. As noted above, this project builds on lessons learned from past initiatives, but also proposes a few key innovations in Suriname.

Lessons	Innovations
- The development of relations of trust between government and miners is a	- The project has opted to work along two lines simultaneously; the project will support government to develop more enabling policies, while shifting

[55] Country Programme document for Suriname, UNDP (2017-2021)

[56] Government of Suriname, Intended Nationally Determined Contribution to the UNFCCC

crucial basis for the promotion of ERM practices, even before seeking a law enforcement perspective.	the focus from policing to informing. Bearing in mind the constraints related to political willingness and institutional capacity, the project will seek to develop tools and mechanisms whereby dialogue can be reinitiated on a neutral basis (e.g., through monitoring). On the other hand, the project will work through recognized and trusted non-governmental organisations to put in place Mining and Training Extension Centres (MTECs), to ensure that there is no perceived bias.
- Given the continued high demand, and the cultural/lifestyle aspects of ASGM, miners will not voluntarily abandon mining. Changes in mining practices require careful targeting, and incentives for long-term application should be identified. These incentives, in turn, need to be calibrated to local demand and potential markets.	- The project will work to identify incentives that will assist miners in adopting improved practices. This will also include the demonstration of technologies that can lead to increased gold revenues with decreased environmental impacts. The project will also seek to demonstrate, through the Targeted Scenario Analysis exercise, the economic benefits that can actually be derived from ERM practices compared to business as usual. - The project will also seek opportunities to build on ongoing regional initiatives to increase the awareness of gold buyers and users in Suriname, to increase demand for responsibly mined products.
- Past approaches to training and raising awareness among miners, such as mining schools, have failed because they required miners to leave their sites to attend courses.	- The MTECs, which will be at the centre of the project's delivery mechanisms, will be run by NGOs under the leadership of a multi-stakeholder committee. These MTECs will adopt a model of training by doing, meaning that demonstration of ERM practices will occur with miner groups on actual mining sites (with exception of Snesi Kondre). - MTEC staff will be able to deploy in their immediate region to provide training, advice, targeted interventions and support to miners on their own sites, at different moments in the mining life-cycle. A stationary course offering will also be maintained at the MTEC for those who can attend.

III. RESULTS AND PARTNERSHIPS

Expected Results:

61. This project proposes to remove the barriers to the successful application of environmentally responsible gold mining techniques in artisanal small-scale mining to contribute to biodiversity conservation, climate change mitigation, and reduction of land degradation. The project will be delivered through four inter-related Outcomes:

- Outcome 1: Institutional capacity, inter-institutional coordination and availability of funding increased for improved management of ASGM
- Outcome 2: Policy and planning framework for the management of the environmental impacts of ASGM mining strengthened
- Outcome 3: Uptake of environmentally-responsible artisanal small- scale gold mining practices increased
- Outcome 4: Knowledge availability and sharing increased at the national and regional scale on environmentally responsible ASGM

Outcome 1: Institutional capacity, inter-institutional coordination and availability of funding increased for improved management of Artisanal and Small Scale gold mining

62. Activities under this outcome focus on the development of the capacity of key governmental stakeholders to deliver enabling policies and to effectively guide the artisanal and small scale mining sector. This requires addressing key knowledge gaps, upgrading the technical and planning skills of staff in relevant institutions.

63. During project development, a capacity scorecard for the mining sector was developed, which was filled out by stakeholders during a workshop in 2017 (see Annex Q). According to this assessment, stakeholders in the mining sector have a moderately satisfactory capacity (average score 1.2 on a scale of 0 to 3) to manage the ASGM sector. A few key points emerge including: the need to consolidate knowledge bases for policy making, and to improve coordination and trust. The project expects to increase this capacity score by at least 25% - to satisfactory levels. This will include the delivery of training, support for key monitoring activities, and the establishment of the new model for mining training and extension (MTEC). As a key part of its sustainability and exit strategy, the project will explore opportunities to increase national or international funding for ecosystem restoration and better management of the ASGM sector.

64. Outcome 1 will be delivered through two outputs:

Output 1.1: Institutional and technical capacity of central and district government institutions to monitor ASGM, to promote environmentally responsible practices and to coordinate their actions increased

65. Under Output 1.1, the project will provide training to key central and district-level government institutions engaged in the mining sector in order to increase institutional and technical capacity to monitor, understand, and address the environmental impacts of ASGM, as well as to perform the enforcement functions as set up by the current legal framework. One of the main goals of this institutional strengthening is to enable the key institutions to have stronger oversight over gold miners and greater capacity to reduce negative environmental impacts, including deforestation. This will play an important role in helping to maintain carbon stocks as mining is the largest driver of deforestation in Suriname. Particular emphasis will be placed on strengthening institutional abilities to address mining taking place in protected areas, in particular, Brownsberg Nature Park, where threats are ongoing and where biodiversity levels are high.

66. Key institutions that will receive training will include:

- The Geological Mining Service of the Ministry of Natural Resources (GMD),
- NIMOS and its subsidiary offices, including EPIO,
- The Commission for the Ordering of the Gold Sector (OGS)
- The Inter-Ministerial Advisory Committee on mining (IMAC),
- The District-Level Environmental and Health units, starting with the Brokopondo and Sipaliwini districts where the project sites are located, but expanding to others as the project moves forward
- The Medical Mission Primary Health Care Suriname (Medische Zending, MZ) and Ministry of Health,
- The University of Applied Sciences and Technology of Suriname (UNASAT)

67. Technical training will be provided on the scientific assessment of the impacts (environmental and social) of current gold mining practices, the identification and implementation of best environmentally responsible gold mining practices to reduce environmental impacts, the supervision and management of ASGM, and law enforcement. Support provided to the University of Applied Sciences and Technology of Suriname (UNASAT) will include the development of curricula on the benefits of using environmentally responsible mining practices techniques, with the aim of increasing the number of geological and mining experts who could then be deployed in the demonstration sites (the MTECs) and beyond (refer to outcome 3).

68. In addition to the development and delivery of training, the project will address the lack of inter-institutional communication and coordination among mining sector stakeholders, which has impeded effective action thus far. This will involve identifying gaps in coordination and knowledge sharing on gold mining activities among the relevant government and with non-government institutions in Suriname, such as NIMOS, MNR, OGS, SEMIF and SCF, among others. In addition, the project will work with the Inter-Ministerial Advisory Committee (IMAC) to assist in defining a better mechanism for systematic coordination on environmental and mining issues, which will enable key participating ministries to make mining – related decisions that duly consider environmental concerns, and prevent the adoption of counter-productive policies. IMAC is a body consisting of the permanent secretaries of all the key ministries and directors of institutions in which reporting and joint decision-making on environmental projects takes place. Since IMAC is chaired by NIMOS, this support will also help strengthen NIMOS' capacity to coordinate the implementation of the national environmental policy.

69. The Environmental Planning and Information Office (EPIO) will participate in activities related to mapping of ASGM affected areas and near real-time mapping of mining related deforestation under output 1.3, using the Gonini portal as a basis (in cooperation with SBB) as well as participatory monitoring under Outcome 3.

70. The activities under this output are:

1.1.1 Evaluate the training needs of the Geological Mining Service of the Ministry of Natural Resources, NIMOS, District Commission - level Environment and Health Units and Medical Missions, and other relevant government institutions.

1.1.2 Develop and deliver training as identified in 1.1.1 focusing on assessing the effects of current gold mining practices, identifying and implementing best environmentally responsible gold mining practices, overseeing and managing ASM, and ASM-related law enforcement.

1.1.3 Provide training to the Inter-Ministerial Advisory Committee (IMAC) to facilitate decision-making on environment issues related to mining operations.

1.1.4 strengthen the capacity of the Mining School at UNASAT on environmentally responsible practices (e.g. by providing didactic materials, training for faculty, and demonstration materials), and support the development of technical curricula to deploy training to miners.

Output 1.2: Funding opportunities to address the negative social and environmental impacts of gold mining and for miners to adopt environmentally responsible mining practices increased

71. A key condition for the long-term sustainability of project outcomes, and for the broader upscaling and replication of ERM practices is the availability of reliable sources of finance at local levels, among public and private stakeholders. Key gaps in finance were identified during the project preparation, for example: there are insufficient funds from national budgets allocated to environmental restoration and biodiversity conservation in mining areas; the institutions in charge of promoting and disseminating ERM practices are underfunded and lack operational capacity; and small- scale miners do not have access to sufficient resources to implement ERM practices. Some large scale mining companies dedicate a portion of their profits to corporate social responsibility activities, including the financing of the Suriname Environmental and Mining Foundation (SEMIF), for biodiversity related activities and support to local communities. However, in relative terms the funding remains limited, and insufficient to leverage the required level of impact on health and environment.

72. The project will seek to address these financing gaps by assisting the government (through OGS and NIMOS) in designing adequate financing mechanisms that can increase resource flows towards ERM practices and environmental rehabilitation in mining areas. It is also expected that miners who apply ERM practices as demonstrated through this project will increase their earnings, and that this will create a powerful long-term incentive for the continued application of these technologies. Incentives identified in Output 1.2 above will also reinforce this link.

73. Under output 1.2, the project will help the government of Suriname design a sustainable financing strategy which will take into account ongoing efforts on sustainable environmental financing strategies, and include an exploration of public- private partnerships with large scale mining companies, the creation of a Rehabilitation Fund, mobilization of national budget allocations, and the design of fiscal instruments (e.g., levies on fuel sales) to increase the amount of funds channelled towards environmentally responsible mining and environmental rehabilitation in particular. Close attention will be paid to the financial sustainability of the MTEC as a model for mining extension, including by ensuring that budget allocations are avaialble for continuation of the MTEC model (through a public-private partnership) and the Local Advisory Committees that support them.

74. This output will build on early lessons arising from the Extractive Industries Transparency Initiative (EITI), which the Suriname government joined in May 2017, and which seeks to improve transparency in the management of revenues from the mining sector. Supervised by a national multi-stakeholder group (MSG) composed of members from government, companies and civil society, the EITI process follows the extractive industry's value chain namely the legal and institutional frameworks of contracts and licences, exploration and production, revenue collection, revenue allocation and finally social and economic contributions. Beneficial to the EITI implementation and as part of the awareness raising campaign (Output 4.2), the project will ensure that information on the management of mining revenues is disseminated to and understood by all stakeholders, regardless of their language, literacy, or culture, an activity that was recommended by the IGF in their assessment of the Mining Policy Framework of Suriname.

75. The project will also build upon efforts from large-scale gold mining companies to increase their corporate social responsibility (CSR) contributions: for example the Rosebel mine (IAMGOLD) [57], currently makes a regular contribution of 0.25% of its gold production to the Suriname Environmental Management Foundation (SEMIF) and Newmont's Merian mine has identified key biodiversity areas which it is currently working to restore through reforestation. The project will work with Suriname government and LSM companies who have already expressed an interest, including Grassalco, IAMGOLD and Newmont, to advocate for an increase in the overall amount of CSR financing, and within that, to advicate for an increase in financing that is allocated to environmental issues. Based on 2015 production figures and today's prices, an increase to 0.50% would represent 1.8 million USD, or the estimated approximate cost of reforestation of 1500ha annually[58].

76. In addition, the project will assist the Ministry of Natural Resources in exploring options and designing a "Rehabilitation fund" to generate financing dedicated specifically to decommissioning and rehabilitating abandoned or orphaned mines and to the promotion of sustainable end-of-cycle management practices, including re-landscaping and restoration in ASM areas. The project will study different avenues to replenish this Fund, including a mechanism whereby a percentage of the revenues from gold would be collected from miners individually, or where a portion of existing (or increased) royalties (currently at 1%) collected by the Government would be allocated to decommissioning and rehabilitation. The project will assess the best financial management structure and governance mechanism to support the fund, such as management by NGOs or other independent entities. In addition, the project will support the exploration of price-related, fiscal or tax incentives for the application of ERM practices, including for example reducing the cost of permits or permit applications for miners committing to a more stringent set of environmental management practices (or miners adhering to the Fairmined standard or another relevant standard), re-evaluating the amount of fines, or providing tax credits on ERM equipment.

77. This output will help support Outcome 1, by suggesting mechanisms that would make funds available to address the negative impacts of ASGM along the whole mine life cycle, and will create a long-term sustainability strategy for the project.

[57] http://www.rosebelgoldmines.sr/media/1092/corporate-brochure-2016-eng.pdf The contribution is made in gold.

[58] This calculation is a generalization for illustrative purposes only. It is based on the 2015 production of Rosebel mine of 302,000 oz. of gold, at an average price of USD 1200/USD, and an estimated cost of reforestation of USD 1600/ha.

78. The activities under this output are:

1.2.1 Carry out a stocktake of current financing practices and avenues and identify the most promising mechanism(s) to increase the funds allocated to management of the environmental impacts of ASGM, ecosystem restoration, reforestation, and biodiversity conservation in mining-impacted zones, through for example: public-private partnerships, mining sector corporate social responsibility, allocation of royalties and income, price and fiscal incentives, and the creation of a rehabilitation fund.

1.2.2 Provide support for the design of at least one sustainable, predictable funding mechanism identified under activity 1.3.1 and for the implementation of steps towards its operationalization, through technical support, workshops, legal advice, and advocacy.

Output 1.3 a stronger knowledge base on forests, land use and land use change in place to inform better policy planning and enforcement for ASGM

79. Under this output the project will feed into and support the development of more comprehensive policies, while strengthening the capacity of government to enforce current laws and frameworks. This will also support strengthening the monitoring and planning of mining activities in particular in ecologically sensitive areas. As one aspect of the capacity assessment (refer to Annex Q, Capacity Scorecard) has pointed out, the information basis on which ASGM-related policies, laws and guidelines is based, is fragmented and incomplete. For example, though there have been some partial rapid assessments around specific landscape features (e.g. Lely Mountain Range and Sabajo Hill[59]), there is no recent comprehensive data on the state of biodiversity in the Greenstone Belt and more specifically not enough data on the biodiversity found in ASGM affected alluvial plains. As a result there is a weak information basis for establishing protection policies or protected areas.

80. The project will work with the newly established Environmental Planning and Information Office (EPIO) of NIMOS to increase inter-institutional cooperation on mining, and to support the development of policy-relevant information pieces. These include undertaking an assessment of biodiversity in alluvial plains of Brokopondo, North of the Lake (which will function as a "sample zone") and a survey of carbon stocks in forests and soils surrounding the mining sites. The forest carbon assessment will help document forests as a financial asset, and – in conjunction with the Targeted Scenario Analysis to be undertaken under Output 2.3 – will help determine the potential value of forests and related carbon stocks, under initiatives such as the REDD+, as well as to overall national wealth. The assessment will also help determine whether forest regrowth after mine closure contains similar values of carbon stocks, which will help inform strategies for better mine closure.

81. These scientific documents will support advocacy work under Output 1.2 by providing a clear basis for increasing flows of resources towards environmental management, as well as policy work undertaken under outcome 2, by informing a set of concrete recommended actions and updates to existing policies and guidelines.

82. Furthermore, the project will work with the Environment Planning and Information Office (EPIO) of NIMOS, the GMD and the Foundation for Forest Management and Production Control (SBB) to strengthen the mapping system of mining zones. This will build on the Gonini geoportal, which was launched in December 2016 as part of the REDD+ program, and established by the National Forest Monitoring System (NFMS) to provide up-to-date information on the state of forests. The project will update the Gonini Portal's land use maps to delineate current ASGM and large-scale mining zones, and identify which have the most significant environmental impacts. Maps will identify various zones, such as: no-mining, legal mining, illegal mining (and combinations thereof), mined-out zones that could be re-mined and potential new mining zones. Partners such as the University of Tulane, the University of Suriname and CELOS will also contribute data and expertise to match this data with soil and water pollution data including mercury and turbidity. This will be used to support the development of better land use policies, and to monitor the state of the environment in the area.

[59] See for example, Conservation International, 2007. A Rapid Biological Assessment of the Lely and Nassau Plateaus, Suriname (with additional information on the Brownsberg plateau)

The maps could also include protected areas, and sensitive ecosystems along with their buffer zones. Two mapping exercises will be conducted during the lifetime of the project, to illustrate evolution (one at the beginning of Year 2, and another at the beginning of Year 7). The portal update will also feed in the monitoring and evaluation activities conducted annually under Outcome 4.

83. Finally, the project will also support joint work by the EPIO and the SBB to carry out near real-time deforestation monitoring in mining zones, to help strengthen enforcement of ASGM regulations and to provide an infromation basis on which to evaluate the rate of forest degradation that is caused by new mining operations. The activity will be coordinated by the Forest Cover Management Unit of SBB, which is already conducting similar operations related to illegal logging in other areas, in cooperation with GMD and OGS. The information will be obtained a mix of remote sensing (Landsat and Sentinel satelite data, available free of charge), drone mapping (aerial photography), and in-field data collection, and the data collected will then be transmitted to SBB and OGS for appropriate enforcement action. This information will be integrated into the National Forest Monitoring System and will serve to inform future forestry policy, the implementation of REDD+ programs, as well as the demarkation of potentially highly-sensitive forest zones for future rehabilitation and protection.

84. Activities under this output include:

1.3.1 Increase and improve monitoring of ASGM impacts on environment, including by providing technical assistance for forest and forest carbon mapping, and the deployment of a rapid biodiversity assessment in ASGM affected areas, with an initial focus on the Brokopondo area.

1.3.2 Produce land-use maps that delineate: current AGSM and LSM zones, Land use and land cover change, and rank them in order of priority based on their environmental impacts including forest degradation, soil and water pollution (mercury, turbidity), using a combination of remote sensing technologies as well as ground-truthing

1.3.3 Pilot near real-time monitoring of ASGM related deforestation through SBB and EPIO.

Outcome 2: Policy and planning framework for the management of the environmental impacts of ASGM strengthened

85. Closely related to Outcome 1, this outcome addresses ongoing shortcomings and weaknesses in the institutional and regulatory apparatus governing ASGM and the management of environmental impacts it causes. The activities below are largely based on the findings from the IGF's Mining Policy Framework assessment, which was completed in 2016, and highlights key gaps in the overall governance of mining. As part of its support to the government of Suriname, this project will assist in developing, reforming, revising and updating key pieces of mining-related legislation towards the stronger inclusion of environmental issues. In addition, while legislative reform timelines have often been delayed in Suriname, the project will support the development or update of concrete guidance materials that can readily be used to orient ASGM. The outcome will be achieved through two main outputs:

Output 2.1: Policies and guidelines developed/ updated to support environmentally responsible ASGM practices

86. Under Output 2.1, the project will address the weaknesses in the legal and regulatory framework to effectively address, promote and enforce sustainable management of gold mining activities, especially in ASGM areas of the interior. In particular, the project will support the Government and other stakeholders in addressing the recommendations made in the recent Mining Policy Framework Assessment which included the need to integrate the mining sector as part of planning strategies at all levels; to integrate fiscal instruments and policy objectives, to tie existing mineral agreements to national policy and development objectives; and to conduct regular revisions of mining legislations and policies [60]. With technical support from the project, and based on priorities established by NIMOS, Ministry of Natural Resources and the

[60] IGF Mining Policy Framework Assessment for Suriname, May 2017

mining stakeholders, existing legislation, policies and guidelines will be assessed and, where needed, updated or revised. Work will build on the IGF work, the result of the Minamata Initial Assessment , ASGM National Action Plan and initiatives conducted by universities such as AdeKUS and Tulane University, UNASAT, which are already working on Biomonitoring of the Environmental Impacts from ASGM and the development of mining guidelines.

87. The project will also work to promote the reorientation of the gold supply in Suriname towards gold than can be linked with a growing demand for sustainably sourced materials. This will include working with mining groups to promote awareness of the existing standards for gold production, such as *Fairmined Standard*, and providing guidance on how to gradually achieve these standards – including earning potential. The Fairmined standard is an assurance label that ensures through third-party certification that ASGM organizations implement environmentally responsible practices and social responsibility, and which, in return helps guarantees access to a market, and higher prices, or more equitable pricing. Requirements for certification include well-established legal and management practices, environmental practices such as reduction or elimination of mercury and cyanide or other toxic substances, tailings management, etc. The Fairmined standard was created by the Alliance for Responsible Mining (ARM), which is a partner in this project and which will be managing one of the MTECs.

88. This will be linked with activities under Outcome 3 focusing on the demand side of the gold value chain, and on the development of economic scenarios (Targeted Scenario Analysis) for various types of gold production. Ongoing efforts by Grassalco, the part Government-owned mining company, to establish a gold buying office in the interior, including setting up a fire assay, will also contribute to this initiative by allowing miners to test their gold, to demonstrate they have achieved low to no-mercury content.

89. Instruments that will be developed or revised with support from this project will include, *inter alia*:

- Aspects of the 1986 Mining Decree, including for example requirements for local consultation, environmental assessment and mitigation of risks, and the inclusion of end-of-cycle mining issues;
- Guidelines and regulations on best environmentally-responsible gold mining practices and standards, including mercury-free and environmentally responsible techniques over the whole mine life cycle, especially on improved exploration, mechanical and mercury-free extraction, tailings management, decommissioning and rehabilitation of the landscapes;
- Legal requirements associated with permits and licenses, including for example the need to include a schedule of activities prior to the start of operations to avoid unnecessary deforestation, quarterly reporting to the head of GMD, requirements to conduct appropriate decommissioning and rehabilitation.
- Updating of existing guidelines on the monitoring and law-enforcement system and the penalties for non-compliance to the laws and regulations, including a review of fines and tribunals, guidelines for local authorities on communication with miners and indigenous communities;
- Analysis of existing gold mining standards and certification schemes, such as the Fairmined Standard and others, and identification of relevant standard(s) or certification schemes that would be most relevant in the Surinamese context to work toward to stimulate market demand for ER gold produced through ASGM.

90. In revising legislation, policies and guidelines, the project will assess the specific roles and tasks of men and women in ASGM to ensure the updated legal framework reflects gender-specific challenges, creates opportunities for gender equality, and for gender-relevant development avenues (for more details, refer to Mainstreaming Gender).

91. The specific activities under this output include:

2.1.1 Working through NIMOS and IMAC, propose and submit revisions to selected policies and guidelines to improve the environmental management of ASGM, taking into consideration gender issues.

2.1.2. Strengthen conditions and requirements for concessions to obtain small-scale mining permits to reinforce government capacity to raise awareness and better manage ASM´s environmental impacts.

2.1.3 Develop/disseminate existing guidelines on prohibited and best, environmentally-responsible practices, the gold certification system and gold production standards, the monitoring and law-enforcement system, and on the penalties for non-compliance with the laws and policies in place as related to the ASGM sector in particular.

Output 2.2: Mining Strategy and Action Plan developed, increasing the integration of environmental considerations in gold mining operations

92. Under Output 2.2, the project will support the government, through the Ministry of Natural Resources and NIMOS, to develop a Responsible Mining Strategy and Action Plan (RMSAP) for the reduction of the environmental impacts of ASGM in the interior of Suriname. This will facilitate the much-needed discussions and development of a consensus on which areas should be developed for mining and which should be maintained for conservation (maintenance of biodiversity, carbon stocks, of ecosystem services), agriculture, forestry and other purposes. In the absence of an integrated 'Land Use Planning Strategy', discussions will take place to facilitate agreement and coordination of different economic alternatives and development pathways. The drafting of this Responsible Mining Strategy will include the identification of high conservation value forests where mining operation expansion should be avoided (using information from the land use mapping exercise undertaken under Output 1.3, among others). This will be conducted in coordination with work undertaken under the scope of the REDD+ support project, which is also being implemented through UNDP and NIMOS.

93. The RMSAP will be an addition to the evolving policy framework, such as the work being carried out by government to develop and approve a new Mining Code[61], whose focus is expected to be larger, including LSM, and ongoing efforts to create a single Mining institute that will merge the mandates of OGS, GMD and the Bauxite Institute. The RMSAP will be informed by the scientific assessements produced under Output 1.3, the TSA produced under output 2.3, the analysis of financing mechanisms proposed under Outcome 1, and the lessons from the deployment of MTECs.

94. The strategy will highlight priorities, ways and means for envouraging environmentally responsible practices among small scale gold miners, including ways to promote legalization and formalization of the sector, and highlight opportunities for public-private partnerships. The Strategy will also delineate opportunities for increasing the market for environmentally-responsible gold, by considering the gold marketing chain as a whole. Another element of the strategy will be to seek to formalize the institutional setting for identification, reduction and mitigation of mining related impacts, such as for example clarifying legal responsibilities among concessionnaires, miners, governments and other stakeholders. Finally, the RMSAP will contain monitoring and enforcement arrangements, and detail resource requirements at all levels, as well as implementation mechanisms applicable to the entire sub-sector. The project will support high level consultations, technical discussions and a consultancy to develop the RMSAP.

95. The specific activity under this output include:

2.2.1 Support the government in developing a Mining Strategy and Action Plan – including recommended actions to be implemented in the second half of the project and beyond – to increase the sustainability of ASGM in Suriname, including an improved control and law-enforcement system, among other means.

Output 2.3 Targeted Scenario Analysis carried out to document the costs and benefits of current practices compared to environmentally responsible ASGM practices

96. In order to fully document the benefits of applying ERM practices, the project will use Targeted Scenario Analysis (TSA) to document and support decision making by miners and the mining regulators. The TSA is a valuation method seeks to illustrate the value of ecosystem services, but goes beyond traditional cost-benefit analysis and standard economic

[61] A Revised Mining Code to strengthen the requirements for ASGM has been under development for some time and the government has committed to finalize this shortly.

valuation methodologies to compare the implications of different management strategies or policy options. TSA provides decision makers, whether public or private, with time-bound economic data on ecosystem services, their relation to sectoraloutputs (e.g., profits, employment, etc.), and the existence of practical, sustainable and potentially more profitable alternative management practices[62]. The TSA also takes into consideration the non-monetized or non-economic values and benefits of a given intervention and provides an idea of the evolution, over time, of key indicators, as illustrated in Figure 7[63] below, which represents the comparison of Business as Usual (BAU) and Sustainable Ecosystem Management (SEM) scenario over time.

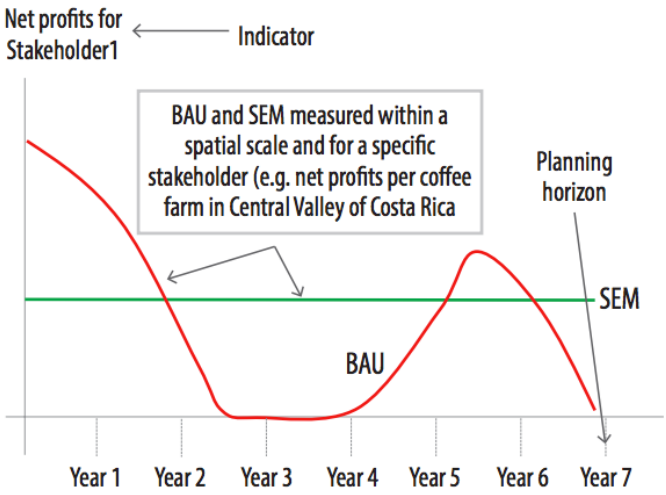

Figure 6: Targeted Scenario Analysis, illustration of management scenarios over time

97. The project will therefore support the conduct of two Targeted Scenario Analysis exercises. The first will be targeted to small-scale miners and mining operators in order to compare financial, social and environmental aspects of Business-As-Usual ASGM practices practices versus newly implemented more environmentally responsible mining techniques. This will help identify the direct benefits to miners and communities, as well as to gather evidence to support the expectation that higher earnings can be derived when using ERM practices, while generating environmental and social benefits. This, in turn, can also be used to inform the refinement of the MTEC model of mining extension and in particular, the incentive scheme proposed in this project.

98. The second TSA exercise will provide information for policy-makers in terms of the valuation of ecosystem services that are currently undermined by ASGM. The purpose of this second exercise will be to document the impacts of uncontrolled mining vs those of regulated, environmentally responsible mining (including on vulnerable groups), in terms of environmental services, econnomic and social issues. This second TSA will be carried out at a broader scale than the first TSA. This information will be disseminated to decision makers under Output 4.1 in order to justify the need for improved management of the sector, greater regulation and enforcement of environmentally responsible mining practices and for greater budgetary allocations to support miners in adopting more environmentally responsible practices and technologies, in support of activities under output 1.2 (financial strategies) and output 2.1 (strengthened policy and planning framework) above.

99. The specific activity under this output includes:

[62] see for example, UNDP, 2013 Targeted Scenario Analysis: A new approach for capturing and presenting ecosystem services values for decisions making

[63] From UNDP, Targeted Scenario Analysis: A new approach for capturing and presenting ecosystem services values for decisions making, p. 12

2.3.1 Conduct two Targeted Scenario Analysis (TSA) on financial, social and environmental aspects of ASGM.

Outcome 3: Uptake of environmentally responsible artisanal and small-scale gold mining practices increased

100. The two first outcomes sought to establish the enabling environment in which the dissemination of environmentally responsible techniques will take place – and focused on governments and institutional frameworks. Outcome 3 focuses on miners and concession holders, and on-the-ground demonstration of ERM practices. The project will pilot the different technologies in two demonstration sites (both in Brokopondo District, north of the lake) and one demonstration "hub" (Snesi Kondre), using the MTEC model as a delivery mechanism. Environmentally Responsible technologies will be demonstrated over the whole mine life cycle, namely exploration, mining, processing, refining, and post-mining decommissioning and rehabilitation.

101. Outcome 3 will be delivered through three outputs to encourage uptake of environmentally responsible mining technologies to reduce the negative effects on biodiversity, forests and local communities, while reducing greenhouse gas emissions.

Output 3.1 Mining Training and Extension Centers (MTECs) for the dissemination and monitoring of environmentally responsible ASGM practices in place, and incentives for their broader adoption identified and piloted.

102. The project will set the stage for the dissemination of environmentally responsible ASGM practices through the design of an innovative system of "mining extension", which will be piloted in the project demonstration sites. The purpose of this extension system is to increase miners' technical knowledge on best practices, raise awareness of the negative environmental and health impacts of current mining practices and assist them in shifting to ERM practices. In contrast to the earlier experiences of the Mining Service Centres (MSCs), which were oriented towards controlling illegal mining activities (a punitive approach), this project will adopt an approach focused more on the needs of the miners and their communities, to encourage the adoption of ERM practices.

103. To do this, the project will support the establishment of "Mining Training and Extension Centres" (MTECs), which will act as a one-stop shop for training, technical support, and the delivery of social incentives to support adoption of ERM practices. Tying the delivery of incentives to MTEC will help attract miners and their families to the centers, and will also help strengthen commitment. To address trust issues it is currently foreseen that each MTEC will be operated an NGO, which will be responsible for managing the centre, and for providing technical services to miners (see Figure 5).

104. To ensure that lessons learned from this model inform policy-making, and to set the stage for future replication, each MTEC will receive guidance from a Local Advisory Committee (LAC) which will be composed of NIMOS, the Ministry of Natural Resources, the Geological and Mining Services (GMD)[64], the Commission for enforcement of the Gold Sector (Ordening Goudsector - OGS), the district commissioner's office, health and environmental officers, the surrounding communities or village organizations, women's and indigenous peoples representatives, as well as private sector actors of the area. The LAC will also serve as a platform for dialogue among the stakeholders, allowing all to voice their concerns, serving as a conflict prevention mechanism and a place to address grievances. The project will fund the travel costs to bring all the key stakeholders together for regular LAC meetings. The project will also ensure that LACs identify a local partner who can take on the management of the MTEC after the project has completed, to ensure their capacity is built and resources are available for the continuation of the work.

105. MTECs will deploy technical services to artisanal and small scale miners as folllows: (i) support for the identification of best available environmentally responsible technologies tailored to each site, according to the geological and environmental conditions; (ii) training of trainers provided to "lead miners", equipment holders and concession holders on environmentally responsible gold mining techniques; (iii) demonstration of environmentally responsible gold

[64] The Geological and Mining Services (GMD) of the Ministry of Natural Resources is currently undergoing a process of upgrade into a fully autonomous agency, which will be called Mining Institute (MINAS). The process is expected to be completed by 2018, after which point, MINAS will replace GMD in all project activities. This activity is receiving support from various partners, including SEMIF.

mining techniques and provision of ongoing technical advice to miners (at MTEC site and in surrounding areas); and (iv) hosting of a repair and maintenance shop for environmentally responsible mining technologies and related equipment.

106. Given that many miners in the area operate under illegality, the MTECs will target a part of the training to the larger concession holders on the environmentally responsible practices and norms they should uphold on their concessions. Through this training, it is hoped that some medium-scale gold miners, concession holders and gold mining companies will provide additional sites for demonstration of ER gold mining methods. For example, Grassalco, a medium-sized state-owned gold mining company has set up a mining operation in an area that was previously mined by small-scale gold miners. Because of the generally inefficient methods used by small-scale gold miners, the company is still able to recover sufficient gold for a profitable operation. The company also plans to carry out land rehabilitation. In general, it is important to get medium-scale gold miners and mining license holders on board with more environmentally friendly gold mining techniques, due to the fact that they often hold the mining licenses for areas where they permit small-scale gold mining to take place.

107. The managing NGO for each MTEC will be responsible for setting up the organizational structure, deploying the human and technical resources, for delivering trainings and demonstrations at the MTEC site as well as in the surrounding mining sites, and for formalizing and operatonalizing the incentive schemes for miners, in partnership with other stakeholders. (For more information on MTECs, refer to Annex P: MTEC operations and model). The MTEC will be set up in a central and accessible location, with some training delivered at site, and some delivered in a roving manner as demonstration teams move with the equipment from one mine site to the next.

108. Lead miners and their teams who will benefit from the project's support will be selected by the MTEC. Participating ASGM associations or groups will be registered in each site, using an ID-card system. Miners targeted by the project's activities will need to be legally compliant registered operators, and self-organized in an association or group. The MTEC will provide support to miners who are not already formed into groups to create mining associations. Support from MTECs to creating associations will include organising and funding meetings, and the provision of legal and administrative support.

109. The repair and maintenance center of the MTEC will grant access to mining equipment, spare parts and technical assistance for environmentally responsible mining technologies. As part of the MTEC's mandate, miners will also receive training on repair and maintenance applied to the ERM practices and associated equipment. Once trained on maintaining and repairing equipment, miners will be able to volunteer in the shop to assist other miners in maintaining their equipment, in exchange for which they will have access to the tools to repair their own equipment and have discounts on purchasing spare parts. Revenues from selling spare parts will be re-injected in the training of miners.

110. Furthermore, to ensure that miners will make full use of the knowledge available at the MTEC, incentives for themselves, their families and the broader community will be identified, and a comprehensive incentive scheme will be designed with institutional partners. For example, MTEC will propose support for miners' associations, advice on conflict resolution, including advice on land claims, health awareness activities, along with access to social programs provided by other partners, such as NGOs, health institutions, private sector, or the government. These could include: healthcare for women and children, including vaccinations and primary care, maternal and family planning services, nutrition advice, or remote education, vocational training (particularly for women and youth) and literacy programs.

111. The MTECs will also promote a gender-sensitive approach so that both women and men are engaged in all activities the centres propose. In addition, MTECs will depart from the usual approach to training by offering training modules continuously, and by offering training on a roving basis, rather than requiring that miners leave their sites and forego income while benefitting from capacity building. Please refer to Output 3 for more details on how the training will be delivered to miners, and Annex P provides a description of the MTEC model.

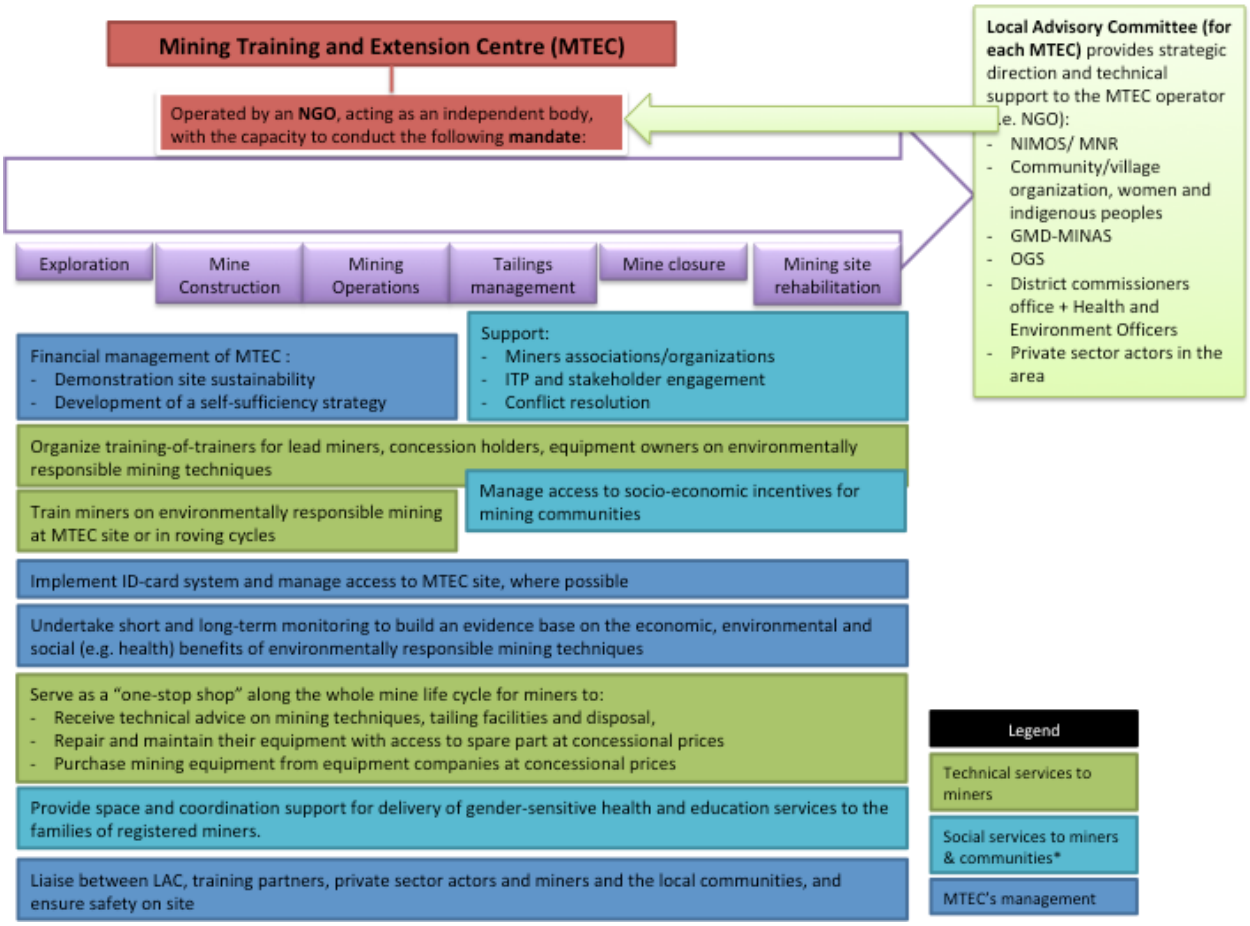

Figure 7: Mining Training and Extension Centers (MTECs)

112. In addition, the MTECs will help deliver short and long-term community-based monitoring activities to build an evidence base on the environmental, economic, financial, and social (e.g. health) benefits of the disseminated practices. The project will build on the results from the ACT's on-going Park Rangers project, where villagers are trained to execute community-based monitoring activities in the vicinity of project demonstration sites, with the three MTECs.

113. The specific activities under this output include:

3.1.1 Establish and operationalize Mining Training and Extension Centers (MTECs) near each of the three demonstration locations in collaboration with GMD, OGS, MNR and NIMOS, including by purchasing and setting up demonstration equipment.

3.1.2 Identify best available technologies for each demonstration location, according to the geological conditions, local community consultation, cost effectiveness and other criteria

3.1.3 Design incentive scheme for trainees who adopt ERM practices.

3.1.4 Support mining communities' groups in the creation of mining associations in demonstration sites, including organizing and funding meetings, providing legal and administrative support

3.1.5 Undertake community-based monitoring activities to build the evidence base on the environmental, economic, and social (e.g. health) benefits of the piloted ERM practices in the demonstration sites.

Output 3.2: Environmentally sound practices for ASGM showcased and implemented in three demonstration locations

114. As noted above, the project will demonstrate mining technologies in two sites where mining currently occurs, and in one transportation hub. The two demonstration sites will serve as a model of state-of-the-art environmentally responsible mining techniques over the whole mine life cycle, while the transportation hub (Snesi Kondre) will help showcase gold ore processing technologies. Demonstrations and training at the two demonstration sites in Brokopondo, North of the Lake (Niuew Koffiekamp and Companiekreek) will be organized either as a course delivered at the MTEC, available to miners and people entering the mining cycle, or as roving demonstrations in the surrounding areas on existing mines (or both, based on demand).

115. This will be complemented by the production of user-friendly material for gold miners that summarizes appropriate gold mining practices as well as existing regulations and guidelines. This will be developed in various native languages of the indigenous and maroon groups and in the lingua franca Sranang Tongo, as well as in Dutch, Portuguese, French and English.

116. Technologies and approaches that will be disseminated will include the following:

117. ***Mercury-free testing and exploration****:* Using mercury-free testing and exploration methods, including for example the exploration of deeper seated gold-bearing sand layers in old river channels using hand held percussion drilling to be able to penetrate through the top soil cover and retrieve samples of the gold bearing strata without removing vast stretches of top soil. Panning of systematically taken soil or sand samples also helps reveal gold bearing soil mechanically.

118. **Mechanical crushing and dry milling:** While some alluvial sites do not require separation of the gold from other minerals, in other areas crushing and milling must be undertaken: primary crushing can be done manually using hammers, or with machines such as jaw crushers. This produces gravel, that must then be milled into a powder. Good milling produces an even grain size that is fine enough to liberate the gold for the chosen extraction process. For the Suriname context, an environmentally responsible technique would be to use dry milling.

119. **Gravity concentration** is a purely physical process, based on the high density of gold compared to associated rock and the fact that gold occurs almost exclusively in granular (metallic) state. The most effective gravity separation processes occur when applied to ore particles of about the same size, therefore crushing and milling (see above) is an important step to maximize the gold recovery. This concentration method also avoids cyanide use in concentration and also leads to cost efficiencies, through simpler machinery, and higher gold recovery.

120. **Improved sluice design**. While sluices are not necessarily more efficient than panning, they do allow miners to increase the amount of ore they process, thus boosting their income considerably. Unfortunately, the resulting increase in the volume of ore processed can put large amounts of silt into streams, damaging regional water supplies and thus harming people, animals and aquatic life. Improved sluice design ensures that the maximum amount gold can settle near the bottom of the slurry stream where it can be caught by trapping mechanisms such as carpets or riffles. Elements of design that can be improved to limit environmental impacts of sluicing (per ounce of gold recovered) include: multiple stage sluices combining different angles and velocities, different grade of trapping materials, and zigzag sluice designs. Using polymeric magnetic sheet liners as trapping materials in places where there is magnetite in the ore also leads to high concentration ration, which reduces the need to use mercury amalgamation. To compensate for the fact that magnetic separation may not be 100% efficient, the concentrate tailings can be treated further by using centrifugal concentrators or shaking tables.

121. **Mechanical concentrators, including centrifuge, spiral or shaking tables**. A centrifuge consists of a rotating bowl that has a series of ridges that trap gold as the bowl spins. Force applied to the feed material (milled ore, heavy mineral concentrate, alluvial sands, etc.) can be 50 to 200 times the force of gravity, providing more effective separation. Spiral concentrates are specialized pans with spiral grooves on their surface, mounted on a tilted axis. They can be useful to work concentrates from many kilograms down to a few hundred grams and run on small motors. The concentrate produced by a spiral concentrator may be suitable for zero-mercury treatments such as direct smelting. Shaking tables are slightly inclined with a trough along the lower edge, and slightly raised ridges along their length. The mineral feed and

water are added along the high edge of the table, and a motor is used to shake the table. Inclination, water flow and shaking result in particle movement along the table towards the lowest corner. Light particles are more easily washed over the ridges than heavy particles separating them along the table and creating a heavy gold rich concentrate. The *g*old must still be extracted from the concentrate using another process (gravity, chemical, or direct smelting for example). Tables can be expensive, however, and require careful attention and training to operate effectively.

122. **Improved processing techniques, including zero-mercury processing techniques,** washing and sorting concentrates, direct smelting. As a result of the practices highlighted above, producing ore that requires little or no amalgamation greatly reduces the need to use, combust and dispose of mercury. In the cases where amalgamation is necessary, alternatives to mercury exist, including those proposed by Appropriate Process Technology, a private small-scale mining materials supplier, for example GoldFix, which binds to the gold, has no known environmental impact, and is dissolved using only hot water. Where combustion is necessary, the use of fume hoods and gloves is recommended to avoid chemicals dispersion.

123. **Tailings management*:*** Environmentally sound tailings management for ASGM require that the preceding ore processing cycle be mercury free and that the tailings are only the residues of a gravitational gold enrichment process (see above). Key aspects of designing a tailings management facility (TMF) include location (proximity to the site, elevation compared to water bodies, and situation downstream of the mining site), size (which is determined in relation to the expected total and daily volume of ore treated – a factor that should be determined at exploration stage), composition (a porous dam of coarse sand, fortified with rock (or sandbags) downstream of the dam, equipped with a decanting channel and overflow, a silt retention (settling pond) and water overflow reservoir). In terms of operation, the TMF requires a catchment basin (e. g., 200 l steel drums or an excavated basin), in which the tailings coming off the gravity separation circuit (see above) will be pumped, using slurry pumps, to the bottom of the main dam. Pipelines and pumps myst be selected with adequate capacity, to avoid excess use of electricity or generator power. Since no chemicals are used to separate the gold, the main environmental problem is the fine tailings residues, which will require a documentation of the silt load in the river upstream of the mining area and at the overflow of the "polishing pond" and downstream of the river.

124. **Decommissioning and rehabilitation[65]:** After cessation of the operation, the TMF needs to be rehabilitated. As a first step, the TMF must be given six months to naturally dry out. Decommissioning then requires first the removal of any harmful or toxic substances, machinery, mine structure and any other leftover material, as well as refilling and leveling the excavations that may create a danger, or otherwise securing the zone to it remains safe and untouched. Rehabilitation begins by re-contouring (e.g., trimming slopes to a safe angle), and stabilizing (e.g., by revegetation) of potentially unstable faces, pit walls, benches or waste dumps to reduce erosion or potential slope failure. The objective is to re-establish vegetation cover, stabilize the soil and water conditions at the site and restore the ecosystem. Rehabilitation can be achieved through natural recovery, assisted restoration, afforestation/reforestation or a combination of the three. Because drastically disturbed soils are very difficult, time-consuming, and expensive to re-vegetate, a first focus is therefore to improve and eventually restore the nutrient levels in the soil, especially nitrogen, which should be improved to at least 1 t/ha to ensure sustainable plant life. This is best achieved through the introduction of fertile topsoil, the use of nitrogen fixing legumes and tree planting. Topsoil supply can be sourced at the mining site from nearby bushes with a small fraction of organic matter, or imported from other sites, such as grasslands, agricultural land (compost). Some fertilizer application may be required, particularly phosphorus and potassium. Tree species selected should be indigenous, but adapted to the soil conditions, present qualities in terms of nitrogen fixation, but also have a high rate of leafy biomass production for CO_2-fixation.

125. Figure 6 below represents the existing practices and best practices that will be demonstrated by the project.

[65] While the project will seek to demonstrate practices throughout the mining cycle, including decommissonning and rehabilitation, the project will not fund the rehabilitation work itself.

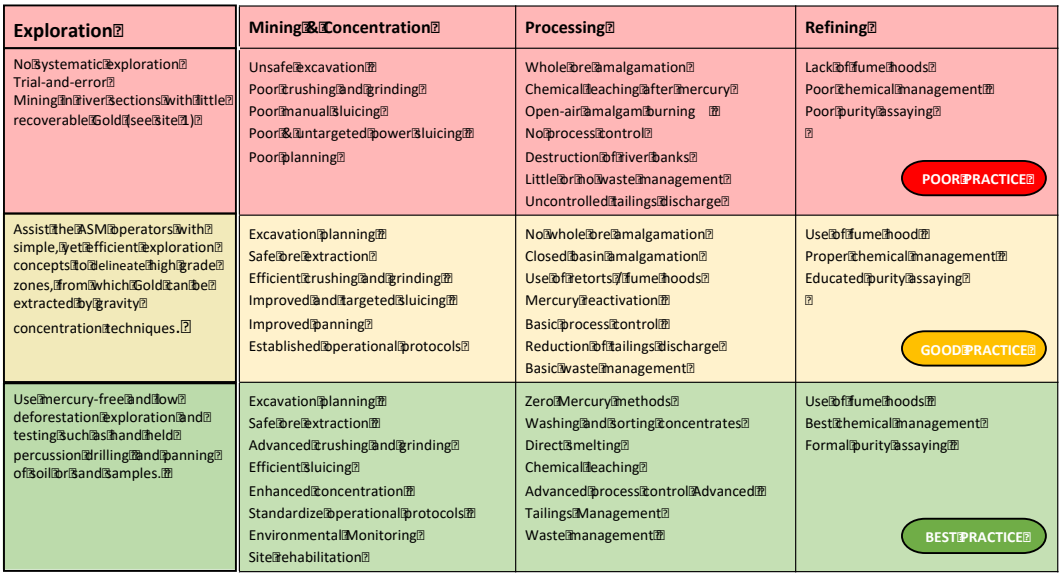

Figure 8: Unsustainable and best environmentally responsible mining practices

126. In a preliminary assessment, it was determined that by applying some of these technologies ASGM operators can increase their income substantially by implementing systematic exploration and testing of the tailings and sites and by using adequate processing and equipment (advanced gravity separation like ripple beds, centrifuges, spirals, shaking table). These simple, yet efficient measures may increase the recovery of gold from anything between 5 to 15 % up to 50%, without the use of mercury.

127. These responsible gold mining techniques will be showcased at the site of MTECs using both a static training model and a roaming model, according to the training outline described in Table 2. The project will purchase (or lease) all the required mining equipment and materials to support demonstrations of ERM practices at all stages, in order to effectively demonstrate a successful and responsible operation. The equipment will be housed in the MTEC, and made available for use to miners attending training, or for those who are participating in the remote trainings. The production technologies and practices highlighted above do not require significant additional costs to be implemented by miners, but can generate significant income increases.

Table 2: Outline of training modules delivered at the MTECs

Unit	Summary of Content	Environmental benefits
Basics	Geology, gold, some basic theory Motivation to operate in a more environmentally responsible manner and mercury free Good interaction with local communities Legal operation, licensing	Improve miners' knowledge and understanding of environmentally responsible practices
Exploration	Concepts, planning (full mine cycle), systematics, techniques (trenches, auger, ramming core probe, pits, etc.), sampling, analytical methods (panning), results interpretation, maps, basic surveying with the goal of promoting more efficient prospecting and reducing deforestation	Improve miners' exploration techniques in an environmentally responsible manner Limit deforestation, biodiversity loss, greenhouse gas emissions, and excessive use of fresh water
Setting up and planning a mine site	Infrastructure, logistics, clean water, food, hygiene electricity, fuel, spares management and repairs, waste management, amenities	Improve miners' exploitation techniques in an environmentally responsible manner Limit the use of natural resources: lumber, fresh water Limit local pollution by managing waste using a more environmental approach (how to dispose of it)
Health, Safety and Environment	Three-tier safety concept (organizing a safe workplace by avoiding unsafe situations, mitigate unavoidable unsafe situation by technical means, use of protective clothing and equipment) Basics of safe work places, hazards, hazards mitigation Gold transport	A safe working environment means accurate human and environment protection. Limit the use and inadequate disposal of chemicals, or use them properly to protect both human health and environmental health.

Mining and sustainable surface mining techniques	Use of high pressure water monitors, excavation, including top soil storage, overburden removal and storage, Operation and maintenance of equipment Implementation of a Tailings Management Facility (TMF).	Limit soil degradation Limit fresh water use Limit unexpected chemicals spillage (due to a diligent maintenance of equipment and machinery)
Hg-free gold recovery	Gravity separation, sluicing, panning, shaking tables, cyclones, spiral concentrators	Lower Hg use Improve water and soil quality Lower impact on biodiversity
Tailings Management	Operating the TMF, recovery of gold (Au) and mercury (Hg) from old tailings	Improve soil quality Limit further stream pollution Reduce mercury use
Mine closure	Securing mine sites, decommissioning and rehabilitation and hand back to the affected communities	Increase forest regeneration Conserve biodiversity

128. The specific activities under this output include:

3.2.1 Provide training-of-trainers to lead miners, concession holders, equipment owners, NGOs and other service providers on best environmentally responsible practices identified for gold mining through the Mining Training and Extension Centers (MTECs)

3.2.2 Disseminate environmentally responsible mining practices through training and extension in two mining sites in Brokopondo North of the Lake and in one demonstration hub in Snesi Kondre, with selected mining groups. This will include production of user-friendly material in local languages for gold miners that summarizes appropriate gold mining practices as well as existing regulations and guidelines.

Output 3.3 Alternative livelihoods identified and piloted in communities surrounding the MTECs at Brokopondo, North of the Lake (Kompaniekreek and Nieuw Koffiekamp), increasing the understanding of the costs and benefits of different livelihoods options

129. Under this output, the project will seek to assist miners and mining communities in diversifying economic options and opportunities, with a particular focus on gender-sensitive livelihoods. This will include support for the identification of suitable options and material/technical support for the implementation of the selected avenues. Suitable economic options outside the mining sector are rare in the targeted sectors; most communities function as providers of services and trade to the primary earningsector, which is mining.

130. It must be emphasized that it is extremely unlikely that active gold miners would leave their profession to engage in any of these activities, as no other sector provides comparable earnings at the moment. As an example, a trained teacher or nurse earns the equivalent of 200-250 USD/month. In comparison, a gold miner may take home 20-30 grams of gold in a month, or about 700-1000 USD. Outside of mining, the main sources of livelihoods in the targeted region are government jobs (including district government teachers), logging/wood processing (mostly male), subsistence and small commercial agriculture and non-timber forest products (mostly female). While there are a couple of successful local gold miners who have started other businesses, such as a transportation company, a gas station, a logging firm, cattle farming and so forth, gold miners who are able to venture into such activities will likely invest in such alternative businesses on their own and not wait for an external project.

131. Therefore, the purpose of this output is to create economic opportunities that help reduce the relative weight that gold mining has in the region, further contributing to reduce the perceived risk involved in adopting ERM practices (for example, miners may be reluctant to adopt new ways of mining if they are not sure their income will at least remain stable).

132. Communities present in the vicinity of the demonstration sites will receive support to identify and implement alternative livelihoods. This will include participatory planning and market analysis, as well as technical support for the creation of production groups, training, material supply and assistance for production and marketing, aiming for self-sufficiency at the end of the project. For any selected livelihood option, the following criteria will apply:

- The resources (inputs) must be locally available;
- People in the community must be able and interested in receiving training to obtain knowledge and skills;
- There must be a reliable market for the product or service.

133. One promising avenue that was documented during the project preparation process and that will be further pursued during project implementation is food production. Both Nieuw Koffiekamp and Companiekreek are located at a limited distance from the Rosebel (IAMGold) and to the forthcoming Sabajo mine (Newmont), which creates a potential stable market for various products. These large-scale mining firms feed their workers three times daily, an-d a lot of these food products are brought in from the capital Paramaribo because local produce often does not meet quality and safety standards, or supply is inconsistent and unreliable.

134. The project will support local producers of vegetables, fruits and meat to increase their production and provide technical support in order to produce, package, process and market according to required standards. In order to minimize the potential negative impacts of such activities and avoid land clearing for this purpose, the project will propose the planting of fruit trees, hydroponic cultivation of vegetables (such as lettuce, herbs, tomatoes, spinach, peas, cabbage), and small livestock production (ie chicken/eggs, other fowl). Other food products for which a tentative market exists include fruit syrup (for Nieuw Koffiekamp, for example). Under this output, we will promote at least one alternative livelihood option working with at least 2 community groups in Niew Koffiekamp and/or Kompanie Kreek.

135. Hydrophonic cultivation has been successfully tested in Suriname, and there currently exists a number of public, research and private sector service providers, equipment makers and trainers, whose knowledge can be disseminated in the interior. The project will support initial community mobilization, including the identification and creation of producer groups (particularly women and youth), as well as the identification of value chains in which they wish to engage. The project will also conduct market analysis to ensure community ventures are based on a solid understanding of potential earnings. Once groups and producers have decided on a specific venture, the project will provide training and technical advice on all steps of production, contribute to the initial investment costs required to set up operations (communities will be required to provide in-kind contributions), transfer production technologies as well as equipment for any required processing, phyto-sanitary handling, refrigeration, and assist with transport to market.

136. The specific activity under this output is:

3.3.1 Support mining and village communities to implement at least one alternative livelihood option with at least two community groups. This will be focused on sustainable agricultural production, such as hydroponic vegetable production, fruit tree production or syrup production (including community mobilization, research on benefits, proposal selection, training and technical support for production and marketing)

O***utput 3.4. Knowledge exchange among miners facilitated to promote upscaling of environmentally responsible ASGM practices***

137. The project will also seek to deploy an upscaling strategy that will include the promotion of local knowledge sharing among, including activities designed to support replication of success stories in other areas and mining locations. The upscaling strategy will seek to leverage regulatory and legislative changes achieved in the project, as well as lessons from the MTEC model to inform future extension to miners. This will also build on the findings of the TSA exercise, the results of the project in terms of demonstration of ER practices and establishment of MTECs with incentives for miners, and the result of activities designed to mobilize sustainable and predictable funding under Output 1.2. The project will support willing lead miners in undertaking demonstration missions and study tours to other sites to discuss their experiences.

The specific activity under this output is:

3.4.1 Demonstration missions and study tours of miners to other sites to promote replication

Output 3.5 Awareness raised among gold buyers and users regarding impacts of ASGM, increasing demand for sustainably mined gold

138. This output targets the final link in the mining sector, which is the buyer, who is the ultimate influencer of how the sector is deployed. The main drivers of global gold demand are jewellery, investment and technology (particularly electronics)[66]. In Suriname, current production capacity averages between 285,000–295,000 ounces a year[67], most of which is purchased by a limited number of licensed buyers. There are 8 formal buyers in Suriname, five of which also export

[66] World Gold Council, Gold Demand Trends, Quarter 2, 2017, available at https://www.gold.org/research/gold-demand-trends

[67] https://www.export.gov/article?id=Suriname-Mining-and-Minerals

gold. Gold for export is controlled, registered, and sealed at the Central bank of Suriname, after which it is prepared for export. Most gold is exported legally, to Dubai. Recently, the Dubai-based group Kaloti opened a gold refinery in Paramaribo through a joint venture with the Suriname Government.

139. A study in 2010 conducted under the auspices of WWF[68], concluded that that the production and marketing of environmentally responsible gold requires "the development of a closed circuit between miner and client", but noted key challenges including the lack of traceability for gold, the limited number of buyers and the need for new buyers to be licensed, porous trade routes and inadequate enforcement and controls allowing for unregistered trade. A number of initiatives are currently underway globally to promote increased traceability and transparency in the gold value chain, including for example the OECD guidelines on Responsible Sourcing of Gold or the Swiss-led Better Gold Initiative (BGI), which supports efforts on and implementation of cleaner and more efficient extraction methods. Like the Fairmined Standard, the system provides improved gold prices through the elimination of intermediaries in the gold value chain.

140. The project will therefore support the government, working jointly with NIMOS and OGS, to increase awareness among the existing gold buyers in Suriname of the environmentally responsible (ER) gold produced at the MTECs. This will also entail further developing and strengthening partnerships with leading gold buyers to promote greater demand for ER produced gold (both among current buyers of gold in Suriname and other buyers interested in sourcing responsble artisanal gold). This will build on activities under Outcome 2 (identification of a relevant ER ASGM standard for application in Suriname), and the Targeted Scenario analysis undertaken above, to document and demonstrate the benefits of ER gold. In particular, the application of the Fairmined standard or another relevant standard, where feasible, among small-scale miners, could help guarantee market access at equitable prices. The project will develop specific recommendations, awareness raising products, and guidelines for the Central Bank of Suriname (who currently registers the gold) and the gold buyers, on the requirements for ER gold. The project will also work with other partners active in the gold mining sector, including WWF-Guianas, Conservation International – Suriname, Artisanal Gold Council and Alliance for Responsible Mining, to develop and deliver an awareness raising campaign targeted to the Surinamese public on the benefits and potential of ER gold.

141. Activities under this output include:

3.4.1 Conduct negotiations and discussions at high level with gold buyers to promote commitment to purchase ER gold in Suriname, and to increase Corporate Social and Environmental Responsibility awareness

3.4.2 Develop awareness raising and guidelines materials for dissemination to Suriname Central Bank and Gold Buyers, such as on the application of OECD's Responsible Sourcing of Gold guidelines or the Switzerland-led Better Gold Initiative.

3.4.3 Develop and deploy an awareness campaign on the market benefits and potential of ER gold for Suriname

Outcome 4: Knowledge availability and sharing increased at the national and regional scale on environmentally responsible ASGM.

142. This last outcome constitutes a cornerstone of the project's sustainability and replication strategy, by creating lasting mechanisms for monitoring, evaluation and knowledge sharing across all levels and among all concerned stakeholders. The purpose of the outcome is to increase the level of knowledge sharing within the region on environmentally responsible mining, including for example by promoting cooperation among countries and by enabling participation of Surinamese stakeholers in established knowledge sharing mechanisms. In particular, the project will also implement participatory monitoring approaches to ensure that project beneficiaries play an important part in evaluating

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results and in providing policy-relevant feedback to government authorities, towards long-term upscaling of outcomes. Outcome 4 will be achieved through two outputs:

Output 4.1: Communication and knowledge management activities implemented, raising awareness of decision-makers, the general population and key stakeholders of the negative impacts of business as usual compared to more environmentally responsible ASGM

143. A project Communication and Knowledge Management Strategy will be developed to identify the most appropriate messaging for different stakeholders in order to promote increased support for better regulation of the ASGM sector and to promote increased uptake of more environmentally responsible practices.

144. As part of this strategy, the results of the TSA carried out under output 2.3 will be used to implement communication activities oriented at decision makers to heighten their awareness of a) the environmental, social and economic impacts of uncontrolled mining versus of regulated, environmentally responsible mining (including on vulnerable groups). The communication strategy will underscore the need for improved management of the sector and increased budgetary allocations. The communication with decision-makers will also disseminate the lessons learned from the pilot-level ER ASG work promoted by the project and from the establishment of the MTECs.

145. In addition, communication activities will be carried out with the general public, in both the capital city of Paramaribo and in the hinterland, using appropriate media such as radio and the printed press. This will help address the limited understanding of the full range of impacts of the current status quo on health, social issues, and the environment, among others.

146. Several knowledge products will be developed and will be dissminated through the Communication Strategy. These may include radio clips, pamphlets, billboards, and others as determined in the Strategy. This Output will include the following activities:

4.1.1 Develop a communication and knowledge management strategy targeted for different audiences

4.1.2 Produce and disseminate a suite of knowledge products including pamphlets, billboards, radio ads and video clips, as well as a document on lessons learned.

4.1.3 Implement targeted communication activities with decision-makers

4.1.4 Implement communication and knowledge dissemination activities with general public and other key stakeholders

Output 4.2: Project M&E system established, supporting learning and adaptive management

147. Under Output 4.2, the project will set up a monitoring and evaluation system to track the project indicators and the global environmental benefits that are expected. This will include annual monitoring of project activities, and regular monitoring using the GEF tracking tools for biodiversity, climate change mitigation and sustainable forest management in addition to the independent Mid-term Review and Terminal Evaluations. Ongoing monitoring and evaluation exercises will contribute to the knowledge exchange to be carried out at the inter-institutional level within Suriname, but also at the regional level with neighbouring countries of the Guianas (Output 4.3).

148. This output will contribute to reach Outcome 4 through the following specific activities:

4.1.1 Project M&E, including tracking of project indicators, completion of tracking tools, MTR and TE, among others..

Output 4.3: Regional cooperation mechanism consolidated, promoting information exchange with neighbouring countries of the Guianas on best environmental practices and policies in ASGM

149. Under Output 4.2, the project will seek to engage with Guyana and French Guyana to exchange knowledge and collaborate on ASM with a view to promoting homogeneity in environmental requirements levels of enforcement, and planning requirements in the region. The Guiana Shield Facility[69] and the Sustainable Development Solutions Network will be used to contribute to regional knowledge exchange and collaboration of sharing the best environmentally responsible practices with regards to mining activities.

150. Linkages with other countries in the Guiana region will enable the broader identification and sharing of lessons learned related to technical and policy aspects of gold mining. To support this coordination, the project will work with the Amazon Cooperation Treaty Organization (ACTO/OCTA), through the regional Sustainable Development Solutions Network for the Amazon region, based in Brazil. Regional SDSNs mobilize universities, research centers, civil society organizations, business, and other knowledge centers around practical problem-solving for sustainable development tailored to the specific needs of the region.

151. The specific activities under this output includes:

4.2.1. Identify gaps in knowledge sharing between the Guianas countries in collaboration with the Regional Sustainable Development Solutions Network (SDSN)

4.2.2 Strengthen/participate in regional knowledge-sharing platforms on gold mining with the long-term goal of promoting homogeneity in environmental requirements and levels of enforcement.

Global Environmental Benefits

152. This project is designed to achieve global environmental benefits (GEBs) in sustainable forest management, climate change mitigation and biodiversity conservation through its interventions, as follows:

153. The project will contribute to better forest management through the reduction in areas of forest cleared for mining, as a result of the implementation of environmentally responsible exploration and mining techniques, as well as planning for closure and decommissionning from the outset of mining[70]. It is estimated that the project will have direct environmental benefits in an area of approximately 7,854 ha[71] around each MTEC based in North of the Lake Brokopondo, therefore 15,708 ha for the two sites.

154. Although the project will work to demonstrate its technologies in existing mining sites, it is expected that the technologies demonstrated will lead to avoided deforestation in other sites. Bearing in mind that miners deforest, on average, 5 ha per mining operation, and that the project expects to reach 600 miners (an estimated 60 mining operations), the project expects that these miners will reduce their deforestation in future sites by at least 50%, (1500 ha; i.e. under the baseline scenario 3,000 ha are going to be deforested; under the project scenario only 1,500 will be deforested) This will lead to the conservation and enhancement of carbon stocks, namely 1.2 million tons CO_2eq emissions over 20 years (7 years for implementation + 13-year capitalization phase), or 61,398 tons of carbon per year[72]. Table 2 below provides comparative figures for the baseline and end-of-project targets.

[69] The Guiana Shield Facility is a multi-donor platform that provides funds for national and regional activities related to ecosystems conservation, biodiversity protection, and human livelihood alternatives. http://guianashield.org

[70] Consultant report on environmentally responsible mining technologies, June 2017, Hanspeter Tomschi.

[71] This estimate was calculated based on the following assumptions: assuming that the beneficiaries of the training provided through the MTECs are practising mining within a from a 5km radius, the area covered by each MTEC covers 78.54 km^2, equivalent to 15,708ha for both sites. This assumes that all of the concerned miners actually implement the ERM practices (particularly for exploration). Our calculation does not include the demonstration hub at Snesi kondre, because there is no mining in the direct vicinity.

[72] This is a conservative estimate, which was calculated using the FAO's EX-ACT tool for calculating emissions from Agriculture and Land use. Key assumptions underlying this calculation are: 1) miners will see less need for moving to new sites due to the high levels of gold recovery from previously mined sites; 2) a new mining operation size clears an average of 5 ha (see for example Journal of Management and Sustainability, Vol. 5, No. 2; 2015, p.45); 3) each mining operation clears 5 ha of forests per year and each miner participates in only 1 mining operation during the lifetime of the project – this results in baseline deforestation of 3000 ha (without

155. The project also expects to generate indirect benefits for forests and carbon stocks by assisting miners in assessing the state of depletion of a site and encouraging them to close exhausted sites indefinitely, thereby allowing for natural regeneration to take place, when the conditions are in place. In addition, the project will promote near real-time monitoring of new mining areas and strengthen institutional capacity for enforcement, which is also expected to lead to reductions in deforestation.

156. Furthermore, improved mining techniques will reduce negative impacts from unsustainable mining methods on freshwater, globally significant biodiversity and habitats. For example, better management of mining processes can reduce erosion, which negatively impacts fish biodiversity due to increased turbidity and reduced instream habitat diversity related to sedimentation.

157. Examples of animal and plant species that are found in the targeted area (more particularly the Brownsberg National Park area, south of the lake) and that will benefit from improved mining practices include the ones listed in Table 3 below:

Table 3: Examples of species in project area

Birds[73]	**Fish**[74]	**Flora**	**Other**
Roraiman Screech Owl (*Megascops roraimae*) Green Aracari (*Pteroglossus viridis*) Guianan Toucanet (*Selenidera piperivora*) Golden-olive Woodpecker (*Colaptes rubiginosus*) Red-necked Woodpecker (*Campephilus rubricollis*) Chestnut-rumped Woodcreeper (*Xiphorhynchus pardalotus*) Dusky-throated Antshrike (*Thamnomanes ardesiacus*) Cinereous Antshrike(Thamnomanes caesius) Dusky Antbird(Cercomacra tyrannina) Guianan Warbling Antbird(Hypocnemis cantator) Black-headed Antbird (*Percnostola rufifrons*) Ferruginous-backed Antbird (*Myrmeciza ferruginea*)	Black Piranha (*Serrasalmus rhombeus*) Pike Characin (*Acestrorhynchus microlepis*) Peacock Cichlid (*Cichla ocellaris*) Bryconops melanurus Red-Striped Earth Eater (*Geophagus surinamensis*)	*Aniba percoriacea* *Guatteria ferruginea* *Guatteria insignis* *Sloanea gracilis*	Wilhelmina Cochran Frog (Cochranella geijskesi) Taylor's Tiny Caecilian (*Microcaecilia taylor* and *Microcaecilia grandis*) Rocket Frogs: *Anomaloglossus surinamensis* and *Anomaloglossus leopardus* Worm lizard (*Amphisbaena myersi)* Suriname Lowland Forest Cottontail (*Sylvilagus parentum)*

the project); A benefit stream phase of 13 years has been applied.

[73] http://www.xeno-canto.org/location/map?lat=4.9459&long=-55.183&loc=Brownsberg+Natuurpark%2C+Brokopondo

[74] The fish fauna of Brokopondo Reservoir, Suriname, during 40 years of impoundment, Jan H. Mol; Bernard de Mérona; Paul E. Ouboter ; Shamita Sahdew. In Neotrop. ichthyol. vol.5 no.3 Porto Alegre July/Sept. 2007

Spotted Antpitta (*Hylopezus macularius*) Thrush-like Antpitta (*Myrmothera campanisona*) White-fronted Manakin (*Lepidothrix serena*) Red-billed Pied Tanager (*Lamprospiza melanoleuca*) Blue-black Grosbeak (*Cyanocompsa cyanoides*) Grey Antbird (*Cercomacra cinerascens*) Grey-fronted Dove (*Leptotila rufaxilla*) Mouse-colored Antshrike (*Thamnophilus murinus*) Buff-throated Woodcreeper (*Xiphorhynchus guttatus*)			

158. Table 4 below provides a summary of some of the environmentally responsible practices (see Output 2) proposed by the project and the expected GEBs arising from their application.

Table 4: Global Environment Benefits linked to ERM practices

Current mining practices	**Environmentally responsible mining practices introduced by the project**	**Global environmental benefits**
No systematic exploration (trial & error)	Development of an exploration plan on the basis of improved geological knowledge, mechanical exploration and testing of samples prior to beginning to reduce unnecessary deforestation.	Increased maintenance of rich tropical forests and biodiversity conservation Reduced emissions from deforestation Reduce land degradation and erosion and reduced disturbance to freshwater and forest ecosystems and habitats, leading to increased biodiversity conservation and increased maintenance of ecosystem services
Use of Hg in the mining extraction process	No use of mercury Extraction by gravity separation, sluicing, panning, shaking tables, cyclones, spiral concentrators	No further Hg input into the environment Increased biodiversity conservation, especially freshwater fish biodiversity (piscivorous fish are mostly likely to benefit as they are particularly affected by high Hg levels due to bioaccumulation).
No/inadequate tailings management	Calibrated design of a tailings management facility and ongoing tailings management	Increased freshwater biodiversity as a result of reduced siltation from land degradation and erosion
No decommissioning, revegetation or rehabilitation of the mining sites	Waste management and adequate decommissioning Revegetation using assisted natural regeneration, where possible	Restoration of carbon stocks Maintenance of ecosystems and, and provision of habitat for biodiversity Reduced land degradation and erosion

159. The project will also contribute to the following **Aichi Targets** and to 6 of the 17 **Sustainable Development Goals** (SDGs) and their targets:

Aichi Targets:

160. *Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society*. The project will contribute in particular to Target 1, by increasing awareness among stakeholders in Suriname about practices and technologies to increase biodiversity conservation in the mining sector, and Target 4, which relates to supporting the implementation of sustainable production plans, by supporting the development of a Sustainable Mining Strategy and Action Plan and by promoting more ER ASGM.

161. *Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use*. The project will contribute to Target 5 by reducing the level of deforestation, forest degradation and associated biodiversity loss as a result of mining, through the promotion of ER ASGM.

162. *Strategic Goal: Enhance the benefits to all from biodiversity and ecosystem services D.* The project will contribute to Target 14, by helping to safeguard ecosystems that provide essential services, such as freshwater provision and climate regulation, taking into consideration the needs of women, indigenous and local communities, and the poor and vulnerable.

Sustainable Development Goals (SDGs):

- SDG 3 (Good Health and Well-being). More ER management of ASGM mining will reduce the incidence of standing water in pits in mining sites, thus reducing the spread of diseases such as malaria. The more efficient gold processing technologies to be promoted through this project will also reduce exposure to mercury.

- SDG 5 (Gender Equity) by taking the necessary measures to ensure women's empowerment and participation in all project's activities, such as training activities and community-based monitoring.

- SDG 6 (Clean Water and Sanitation) by improving access to safe freshwater through promotion of environmentally responsible practices that reduce siltation and avoid the use of Hg in mining activities.

- SDG 12 (Responsible Consumption and Production) by promoting environmentally responsible ASGM techniques and working to promote increased demand for ER gold.

- SDG 13 (Climate Action) by reducing deforestation through better prospecting, and greater efficiency in gold processing and by promoting better planning for mine closure and assisted natural regeneration of mined out areas,

- SDG 15 (Life on Land) by optimizing old mine sites instead of venturing in new mines and further clearing forests, reducing biodiversity loss and by planning for mine closure and thus promoting revegegation.

Anticipated socio-economic benefits

163. The project will reach 1,800 direct beneficiaries, including 600 miners and 1200 community members participating in project activities through the MTEC and alternative livelihoods. The project expects to reach nearly 8,400 indirect beneficiaries, calculated as 70% of all artisanal small scale miners who could benefit from project outcomes and results and who could apply ERMPs once the policy barriers are lifted.

164. The project expects to leverage the following socio-economic benefits:

- 600 miners benefiting from training under the project will see their health improved from reduced exposure to mercury. They will also have increased income through the project, including through improved gold recovery rates and reduced mining costs, as well as access to environmentally responsible mining equipment and technologies at concessional prices.

- 1000 women and children will have increased access to basic health services such as vaccinations, nutrition advice, AIDS prevention through the MTECs.

- At least 200 women will have increased income and improved access to nutrition from piloted livelihoods (agriculture)

Partnerships:

165. The project will work through the Ministry of Natural Resources and NIMOS, in coordination with other governmental and non-governmental partners. Partnerships will be established with national and international NGOs to achieve its intended results. The full list of stakeholders and project participants is included in Table 5, and a more detailed stakeholder engagement plan is included in Annex L. All participants listed herewith participated in the consultations leading up to the preparation of this project (see Appendix 6 on report from Project Preparation Grant).

Table 5: Stakeholders involved in the project, including partners

Partners and Participants	**Mandate, Interests and responsibility related to this project**	**Role during project implementation**
National governmental institutions		
Ministry of Natural Resources (*Natuurlijke Hulpbronnen*, NH) in particular the Geology and Mining Department (*Geologische Mijnbouwkundige Dienst*, GMD)	Develops, implements and controls natural resources and mining policies and regulations; Issues mining concessions and licenses for large- and small-scale mining.	Implementing Partner along with NIMOS / Senior beneficiary. Co-chairing member of the Project Board. Responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of project resources; Lead the Stakeholder Platform; Delegate resources and executive mandate to designated Responsible Parties for an effective delivery of project outputs. Engage in Outcomes 1-2-3-4.
National Institute for Environment and Development in Suriname (*Nationaal Instituut voor Milieu en Ontwikkeling in Suriname*) (NIMOS)	Formulates and enforces national environmental legislation and regulations; coordinates and monitor compliance	Implementing partner along with MNR/ Senior beneficiary. Co-chairing member of the Project Board / member of the Local Advisory Committee (LAC). Engage in Outcomes 1-2-3-4. Provide ongoing advice on environment and development matters; conduct environmental monitoring activities through the Environmental Planning and Information Office. The EPIO will participate in the participatory monitoring of environmental conditions under output 3.1; conduct a biodiversity assessment in areas surrounding demonstration sites of Brokopondo North of Lake under output 1.3; participate in the updating of the Gonini portal related to mining areas mapping (output 1.3), and forest and forest carbon mapping with SBB (output 1.3)

Suriname Foundation for Forest Management and Production Control (SBB)	SBB is the National Forestry Authority for achieving sustainable rational utilization of Surinamese forests through an efficient professional organization in continuous consultation with the relevant stakeholders. It is an executive organ of the Ministry of Natural Resources.	The SBB will benefit from training under Outcome 1, and will also participate in monitoring efforts, together with EPIO, under outcome 1, including the efforts to update the Gonini platform with ASGM related information. SBB will also be a participant in the Stakeholder Platform of the project.
Environmental Office within the Cabinet of the President	Leads national coordination for environmental issues in Suriname	Will support the project by supporting the strengthening of the enabling conditions such as pursuing ongoing legal reforms of the Mining Code and institutional reforms (e.g. creation of MINAS), ratification of international environmental treaties e.g. Minamata. Contributes to the development and enforcement of laws and regulations under Outcomes 1 and 2, as well as the development of financing mechanisms
Inter-ministerial Advisory Commission (IMAC)	Comprised of permanent secretaries of 17 Ministries, IMAC is a body set up for reporting and joint decision-making on environmental projects and issues	The project will work with the Inter Ministerial Advisory Committee (IMAC) to assist in defining a better mechanism for systematic coordination on environmental and mining issues, which will enable key participating ministries to make mining – related decisions that duly consider environmental concerns, and prevent the adoption of counter-productive policies. IMAC will also benefit from high-level training on environmental impacts of ASGM (output 1.1.), and will participate in the TSA exercises under output 2.3.
Commission for Regulation of the Gold Sector (*Commissie Ordening Goudsector*, OGS)	Regulates the mining sector by registering small scale miners and ASM operations, re-establishing government authority and controlling ASM sites	Participate in the Local Advisory Committee for the MTECs and in monitoring of the implementation of ERM practices by registered miners. Register miners for the project; the OGS will also play a key role under output 1.1 and 1.3, which is concerned with strengthening institutional, legal and regulatory capacity as well as enforcement capacity. Tools such as the land mapping (output 1.3) the TSA (output 2.3), will feed in to their ongoing enforcement work. OGS will also be called upon to assist in the design of financing instruments for long-term rehabilitation, as well as to participate in discussions with gold buyers under Output 3.5 designed to increase the demand for ER gold.
Ministry of Health	The Ministry of Health is responsible for the health care policy and its implementation in Suriname. The Ministry's work is mainly realized by its executive agencies. In addition, the Ministry conducts supervision and inspection of executive agencies.	The Ministry of Health will participate in the deployment of the MTEC's supportive incentive schemes. Ministry of Health with provide cofinancing to the project's outcome 3 in support of the Medical Mission (MZ), which will provide key medical services through the MTECs.

Ministry of Regional Development	The Ministry of Regional Development administers the ten districts of Suriname and is oversight, monitoring and guidance to the Districts of Suriname's districts, coordinating development activities and governance in these areas. Furthermore, the Ministry is mandated to develop and improve the livelihoods and living conditions of the Indigenous and Tribal Peoples (ITP) and communities in the districts and particularly the interior. This through policy development, promote and enhance citizen participation in the decision-making processes at different local level of resorts and district; maintain relationships with the central government dignitaries and ITP;	The Ministry of Regional Development will participate within the project through livelihoods development of Sustainable Non-Timber Forest Products (NTFP) and horticulture production systems, facilitate stakeholder engagement and participation of ITP within local level decision making structures of the project and project implementation
Academic and Research Institutions		
University of Applied Science and Technology (UNASAT) Mining School		UNASAT will benefit from training and support for the development of curricula related to environmentally responsible mining practices under Output 1.1. UNASAT will also benefit from experiences in the MTECs related to mining extension and will provide staff and expertise for the deployment of mining extension services. Mining School students may be invited to intern with the project
Anton de Kom University of Suriname, Departments of Environment, Geology, Herbarium and National Zoological Collection		ADEKUS will participate in the output 3.5 activities, through the Herbarium for the monitoring of biodiversity and forests, as well as participate in the biodiversity assessment. AdeKUS will also be represented on the project's Stakeholder Platform to provide ongoing technical guidance.
Tulane University (in consortium with ADEKUS)		Will contribute all general data collected and analysed on mercury use in Suriname including that pertaining to the areas surrounding project sites, collaborate on biodiversity monitoring and in public awareness and heath education as it relates to the use of mercury. Tulane university will also be contributing to the efforts to develop a RMSAP through contributions focused on mercury recovery at tailing sites, and contribute to regional knowledge sharing. Tulane University is a cofinancing partner for this project.
Local Governments		

Local Governments of Brokopondo and Sipaliwini: District Commissioner (Districtscommissaris-DC), Health and Environment Officers	Represent national government; Responsible for the governing, formulating and implementing of all policies at a local scale, responsible for enforcement and delivery of government programs	Will participate in the Local Advisory Committee and provide advice on the delivery of project activities. Participate in Output 3.3 activities on the identification and implementation of alternative livelihoods activities, in community-based monitoring activities (output 3.1) and in all project monitoring and supervision activities.
Non-governmental and inter-governmental partners		
Medical Mission	The objective of the foundation is to promote and secure physical-, mental- and social well being of the population in the interior of Suriname according to primary health care principles.	The MZ will use the MTEC to deliver key social and health services to miners and mining communities, including information on sexual and reproductive rights; access to basic medical services for women and children, family planning; medication, urgent care, vaccination; support to sex workers; test and lab facilities for HIV/AIDS, Zika, malaria; awareness raising campaigns on clean drinking water and hygiene and on the impacts of mercury and other chemicals on health
Suriname Environmental and Mining Foundation (SEMIF)	Implements awareness-raising and education activities regarding socio-economic and environment matters in mining areas.	SEMIF will participate in the Stakeholder Platform and will also be engaged in discussions related to the development of financing instruments under Output 1.2.
Artisanal Gold Council (AGC)	The AGC is a Canadian based NGO that works directly with Artisanal and Small-scale Gold Mining communities and local experts to develop integrated and practical solutions. They provide awareness, training, education, and capacity-building with a focus on improved practices, governance, livelihoods, health, environment, gender equality, market access and development.	AGC is expected to manage at least one of the MTEC sites as a Responsible Party (pending confirmation). AGC will be responsible for providing mining extension on environmentally responsible practices, as well as for the design and operationalization of the MTEC including its incentive scheme, along with other partners. As such, AGC will also participate in project structures (Stakeholder Platform and Local Advisory Committee) and in all activities related to knowledge sharing under Outcomes 3 and 4.
Alliance for Responsible Mining (ARM)	The ARM is an international NGO whose mission is to "transform the ASM sector into a socially and environmentally responsible activity, while improving the quality of life of artisanal miners, their families and communities". ARM works through the promotion of standards, policies, and activities in direct linkages with miners.	ARM is expected to manage at least one of the MTEC sites as a Responsible Party (pending confirmation). They will be responsible for providing mining extension in relation to environmentally responsible practices, as well as for the design and operationalization of the MTEC including its incentive scheme, along with other partners. As such, ARM will also participate in project structures (Stakeholder Platform and Local Advisory Committee) and in all activities related to knowledge sharing under Outcomes 3 and 4. ARM will also be a key technical partner for work to promote adoption of the Fairmined Standard or another standard that is deemed relevant (output 2.1) and activities under

		Output 3.5 related to demand for Environmentally Responsible Gold.
World Wildlife Fund (WWF)- Guianas	WWF is dedicated to biodiversity conservation. In the Guianas area, WWF focuses on forests, climate resilience and food security.	World Wildlife fund will partner with ARM in the management of an MTEC site. WWF is providing cofinancing support to this project. WWF will also be invited to share lessons learned from its other projects related to mining and the environment.
Conservation International (CI) - Suriname	CI seeks to empower the Surinamese society to responsibly and sustainably care for nature and global biodiversity. The organization's work is focused on supporting the national policy for green economic development by supporting land use planning and demonstrating the value of ecosystem services in Suriname.	Conservation International will participate in the TSA exercises under output 2.3 focusing on the demonstration of the value of ecosystem services, by providing data, information and technical advice. CI will also be invited to share lessons learned from its other projects related to mining and the environment.
Intergovernmental Forum on Mining	The IGF is a multi-state institution that focuses on promoting dialogue towards improving resource governance and decision making by governments. It provides a number of services to members including: in-country assessments; capacity building and individualized technical assistance; guidance documents and knowledge sharing events and venues.	The IGF has supported the mining policy framework on which this project is building and will be working with the government of Suriname towards improving the regulatory framework governing the sector as it relates to the management of the environmental impacts of ASM gold mining.
Amazon Conservation Team (ACT) Suriname	The mission of ACT is to protect the Amazon rainforest with the involvement of indigenous communities located in the area; ACT integrates, protects and shares traditional knowledge and skills among communities. ACT has experience in developing a Land Management Program to address and identify existing threats in the region, and in	The ACT will provide technical advice for the development and implementation of the participatory monitoring aspects of the project, under Outcome 3.1. ACT will also be called upon to provide advice on the inclusion of indigenous knowledge and will assist with local consultations during the identification of alternative livelihoods activities under Output 3.3.

	deploying participatory monitoring through its Ranger program.	
Canadian International Resources and Development Institute (CIRDI)	The institute is an academic institution offering expertise in natural resources management and in particular focusing on extractive industries. The CIRDI is funded by the Canadian government and has partnered with the IGF to support assessments and training in Suriname and other countries of the region.	The CIRDI is expected to provide targeted technical advice, information and methodologies, as well as training materials to support Outcome 1 on the development of institutional and technical capacities related to the ASGM sector.
Communities and community organizations, including women's groups		
Traditional authorities of Nieuw Koffiekamp and Compagniekreek and their communities	Lead communities in self-governance	Traditional authorities will participate in the Local Advisory Committees of the MTECs, and will also serve as relays for information targeting local beneficiaries. They will be consulted on all aspects of project implementation and will help coordinate the identification of local project participants, as well monitor the implementation of project activities. Any activities carried out that affect or involve traditional authorities will be dependent on Free and Prior Informed Consent (FPIC).
Wan Mama Pikin	WMP is a local NGO who seeks to improve the prosperity and well-being of poor and vulnerable groups in Suriname's interior through the implementation of sustainable development activities.	The local NGO can be called upon to assist with community mobilization, identification and strengthening of producer groups under Output 3.3, to help develop and implement alternative livelihood activities for local communities
Women's group Nieuw Koffiekamp " Oema Fu Du Sani"	Promotes community development, especially for women in Nieuw Koffiekamp including support to income generating projects	This local NGO can be called upon to assist with community mobilization, identification and strengthening of producer groups under Output 3.3, to help develop and implement alternative livelihood activities for local communities, especially with women. They will also assist in providing knowledge and widened awareness among villagers about the negative impact of gold mining (pollution, health risks)
Foundation for Development of Nieuw Koffiekamp (Stichting ter Ontwikkeling en Opbouw Nieuw Koffiekamp)	Contact point for community development projects in the village	The association will represent the village in the Local Advisory Committee and participate in the awareness raising activities of the project, as well as in the achievement of all outputs under Outcome 3.

Community Committee (CC) of Nieuw Koffiekamp	The committee acts as an intermediary between the Nieuw Koffiekamp and IAMGOLD (the concession holder) for community related issues	The CC will be called upon for mediation and liaising with IAMGOLD / Rosebel at local level.
Organization of Small Scale Gold miners such as Makamboa Lingisi Mining NV	Guarantee steady access to mining areas within the concession where gold presence is assured; adhere to the agreement and Represent the interest of ASM gold miner	Will be called upon to represent the interest of small-scale gold miners in the Local Advisory Committees, to support the identification of lead miners and miner beneficiaries, including through registration and creation of associations; will benefit from training and will share experiences with mining techniques and act as an intermediary organization for the roaming portion of the MTEC trainings.
Private sector		
Rosebel Gold Mines N.V. (RGM), daughter company of IAMGold, multinational	Large Scale Mining Company	Support by giving permission to introduce environmentally responsible mining techniques in their concessions; Support for alternative livelihoods strategies for the local mining and traditional communities; participation in the design of incentive schemes and provision of co-financing to support community social and environmental activities
NewMont Mines	Large Scale Mining Company	Support for alternative livelihoods strategies for the local mining and traditional communities; participation in the design of incentive schemes and provision of co-financing to support community social and environmental activities
Central Bank of Suriname	Central Bank of Suriname is responsible for delivery of key macro-economic policies, for the collection of gold royalties and for the delivery of gold certificates to sellers and buyers.	The CBvS will participate in the project's activities under output 1.2 to design and explore financial, fiscal and other economic incentives for environmentally responsible management of mining sites, as well as on activities under Output 3.5 related to increasing the demand for ER gold that meets international standards and activities targeting gold buyers.
Others		
UNDP – Suriname	UNDP has been operating in Suriname since 1994 supporting the Surinamese Government and the people to achieve national goals. UNDP's substantive focus in Suriname is as follows: Democratic Governance, Social Development and Environment and Natural Resource Management.	UNDP will be the GEF Implementing Agency and will oversee all activities of the project, in collaboration with the project board, project management unit and other partners. UNDP will be a member of the Project Board as Senior Supplier. UNDP will undertake supervision and oversight, monitoring and evaluation in support of all project outcomes, technical backstopping, and provide targeted services to support the National Implementation Modality.

166. The project will also seek collaboration and partnerships with the following partner institutions, projects and processes:

167. UNDP-GEF support for the Minamata Initial Assessment: Suriname is currently conducting the Minamata Initial Assessment project, which aims to lead to the ratification of the Minamata Convention on mercury. The process is currently in its final stages and the Convention should be ratified by the end of 2017. Ratification of the Minamata convention means that the country will, inter alia, recognize mercury as a chemical of global concern that affects ecosystems, environment and human health and raise national awareness of the health effects from vulnerable populations' exposure to mercury. Suriname's Minamata Initial Assessment project is focussing on the capacity of GoS to meet the national requirements under the Convention. The project is supporting data collection on mercury levels, which will be useful for monitoring change in the ASGM practices and will provide training and capacity building, on which this initiative will build.

168. UNEP-GEF support for the development of a National Action Plan to reduce and where feasible, eliminate mercury use in Artisanal and Small scale gold mining. This 500,000 USD project was approved by the GEF in 2016 as an enabling activity to support Suriname's efforts to meet its commitments under the Minamata Convention. The NAP project will provide information, capacity building and policy dialogue that will tie into activities under this project to develop a Responsible Mining Strategy and Action plan for ASGM.

169. Cross-cutting Capacity Development Project (CCCD): Mainstreaming global environment commitments for effective national environmental management (UNDP-GEF). Currently under implementation, this project seeks to address priority cross-cutting capacity development needs as identified in the 2009 National Capacity Self-Assessment (NCSA), including public reform and physical planning, capacity improvement and research such as improved natural resources management, as well as the current environmental management capacity through the implementation of the Multilateral Environmental Agreements (MEA). The CCCD project established an Environmental Planning and Information Office (EPIO) in 2016, with which this project will work to strengthen its capacity for inter-institutional coordination and to support key policy-relevant studies and assessments.

170. Strengthening national capacities of Suriname for the elaboration of its REDD+ strategy and design of its implementation framework (2014-2018) with funding from the Forest Carbon Partnership Facility (FCPF). This project is currently under implementation by the National Institute for Environment and Development in Suriname (NIMOS). It focuses on strengthening national forest governance, including the development of a REDD+ strategy and National Forest Monitoring System, Forest Reference Emission Level and Safeguard Information System linked with REDD+ strategy framework. This project supports setting up of institutional structures such as the REDD + steering committee, coordination platforms with indigenous and maroon communities, consultations and Grievance and Redress Mechanism for REDD+. A system for Monitoring, Reporting and Verification, including Community Monitoring on Forests is also part of the project. , including mapping of deforestation and emissions data, and a number of technical assessments will be completed that will provide data and knowledge of use to this project.

171. Medical Mission – Radboud University "Promoting Health in Small Artisanal Mining Gold".[75] This project assesses the effect of mercury on miner's health especially in ASGM and raises awareness on this issue. To a certain extent, this project could add value to the current project with regard to public and environmental health awareness among local populations.

172. The University of Tulane is executing a project in the Interior, "Meki Pikin Fu Tamara", which is determining the health impacts of mercury at an early age. This project involves epidemiological monitoring of pregnant women and children up to the age of 4. The data collected, along with methodologies, will be shared with this proposed initiative, and awareness raising activities will be conducted jointly to maximize impact.

173. UNEP-GEF program on Global Opportunities for Long-term Development in the Artisanal Scale Gold Mining (ASGM) sector (GOLD) (2016-2020). This program, which is implemented in Burkina Faso, Colombia, Guyana, Indonesia, Kenya, Mongolia, Peru and Philippines, seeks to "reduce the use of mercury in the ASGM sector in the participating countries through facilitating the access to finance to artisanal miners and mining communities for the

[75] http://www.medischezending.sr/project/prosamigo-promoting-health-small-artisanal-mining-gold/

introduction of low and non-mercury technologies and techniques and through the development of sustainable ASGM gold supply chains". To counter mercury uses, GEF GOLD provides support for legal and institutional reform to better govern and formalize the ASGM sector, and establishes investment options such as revolving funds and loans available at concessional rates, from which ASGM miners/communities can source required investments. The programme also works with buyers and users of gold to raise awareness of the impacts of the gold value chain.[76] Close cooperation linkages will be established with this UNDP/GEF mining project in order to maximize opportunities for learning and information sharing, particularly with the Guyanas sub-project, which can deliver useful lessons, methods and approaches for all the Outcomes foreseen in Suriname.

174. The project will also benefit from lessons learned and successful experiences from the Medium-Sized UNDP-GEF project nearing completion that is being carried out in Guyana, entitled "Enhancing Biodiversity Protection through Strengthened Monitoring, Enforcement and Uptake of Environmental Regulations in Guyana's Gold Mining Sector" (2013-2017), in particular as it relates to institutonal capacity building on environmental management of ASGM, training trainers on more environmentally responsible mining methods, and raising public awareness about the negative impacts of current mining practices. Information exchange will also occur with the UNDP/GEF project, "Conservation of Biodiversity in Landscapes Impacted by Mining in the Choco Biogeographic Region", which is currently under implementation (2014-2019), particularly in terms of that project's incorporation of BD considerations into the political, legal, and planning frameworks within the mining sector.

Stakeholder engagement:

175. In addition to the partners highlighted above, the project will rely on the participation of a broad spectrum of stakeholders from government, civil society, academia and local communities.

176. The project design team followed an iterative process of local and national consultation, involving technical experts and stakeholders in government, non-governmental organizations, universities, private sector, para-governmental institutions, as well as local communities in mining areas. Field visits were completed in three hinterland locations where mining activities are significant (Suriname Mining Belt) and where the project will take place: New Koffiekamp, Brokopondo Centre and Compagniekreek. See Annex R for a report on project preparation activities, and Annex L for the detailed stakeholder engagement plan.

177. Table 5 above lists the main stakeholders and partners for this project, their mandate and their expected participation in the project. The Stakeholder Engagement Plan (see Annex L) was developed with the following objectives in mind:

- Identifying stakeholder priorities and needs to better tailor project activities, opportunities, and benefits;
- Learning from and incorporating local knowledge to improve project design in order to avoid and mitigate project-related risks and impacts;
- Ensuring that stakeholders are engaged in the monitoring and reporting of the project
- Establishing a mechanism for free and prior informed consent through which the vulnerable and indigenous and tribal groups can raise concerns

178. As noted in the Stakeholder Engagement Plan, the project has incorporated various mechanisms to ensure that project beneficiaries and potentially affected groups participate actively in project implementation. Local Advisory Committees will be set up at each Mining Training and Extension Centre and will include membership from local community and women´s groups; these groups will therefore have a voice in the set-up the MTECs and in the implementation of all associated activities. Local groups will also participate in community-based monitoring activities to

[76] https://www.thegef.org/events/gold-addressing-mercury-pollution-artisanal-gold-mining

assess the environmental, economic, and social (e.g., health) benefits of the piloted ERM practices in the demonstration sites (under Output 3.1) and this information will feed into adaptive management.

179. A gender mainstreaming strategy has been developed to ensure that both women and men can participate in, and benefit from the project´s interventions (see Mainstreaming Gender section that follows and Annex N with the Gender Mainstreaming Strategy and Action Plan). Although no negative environmental or social impacts are foreseen, stakeholders will be able to submit concerns about the social and environmental impacts of the project. UNDP and the implementing partner will ensure that stakeholders are aware of UNDP´s established accountability mechanisms that comprise two main components: 1) A Compliance Review to respond to any potential claims that UNDP is not in compliance with applicable environmental and social policies; and 2) A Stakeholder Response Mechanism (SRM) that ensures individuals, peoples, and communities affected by projects have access to appropriate grievance resolution procedures for hearing and addressing project-related complaints and disputes.

Mainstreaming gender

180. As per UNDP requirements, the project preparation team conducted a thorough gender analysis to support the design of the project. As a result, a gender action plan was designed, and the project was assigned the GEN2 marker (please refer to Annex N for the Gender analysis and Action Plan)[77]. In this project, gender disaggregated indicators and targets have been formulated where relevant in order to consider gender issues throughout the implementation and to monitor the impact of activities on women.

181. The project will identify the roles and positions of women in selected areas, Nieuw Koffiekamp and Compagniekreek in order to ensure that both men and women are adequately engaged in all activities of the project. To have positive impacts on vulnerable women in the targeted areas, the project will ensure that women have access to training and capacity building opportunities, as well as livelihoods opportunities which will subsequently have a positive impact on their entire community.[78]

182. The Project will implement the following gender-related measures:

- Support participation of women in all trainings and demonstrations, and promote women´s participation in mining groups that will be consolidated/established with project support;
- Support women´s participation in alternative income generation activities, particularly related to sustainable agriculture in at least two communities;
- Undertake active consultation with women and women's groups;
- Prepare and disseminate information targeted to women, including information related to health and educational services provided by the MTECs and information on the negative health impacts of current mining practices;
- Ensure adequate representation of men and women in the project's bodies, including the Local Advisory Committee, the Stakeholder Platform and Project Board;
- Engage women's involvement in participatory monitoring and evaluation, including under Output 3.1 and Outcome 4;
- Involve women from local communities in environmental awareness raising activities for various target groups.

183. The following gender-disaggregated indicators will be measured in the project Results framework:

- Objective: Number of direct project beneficiaries, % of which are women.
- Outcome 2: Number of gender-sensitive policies and guidelines for the responsible management of gold mining updated or approved by end of project
- Outcome 3: Number of small scale miners using environmentally responsible mining practices in the pilot sites by the end of the project, percentage of which are women
- Outcome 3: Number of people accessing improved health and education services through the MTECs

[77] GEN2 is a "gender mainstreamed initiative", meaning that "gender equality is not the main objective of the expected output, but the output promotes gender equality in a significant and consistent way"

[78] Eftimie et al. (2012). Artisanal and Small-Scale Mining A Rapid Assessment Toolkit. World Bank

- Outcome 3: Number of people implementing alternative income generating activities by end of project, % of which are women

IV. SOUTH-SOUTH AND TRIANGULAR COOPERATION (SSTRC):

184. South-South cooperation will be ensured through exchanges with neighbouring countries, who are also involved in improving the management of ASM activities, including French Guiana, Guyana and Brazil. The project will directly support this South-South cooperation through Output 4.3, in which regional platforms, such as the Guiana Shield Facility and the Sustainable Development Solutions Network will be used to support knowledge sharing. Project support will include provisions for miners to also partake in study tours to other countries in the region to witness and share experience on environmentally responsible mining techniques.

185. This knowledge sharing will also include the sharing of lessons learned from the project's outputs, in particular the outcomes of the MTEC model as a potential upscalable innovation, as well as the financing mechanisms that could also be extended to the region. Exchange visits, the development and publication of knowledge products and contribution to regional fora will also be pursued.

V. FEASIBILITY

Cost efficiency and effectiveness:

186. The various options for delivering project activities and achieving project results were examined in light of expected benefits as related to expected costs. A particular consideration in the cost efficiency analysis was the the need to maximize the likelihood of long-term sustainability and availability of long-term finance for upscaling project results. Another key consideration was the cost-effectiveness of proposed ERM practices, to ensure that financial risks and investment costs required by miners to apply best practices are reduced, and that benefits outweigh the potential costs of changes.

187. Throughout the project, the national government, public institutions and private companies have committed to contribute significant cash and in-kind co-financing (i.e., labour, infrastructure, financing), thereby reducing the up front costs involved in implementing the project. The partners that have been identified will provide technical inputs and management assistance that will contribute to the efficiency and effectiveness of the project. The project will strengthen a network of national and local organizations that will contribute to the implementation of more environmentally responsible mining practices, thus contributing to national environmental priorities.

188. Under Outcomes 1 and 2 , the project seeks to train the national government and institutions to develop an enabling legal framework for the application of ERM practices. The preferred approach for these two outcomes relies on two pillars that maximize cost- efficiency and effectiveness. First, the project's work on policy and legal reform will be undertaken in a cross-cutting manner, throughout the governmental structures, and involving all relevant partners. This will help overcome current barriers to the adoption of revised policies and regulatory instruments.

189. Second, under Outcome 3, the project will design a different kind of mining extension model, which is more cost effective than the usual practice of government-led, enforcement-focused model - and therefore seldom used – system. To deliver this, the project will work with NGOs that have more hands-on knowledge and that can help circumvent the ongoing trust issues between miners and government. The MTEC model is designed to become self-sufficient and self-financing, by building on partnerships with partners such as private sector and large- scale mining enterprises that wish to increase their corporate social responsibility. In addition, the long-term perspective for MTECs will include some form of self-financing by miners, since it is expected that MTECs will provide essential services that miners will be willing to pay for – including maintenance and spare parts for equipment. The model also departs from previous experience in that it seeks

to identify concrete incentives for miners to attend MTEC trainings or to apply ERM practices, which will create a feedback loop and pave the way for sustainability.

190. Under Outcome 3, the project seeks to disseminate environmentally responsible practices in gold mining. Based on previous experiences in the region that were not successful, the project hopes to achieve maximum dissemination and adoption rates for ERM practices through the identification of incentives, but – most importantly – through the demonstration that the application of these practices can actually lead to increased gold recovery and therefore income. In order to maximize the number of miners reached by the project, it was decided to install one demonstration site in a place where no mining is taking place – which induces a certain amount of costs (such as transporting and securing the ore) - but where very high traffic is expected, since most miners pass through the site on the way to market, to purchase equipment or to seek labor, social services and connections. As demonstrated in the preliminary assessment undertaken during project preparation, the implementation of the suite of proposed ERM practices is expected to lead to significant gains in income, while being implementable with only incremental additional costs to the miners. The Targeted Scenario Analysis undertaken under Output 2.3 will also contribute to documenting this cost-effectiveness and other benefits to miners.

191. Overall, and given the structural constraints faced by the small-scale mining sector in Suriname, the options selected for the project's implementation represent, as a whole, the most cost-efficient and effective manner of achieving the project's goals.

Risk Management:

192. As per standard UNDP requirements, the Project Manager will monitor risks quarterly and report on the status of risks to the UNDP Country Office. The UNDP Country Office will record progress in the UNDP ATLAS risk log. Risks will be reported as critical when the impact and probablity 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 to critical risks will also be reported to the GEF in the annual PIR.

Table 6: Risk Log

Project Risks				
Description	Type	Impact & Probability	Mitigation Measures	Owner
The next presidential elections will take place during the project (2020) and could change the level of political support for the project.	Political / institutional	I: 4 P: 2	The project will work with varied stakeholders in and outside of government and ensure all have a clear understanding of the project and its potential benefits (inform key allies within government). The project also builds on existing commitments to improving the management of mining, including through adhesion to the Extractive Industry Transparency Initiative, ongoing participation in the Intergovernmental Forum on Mining, and the revisions to key laws and codes, which is currently under way.	UNDP Ministry of Natural Resources NIMOS
Weak willingness and capacity on the part of government institutions to develop and approve stronger	Political / institutional	4	Work with all stakeholders throughout the project to build support for policy reforms. Target policy reforms that are achievable such as inclusion of gender in	UNDP

policies to manage the environmental impacts of mining			ongoing revisions to the Mining decree, revision of guidelines and the development of a Mining Action Plan and Strategy.	
Private sector lobby groups and government members may seek to influence and divert intentions in policy making	Political	I: 3 P: 5	Work with private sector and government, including political partners, to gradually develop consensus; increase support to the private sector's efforts to achieve corporate social responsibility by identifying concrete environmental measures to which they can contribute. The project will work with private sector to highlight the benefits of improving the management of mining including through TSA scenarios, and output 2.3, which will be aimed towards gold buyers and users.	MNR NIMOS
International gold price fluctuation could lead to gold rush	Financial	I: 3 P: 2	Promote environmentally responsible mining practices (whole mining cycle) that also lead to increased cost-efficiency of the mining cycle (i.e., increased income per unit of labour) Train miners and miners associations on these mining practices Raise awareness among mining communities Develop a Mining Action Plan and Strategy to better plan mining activity in the country.	MNR NIMOS
Potential conflicts between the numerous stakeholders may arise leading to project management difficulties	Organisational	I: 3 P: 2	The project will follow a clear work schedule assigned to each project participant, an efficiently organized Project Board, supported by a Technical Advisory committee and a capable project manager with the technical and organizational competencies to manage complex projects and with the authority to enforce the project schedule.	UNDP
Capacity constraints to execute GEF projects	Institutional	I:4 P:3	Previous GEF projects in Suriname have not always been able to achieve all their expected Outcomes due primarily to institutional weaknesses, insufficient project ownership, political instability (e.g., frequent change in Ministers) and capacity limitations. The government and UNDP have therefore decided to employ the entire STAR allocation on one project so that efforts can be channelled into one project rather than being diverted over several smaller projects. This will facilitate government execution and UNDP oversight. In addition, UNDP support to NIM will be arranged and responsible parties will be designated to	MNR NIMOS UNDP

			support the work with MTECs. Synergies with the REDD+ work to be undertaken in the country will be sought to maximize impact. Regarding the issue of possible shortages of qualified individuals to carry out project-related actions, for consultancies that may fall into this category, the hiring process may be opened up to foreign Dutch speaking experts.	
Local communities are not willing to participate in the demonstration projects or to learn about sustainable mining techniques because they fear enforcement measures, or because they perceive technologies to be more expensive, or for cultural reasons.	Technical	I: 4 P: 2	Social and economic incentives will be promoted through the MTEC to miners and communities; sustainable financing mechanisms will also be explored to reduce costs of transitioning to ERM practices. The project will also clearly demonstrate, through the Targeted Scenario Analysis, that mining incomes can be significantly increased or labour costs decreased, through the use of promoted ERM practices. Participatory community consultations during project inception will ensure that the project works with miners who volunteer and groups who express and demonstrate a commitment to the project's objectives.	MNR NIMOS
Climate change impact in the region could lead to precipitation changes, including flooding and severe precipitation – as well as prolonged dry periods. Flooding could render the project sites inaccessible, and some of the mines in and around MTECs unusable. Climate change may also reduce the viability of coastal agriculture, leading to an influx of workers in the mining sector	Environmental	I: 2 P:1	The project will only work in existing mining sites. Tailings management and soil stabilization technologies will be promoted to reduce the risks of erosion and landslides in cases of severe weather. In addition, the project will also work to create or maintain forest carbon sinks, and reduce pollution in water bodies. Should project sites become unreachable, the project will increase the training that is made available in Snesi Kondre, which is more easily accessible, or will increase the portion of training made available to other sites, on a roving basis. The project will carefully monitor the influx of people in the mining sector in relation to climate variability and gold prices, and will develop targeting strategies that allow new mining participants to benefit from the training provided by the MTECs. This will be ensured through local governments and traditional authorities, in coordination with the miners´ registration process.	UNDP NIMOS MNR

Social and environmental safeguards

193. Any environmental and social grievances will be reported to the GEF in the annual PIR. During the project preparation phase phase, the project's Social and Environmental Screening (SESP) resulted in a **Moderate category of risks** (See Annex F). The main risks identified, which are low to moderate, are listed below, along with proposed mitigation strategies:

Table 7: Environmental and Social Risks indentified during project preparation

Risk Description	Impact and Probability (1-5)	Significance (Low, Moderate, High)	Comments	Description of assessment and management measures as reflected in the Project design. If ESIA or SESA is required note that the assessment should consider all potential impacts and risks.
Risk 1: The Project involves assisted natural regeneration and reforestation for mine rehabilitation	I = 1 P = 1	Low	The project will take place on deforested land, used for gold mining extraction and will focus on regenerating only the areas already deforested and completely mined-out.	The project will undertake restoration of forest through mine rehabilitation and re-landscaping practices and assisted natural regeneration of forests in order to conserve biodiversity of the forest and create carbon stocks.
Risk 2: There are indigenous peoples present in the Project area	I = 2 P = 2	Moderate	The project is taking place in an area where maroon groups reside.	The project does not intend to challenge traditional land ownership rights. Maroon groups peoples have been consulted and have expressed their interest in participating in the project. The project will support the rights and aspirations of indigenous peoples. Free and Prior Informed Consent will be sought before any project activity takes place that could affect indigenous people. The project interventions seek to improve the well-being of local communities including indigenous people, by reducing the degradation of natural resources upon which they depend (e.g., water for drinking, washing and bathing; forests for various purposes, etc.)
Risk 3: The Project will be located on lands and territories claimed by indigenous (Maroon) peoples	I = 3 P = 5	Moderate	All locations where artisanal small-scale mining occurs are either part of a formal concession – either titled to a multinational company or to a Suriname firm or individual – or part of a traditional Indigenous or Maroon land claim.	The project will support the rights and aspirations of indigenous peoples by ensuring free prior informed consent, and will ensure that indigenous groups and tribes are given an equal opportunity to access the project's activities and benefits.

194. Several consultations were carried out during the preparation phase, engaging a wide range of stakeholders in the project target regions (e.g., miners, traditional authorities, NGO and CBO representatives, representatives of research institutes and associations, public institutions, etc). These consultations helped identify environmental challenges and

barriers to implementing the project's solution and the project design was adjusted accordingly to reflect the specific needs of target beneficiaries (please refer to the Annex R)

VI. SUSTAINABILITY AND SCALING UP:

195. The project's guiding principles (Section III) will contribute to foster sustainability of interventions after the seven years of project implementation through the following means:

196. Institutional sustainability: The project will work to set up an enabling environment in which the GoS will be able to better control and monitor the ASGM operations as a result of the updates of mining regulations, policies and guidelines. In addition, institutions will have more capacity to implement these updated regulations, policies and guidelines, as they will have received training and capacity building on implementing and promoting environmentally responsible mining techniques. The project will also support NIMOS's Environmental Planning and Information Office (EPIO) in the delivery of its mandate, and will create mechanisms for the near real-time monitoring of environmental issues in ASGM areas. Funding mechanisms to increase financial resources in the mining sector will be established as part of Outcome 1 and will sustain the government's enforcement of regulations and guidelines and management of ASGM , ,and will contribute to provide incentives to miners to better manage the environmental impacts of mining, before they move to the next mine.

197. The project will also contribute to an increase in the knowledge base that will inform policy-making related to ASGM, including by developing key information items such as biodiversity census, forest carbon assessments, and land use change mapping. The project will also record lessons learned during the project implementation into annual reports as well as publications, which will be made accessible on an online platform to facilitate knowledge exchange on ASM and environmentally responsible mining technologies, as well as through other existing platforms and coordinating mechanisms, including regional coordinating mechanisms and the Intergovernmental Forum on Mining. These knowledge exchange platforms will also welcome lessons learned from other regional projects on ASM in the Guianas and will serve government stakeholders in Suriname and the Guianas as a whole.

198. Environmental sustainability will also be supported by promoting a learning-by-doing approach and a multi-stakeholder engagement through MTECs through three pilot sites: ASGM operators will be trained on environmentally responsible practices over the whole mine life cycle and will be able to replicate these methods in the next mining site they move to. In addition, the awareness raising campaign on the negative effects of current mining practices combined with the results of the TSA study comparing the business-as-usual scenario to more environmentally responsible mining techniques will increase the commitment of miners to scale-up these methods. It is expected that this approach will provide the strongest incentive for upscaling and replication, which is the assumption that miners who apply improved ERM practices will increase their incomes and profit from gold mining, while protecting the environment.

199. Financial sustainability will be supported by identifying a set of mutually reinforcing incentives, self-financing, and scaling up mechanisms including: the provision of targeted social services at MTEC locations to encourage miners and their families to use the facilities as part of their commitment to implement ERM practices; the development of financial mechanisms for the rehabilitation of spent mining sites, including fiscal and price-based incentives and those designed in partnership with large scale mining companies and private sector; creating an enabling legal and institutional framework for the implementation of ERM practices; working with the gold buyers and users to increase demand for ER gold, including through promotion of awareness of internationally recognised standards, among others.

200. Furthermore, the project will ensure that each NGO managing a MTEC will be paired with a local group or association whose mandate will be to take on the MTEC after project completion. MTEC responsible parties will be tasked with building the capacity of these national partners, as part of the strategy to become self-sustained by the end of the project.

VII. PROJECT RESULTS FRAMEWORK

Improving Environmental Management in the Mining Sector of Suriname, with Emphasis on Gold Mining						
This project will contribute to the following Sustainable Development Goal (s): SDG 3 (Good Health and Well-being); SDG 5 (Gender Equity); SDG 6 (Clean Water and Sanitation); SDG 12 (Responsible Consumption and Production); SDG 13 (Climate Action); SDG 15 (Life on Land).						
This project will contribute to the following country outcome included in the UNDAF/Country Programme Document: 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.						
This project will be linked to the following output of the UNDP Strategic Plan: Output 1.3: Solutions developed at national and sub-national levels for sustainable management of natural resources, ecosystem services, chemicals and waste.						
	Objective and Outcome Indicators	**Baseline**	**Mid-term Target (Expected level of progress by completion of 3rd or 4th GEF PIR)**	**End of Project Target (Expected level when terminal evaluation undertaken)**	**Means of Verification**	**Assumptions**
Project Objective: To improve the management of artisanal and small-scale gold mining in Suriname (ASGM) and promote uptake of environmentally responsible mining technologies in order to reduce the negative effects on biodiversity, forests, water, and local communities, while also reducing greenhouse gas emissions						
	# direct project beneficiaries (number of miners and local community members who benefit directly from the project disaggregated by sex)	0 men, 0 women	300 miners and local community members (100 per site, among which 10% are women)	600 direct beneficiaries (miners and local community members) (200 per site, among which 10% are women)	Review of project reports and MTEC attendance data	Active participation and engagement of women and men in the project to ensure that they will fully benefit from the project outcomes.

Sustainable Forest Management (SFM) and Biodiversity (BD) related indicator	Number of hectares forest and habitat conserved as a result of promotion of environmentally responsible mining practices, by end of project	5 ha of forest per year, per mining operation, are cleared to mine (est. 2016)	500 ha of forest conserved, in the 2 sites of North of Lake Brokopondo	1500 ha of forest conserved, in the 2 site of North of Lake Brokopondo	Survey of participating mining groups, Review of physical assessments,	Miners are willing to use more environmentally responsible gold mining techniques, over the whole mine life cycle, and incentives for the adoption of ERM techniques are sustainable in the long-term
SFM and BD indicator	Number ha of land under improved management to protect globally significant biodiversity through strengthened planning and management as a result of the project	NA as project has not yet begun	NA	2,400,000 ha (area of the Greenstone belt)	Approval of mining guidelines and policies to strengthen management of land under mining in the Greenstone Belt, capacity index of institutions charged with managing ASGM	

Climate Change Mitigation (CCM) indicator	Number of tons of CO_2 emissions mitigated through avoided deforestation, by end of project	643,000 tons of CO_2 emitted through deforestation due to ASM mining activities (scenario without project)	600,000 tCO_2e reduced through avoided deforestation and rehabilitation of forest by mid-term	1,227,961 million tCO_2e reduced through avoided deforestation and rehabilitation of forest by end of project	Review exact simulation based on results of miner surveys (above); Field surveys and carbon inventories under output 1.3, and tracking tool	All participating miners agree not to clear new mining sites and exploration uses responsible practices throughout the area of the project
Outcome 1: Institutional capacity, inter-institutional coordination and availability of funding increased for improved management of ASGM	Level of institutional capacity for planning, management and dissemination of environmentally responsible ASGM and for inter-institutional cooperation among central government institutions with a mandate related to ASM, as measured through a capacity scorecard and the availability of improved policy and regulatory instruments	1.2 on a scale of 0 to 3; there are no improved policy or regulatory documents	An improvement of 25% in capacity (a score of at least 1.5) among the key government institutions with a mandate related to ASGM, as measured through a capacity scorecard (self-assessment) by mid-term	An improvement of 35% (a score of at least 1.62) in capacity among the key government institutions with a mandate related to ASGM, as measured through a capacity scorecard (self-assessment) by end of project	Capacity Score Card (see Appendix Q); policy and regulatory documents;	Institutions are willing to receive training on improved management of gold mining The political will to improve the management of ASM sector is present among the government institutions.

	Avenues for sustainable, reliable and predictable funding/ incentives to support upscaling of ERM practices	There are currently no predictable sources of funding for the upscaling of ERM practices.	A stock take of available options is completed by mid-term	At least one sustainable, predictable funding mechanism is adopted and steps are taken towards its operationalization	Project reports and financing reports	There is ongoing interest among private sector, large scale mining operations and government authorities to mobilize resources towards environmental rehabilitation and alternative livelihoods
	Percentage of total area of small and medium scale mining operations with regular monitoring through near real-time deforestation monitoring in mining zones	While there currently is ad hoc monitoring of deforestation on at least a portion of the forest belt, none of the ASGM affected area is subject to near-real time monitoring. Baseline data will be confirmed and refined during inception	At least 20% of the ASGM affected area is under near-real time monitoring by mid-term. Targets to be confirmed and refined during project inception	At least 50% of the ASGM affected area is under near-real time monitoring by end of project. Targets to be confirmed and refined during project inception	Remote sensing (Landsat and Sentinel satellite data, available free of charge), drone mapping (aerial photography), and in-field data collection). The data collected will be transmitted to SBB and OGS and will also be integrated into the National Forest Monitoring System	SBB will coordinate this work in line with similar operations it is conducting related to illegal logging in other areas, in cooperation with GMD and OGS.
Output 1.1: Institutional and technical capacity of central and district government institutions to monitor ASGM, to promote environmentally responsible practices and to coordinate their actions increased						
Output 1.2: Funding opportunities to address the negative social and environmental impacts of gold mining and for miners to adopt environmentally responsible mining practices increased						
Output 1.3 A stronger knowledge base on forests, land use and land use change in place to inform better policy planning and enforcement for ASGM						

Outcome 2: Policy and planning framework for the management of the environmental impacts of ASGM strengthened	Number of gender-sensitive policies and guidelines for the responsible management of gold mining and for sustainable forest management updated and approved by end of project and beginning to be implemented.	There is currently 1 Environmental Assessment Guideline, the Mining Code is under revision, there is no Mining Strategy or Action Plan; some guidelines are under development as related to mercury use, including a potential mercury recovery strategy. Gender elements are under-represented in these existing texts	1 set of gender-targeted technical guidelines on ERM practices for exploration, processing, refining and decommissioning and rehabilitation is developed at mid-term	One Gender-responsive ERM policy and associated guidelines are approved by end of project and beginning to be implemented; provisions related to licensing and permitting have been updated to include ERM practices and reporting requirements by end of project	Legal and official documents	Political will of relevant ministries is sufficient to update policies, strategies and plans for the sustainable management of gold mining.
	Existence of a Responsible Mining Strategy and Action Plan to guide ASGM in a sustainable fashion	No Mining Strategy has been developed to guide ASGM	Draft Responsible Mining Strategy and Action Plan available, developed in a participatory manner	Approved gender-sensitive Responsible Mining Strategy and Action Plan for ASGM to guide activities in a sustainable fashion	Official documents	Political will of relevant ministries is sufficient to develop strategy for the sustainable management of ASGM. Key stakeholders are able to reach consensus for the development of such a strategy.
Output 2.1: Policies and guidelines developed/ updated to support environmentally responsible ASGM practices						
Output 2.2: Mining Strategy and Action Plan developed, increasing the integration of environmental considerations in gold mining operations						
Output 2.3 Targeted Scenario Analysis studies carried out to document the costs and benefits of current practices compared to environmentally responsible ASGM practices						

Outcome 3: Uptake of environmentally responsible artisanal and small-scale gold mining practices increased	Existence of a sustainable system for the dissemination, uptake and monitoring of environmentally responsible ASM practices at local level	O MTECs established	Protocols, Incentives and infrastructure for the 3 MTEcs agreed and established my mid-term	3 MTECs are operational and providing services to miners in a self sustaining manner in the three sites	Field assessments by MTEC staff; surveys of participating miners and communities; project reports; surveys of policy-makers. The survey targeting decision makers will also measure their level of understanding of the costs and benefits of current techniques versus more environmentally	Ministries and technical partners will collaborate on the design and development of MTECs as mechanisms to disseminate best ASGM practices. Avenues will be identified for the successful delivery of incentives for miners.

	Number of small scale miners, % of which are women, implementing at least 75% of the environmentally responsible mining practices promoted in the project sites, (such as sustainable exploration, establishment of tailing ponds, responsible practices for decommissioning, rehabilitation of sites, and methods to reduce mercury, among others)	No miners in the pilot sites are using environmentally responsible mining practices	By mid-term, 300 miners (of which at least 10% are women) use at least 75% of the available environmentally responsible techniques, in the three demonstration sites	600 miners (of which 10% are women) use at least 75% of the environmentally responsible techniques, in the three demonstration sites by end of project	responsible techniques	The local mining communities are engaged and willing to adopt proposed improved mining techniques.
	Reduction in the Hg: Au ratio	Hg:Au ratio is 3.34:1 (2016 estimate)	A Hg:Au ratio of 2.5:1 in year 4 of the project in the demonstration sites, is achieved by 300 miners	A Hg:Au ratio of 1:1 is achieved by beneficiary miners at the end of the project		The local mining communities are engaged and willing to adopt proposed improved mining techniques.
	Number of people accessing improved health and other social services through the MTECs, % of which are women	0 people	At least 500 people access improved services at MTECs	At least 1000 people access improved services at MTECs		Sustainable financing by the social development partners to the project is maintained throughout the project, and mining communities can easily access services

	Number of people implementing alternative income generating activities by end of project, % of which are women	0 people	100 people implement alternative income generating activities, of which 50% are women by mid-term	200 people implement alternative income generating activities, of which 50% are women by end of project		
	Level of awareness among population in project area and key decision-makers of environmental and health impacts of current small and medium-scale gold mining using non-environmentally responsible techniques and benefits of more environmentally responsible techniques and practices	TBD	An increase in 30% of awareness as determined by the surveys	An increase of 50% in awareness		Decision-makers, gold buyers and users are willing to participate in awareness raising and training activities supported by the project.
Output 3.1 Mining Training and Extension Centers (MTECs) for the dissemination and monitoring of environmentally responsible ASGM practices are in place, and incentives for their broader adoption are identified and piloted						
Output 3.2: Environmentally sound practices for gold mining showcased and implemented in three demonstration locations						
Output 3.3 Alternative livelihoods identified and piloted in Nieuw Koffiekamp and Kompaniekreek						
Output 3.4 Knowledge exchange among miners facilitated to promote upscaling of environmentally responsible ASGM practices						
Output 3.5 Awareness raised among gold buyers and users regarding impacts of ASGM, increasing demand for sustainably mined gold						

Outcome 4: Knowledge availability and sharing increased at the national and regional scale on environmentally responsible ASGM	Level of regional knowledge sharing and learning with Brazil, Guyana and French Guiana on environmentally responsible mining as measured by survey to be administered to participants of relevant regional fora, such as the Sustainable Development Solutions Network and the Sustainable Gold Platform in which Suriname stakeholders participate and at which ASGM is discussed	A limited number of Surinamese government stakeholders participate in venues of the regional platforms, on an ad hoc basis. Limited discussion of environmental issues related to ASGM	Survey indicates that knowledge on ASGM was exchanged through at least 3 meetings by mid-term and indicates that at least 75% of respondents increased their learning on these issues	Survey indicates that knowledge on ASGM was exchanged through at least 5 regional meetings with plans and resources to continue, by end of project and that 75% of respondents increased their learning on these issues.	Project reports, meeting reports; capacity scorecard	Institutions in Suriname are willing to share and collaborate knowledge generated through M&E activities with neighbouring countries' institutions.
	Number of knowledge products by the project that are produced and disseminated regionally	0 knowledge products	By Mid-term, at least 3 knowledge products have been produced.	By end of project, 7 number of knowledge products as well as one technical report on lessons learned have been published in local languages and in English, and shared among the related national and regional networks	Project publications, project reports	
Output 4.1 Communication and knowledge management strategy implemented, raising awareness of decision-makers, the general population and key stakeholders of the negative impacts of business as usual compared to more environmentally responsible ASGM						
Output 4.2: Project M&E system established to support learning and adaptive management						
Output 4.3: Regional Cooperation mechanism consolidated, promoting information exchange with neighbouring countries of the Guianas on best environmental practices in ASGM						

VIII. MONITORING AND EVALUATION (M&E) PLAN

201. The project results as outlined in the project results framework will be monitored annually and evaluated periodically during project implementation to ensure the project effectively achieves these results.

202. Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the UNDP POPP and UNDP Evaluation Policy. While these UNDP requirements are not outlined in this project document, the UNDP Country Office will work with the relevant project stakeholders to ensure UNDP M&E requirements are met in a timely fashion and to high quality standards. Additional mandatory GEF-specific M&E requirements (as outlined below) will be undertaken in accordance with the GEF M&E policy and other relevant GEF policies[79].

203. In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report. This will include the exact role of project target groups and other stakeholders in project M&E activities including the GEF Operational Focal Point and national/regional institutes assigned to undertake project monitoring. The GEF Operational Focal Point will strive to ensure consistency in the approach taken to the GEF-specific M&E requirements (notably the GEF Tracking Tools) across all GEF-financed projects in the country. This could be achieved for example by using one national institute to complete the GEF Tracking Tools for all GEF-financed projects in the country, including projects supported by other GEF Agencies. [80]

M&E Oversight and monitoring responsibilities

204. Project Manager: The Project Manager is responsible for day-to-day project management and regular monitoring of project results and risks, including social and environmental risks. The Project Manager will ensure that all project staff maintain a high level of transparency, responsibility and accountability in M&E and reporting of project results. The Project Manager will inform the Project Board, the UNDP Country Office and the UNDP-GEF RTA of any delays or difficulties as they arise during implementation so that appropriate support and corrective measures can be adopted.

205. The Project Manager will develop annual work plans based on the multi-year work plan included in Annex A, including annual output targets to support the efficient implementation of the project. The Project Manager will ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality. This includes, but is not limited to, ensuring the results framework indicators are monitored annually in time for evidence-based reporting in the GEF PIR, and that the monitoring of risks and the various plans/strategies developed to support project implementation (e.g. gender strategy, KM strategy etc..) occur on a regular basis.

206. Project Board: The Project Board will take corrective action as needed to ensure the project achieves the desired results. The Project Board will hold project reviews to assess the performance of the project and appraise the Annual Work Plan for the following year. In the project's final year, the Project Board will hold an end-of-project review to capture lessons learned; discuss opportunities for scaling up;highlight project results and lessons learned with relevant audiences; and discuss a project exit strategy to ensure sustainability of impact. This final review meeting will also discuss the findings outlined in the project terminal evaluation report and the management response.

207. Project Implementing Partner: The Implementing Partner is responsible for providing any and all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary and appropriate. The Implementing Partner will strive to ensure project-level M&E is

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

[80] See https://www.thegef.org/gef/gef_agencies

undertaken by national institutes, and is aligned with national systems so that the data used by and generated by the project supports national systems.

208. UNDP Country Office: The UNDP Country Office will support the Project Manager as needed, including through annual supervision missions. The annual supervision missions will take place according to the schedule outlined in the annual work plan. Supervision mission reports will be circulated to the project team and Project Board within one month of the mission. The UNDP Country Office will initiate and organize key GEF M&E activities including the annual GEF PIR, the independent Mid-Term Review (MTR) and the independent Terminal Evaluation (TE). The UNDP Country Office will also ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality.

209. The UNDP Country Office is responsible for complying with all UNDP project-level M&E requirements as outlined in the UNDP POPP. This includes ensuring the UNDP Quality Assurance Assessment during implementation is undertaken annually; that annual targets at the output level are developed, and monitored and reported using UNDP corporate systems; the regular updating of the ATLAS risk log; and, the updating of the UNDP gender marker on an annual basis based on gender mainstreaming progress reported in the GEF PIR and the UNDP ROAR. Any quality concerns flagged during these M&E activities (e.g., annual GEF PIR quality assessment ratings) must be addressed by the UNDP Country Office and the Project Manager.

210. The UNDP Country Office will retain all M&E records for this project for up to seven years after project financial closure in order to support ex-post evaluations undertaken by the UNDP Independent Evaluation Office (IEO) and/or the GEF Independent Evaluation Office (IEO).

211. UNDP-GEF Unit: Additional M&E and implementation quality assurance and troubleshooting support will be provided by the UNDP-GEF Regional Technical Advisor and the UNDP-GEF Directorate as needed.

212. Audit: The project will be audited according to UNDP Financial Regulations and Rules and applicable audit policies on NIM implemented projects.[81]The audit will be covered with co-financing resources.

Additional GEF monitoring and reporting requirements:

213. Inception Workshop and Report: A project inception workshop will be held within two months after the project document has been signed by all relevant parties to, amongst others:

a) Re-orient project stakeholders to the project strategy and discuss any changes in the overall context that influence project implementation;

b) Discuss the roles and responsibilities of the project team, including reporting and communication lines and conflict resolution mechanisms;

c) Review the results framework and the indicators, means of verification and monitoring plan;

d) Discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E budget; identify national/regional institutes to be involved in project-level M&E; discuss the role of the GEF OFP in M&E;

e) Update and review responsibilities for monitoring the various project plans and strategies, including the risk log; Environmental and Social Management Plan and other safeguard requirements; the gender strategy; the communication and knowledge management strategy, and other relevant strategies;

[81] See guidance here: https://info.undp.org/global/popp/frm/pages/financial-management-and-execution-modalities.aspx

f) Review financial reporting procedures and mandatory requirements, and agree on the arrangements for the annual audit; and

g) Plan and schedule Project Board meetings and finalize the first year annual work plan.

214. The Project Manager will prepare the inception report no later than one month after the inception workshop. The inception report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and will be approved by the Project Board.

215. GEF Project Implementation Report (PIR): The Project Manager, the UNDP Country Office, and the UNDP-GEF Regional Technical Advisor will provide objective input to the annual GEF PIR covering the reporting period July (previous year) to June (current year) for each year of project implementation. The Project Manager will ensure that the indicators included in the project results framework are monitored annually in advance of the PIR submission deadline so that progress can be reported in the PIR. Any environmental and social risks and related management plans will be monitored regularly, and progress will be reported in the PIR.

216. The PIR submitted to the GEF will be shared with the Project Board. The UNDP Country Office will coordinate the input of the GEF Operational Focal Point and other stakeholders to the PIR as appropriate. The quality rating of the previous year's PIR will be used to inform the preparation of the subsequent PIR.

217. Lessons learned and knowledge generation: Results from the project will be disseminated within and beyond the project intervention area through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to the project. The project will identify, analyse and share lessons learned that might be beneficial to the design and implementation of similar projects and disseminate these lessons widely. There will be continuous information exchange between this project and other projects of similar focus in the same country, region and globally.

218. GEF Focal Area Tracking Tools: The following GEF Tracking Tool(s) will be used to monitor global environmental benefit results: CCM tracking tool, SFM Tracking tool, and BD Tracking tool.

219. The baseline/CEO Endorsement GEF Focal Area Tracking Tool(s) – submitted in D to this Project Document – will be updated by the Project Manager/Team and shared with the Mid-Term Review consultants and Terminal Evaluation consultants (the updating of the tracking tools will not be carried out the evaluation consultants hired to undertake the MTR or the TE) before the required review/evaluation missions take place. The updated GEF Tracking Tool(s) will be submitted to the GEF along with the completed Mid-term Review report and Terminal Evaluation report.

220. Independent Mid-term Review (MTR): An independent Mid-Term Review process will begin after the second PIR has been submitted to the GEF, and the MTR report will be submitted to the GEF in the same year as the 3rd PIR or the 4th PIR. The MTR findings and responses outlined in the management response will be incorporated as recommendations for enhanced implementation during the final half of the project's duration. The terms of reference, the review process and the MTR report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the UNDP Evaluation Resource Center (ERC). As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. The GEF Operational Focal Point and other stakeholders will be involved and consulted during the Mid-Term Review process. Additional quality assurance support is available from the UNDP-GEF Directorate. The final MTR report will be available in English and will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and approved by the Project Board.

221. Terminal Evaluation (TE): An independent Terminal Evaluation (TE) will take place upon completion of all major project outputs and activities. The Terminal Evaluation process will begin three months before operational closure

of the project allowing the evaluation mission to proceed while the project team is still in place, yet ensuring the project is close enough to completion for the evaluation team to reach conclusions on key aspects such as project sustainability. The Project Manager will remain on contract until the TE report and management response have been finalized. The terms of reference, the evaluation process and the final TE report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the UNDP Evaluation Resource Center. As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. The GEF Operational Focal Point and other stakeholders will be involved and consulted during the Terminal Evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate. The final TE report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and will be approved by the Project Board. The TE report will be publically available in English on the UNDP ERC.

222. The UNDP Country Office will include the planned project Terminal Evaluation in the UNDP Country Office evaluation plan, and will upload the final terminal evaluation report in English and the corresponding management response to the UNDP Evaluation Resource Centre (ERC). Once uploaded to the ERC, the UNDP IEO will undertake a quality assessment and validate the findings and ratings in the TE report, and rate the quality of the TE report. The UNDP IEO assessment report will be sent to the GEF IEO along with the project Terminal Evaluation report.

223. Final Report: The project's terminal PIR along with the terminal evaluation (TE) report and corresponding management response will serve as the final project report package. The final project report package shall be discussed with the Project Board during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.

Mandatory GEF M&E Requirements and M&E Budget

Table 8: Mandatory GEF M&E Requirements and related budget

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[82] (US$)		Time frame
		GEF grant	Co-financing	
Inception Workshop	UNDP Country Office	USD 5,000		Within two months of project document signature
Inception Report	Project Manager	None	None	Within two weeks of inception workshop
Standard UNDP monitoring and reporting requirements as outlined in the UNDP POPP	UNDP Country Office	None	None	Quarterly, annually
Participatory monitoring of indicators in project results framework (annual monitoring)	Project M&E Officer	126,000		Annually

[82] Excluding project team staff time and UNDP staff time and travel expenses.

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[82] (US$)		Time frame
		GEF grant	Co-financing	
GEF Project Implementation Report (PIR)	Project Manager and UNDP Country Office and UNDP-GEF team	None	None	Annually
NIM Audit as per UNDP audit policies	UNDP Country Office	None	35,000 USD 5,000 per year	Annually or other frequency as per UNDP Audit policies
Monitoring of environmental and social risks, and corresponding management plans as relevant	Project Manager UNDP CO	None		On-going
Addressing environmental and social grievances	Project Manager UNDP Country Office BPPS as needed	None		
Project Board, Stakeholder Platform, meetings	Project Board UNDP Country Office Project Manager	*40,820*	*50,000*	At minimum annually
Supervision missions	UNDP Country Office	None[83]		Annually
Oversight missions	UNDP-GEF team	None		Troubleshooting as needed
GEF Secretariat learning missions/site visits (as applicable)	UNDP Country Office and Project Manager and UNDP-GEF team – GEF Secretariat	None		To be determined.
Mid-term GEF Tracking Tool to be updated by	Project Manager	None		Before mid-term review mission takes place.
Independent Mid-term Review (MTR) and management response	UNDP Country Office and Project team and UNDP-GEF team	USD 33,000		Between 2nd and 3rd PIR.
Terminal GEF Tracking Tool to be updated by (add name of national/regional institute if relevant)	Project Manager	None		Before terminal evaluation mission takes place

[83] The costs of UNDP Country Office and UNDP-GEF Unit's participation and time are charged to the GEF Agency Fee.

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[82] (US$)		Time frame
		GEF grant	Co-financing	
Independent Terminal Evaluation (TE) and management response	UNDP Country Office and Project team and UNDP-GEF team	USD 40,000		At least three months before operational closure
TOTAL indicative COST Excluding project team staff time, and UNDP staff and travel expenses		*244,820*	*85,000*	

IX. GOVERNANCE AND MANAGEMENT ARRANGEMENTS

224. Roles and responsibilities of the project's governance mechanism: The project will be implemented following UNDP's support to national implementation modality (NIM), according to the Standard Basic Assistance Agreement between UNDP and the Government of Suriname, and the Country Programme for 2017-2021, as well as the Country Program which will be developed for the period 2022-2016.

225. The **Implementing Partner** for this project is the Ministry of Natural Resources, which will serve the function of Executive. The Implementing Partner is responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources (see Figure 7). The **Senior Supplier** is UNDP and the **Senior Beneficiaries** are NIMOS and the Office of the President. NIMOS will act as Responsible Party. Additional Responsible Parties may be designated during project implementation.

226. The project organization structure is as follows:

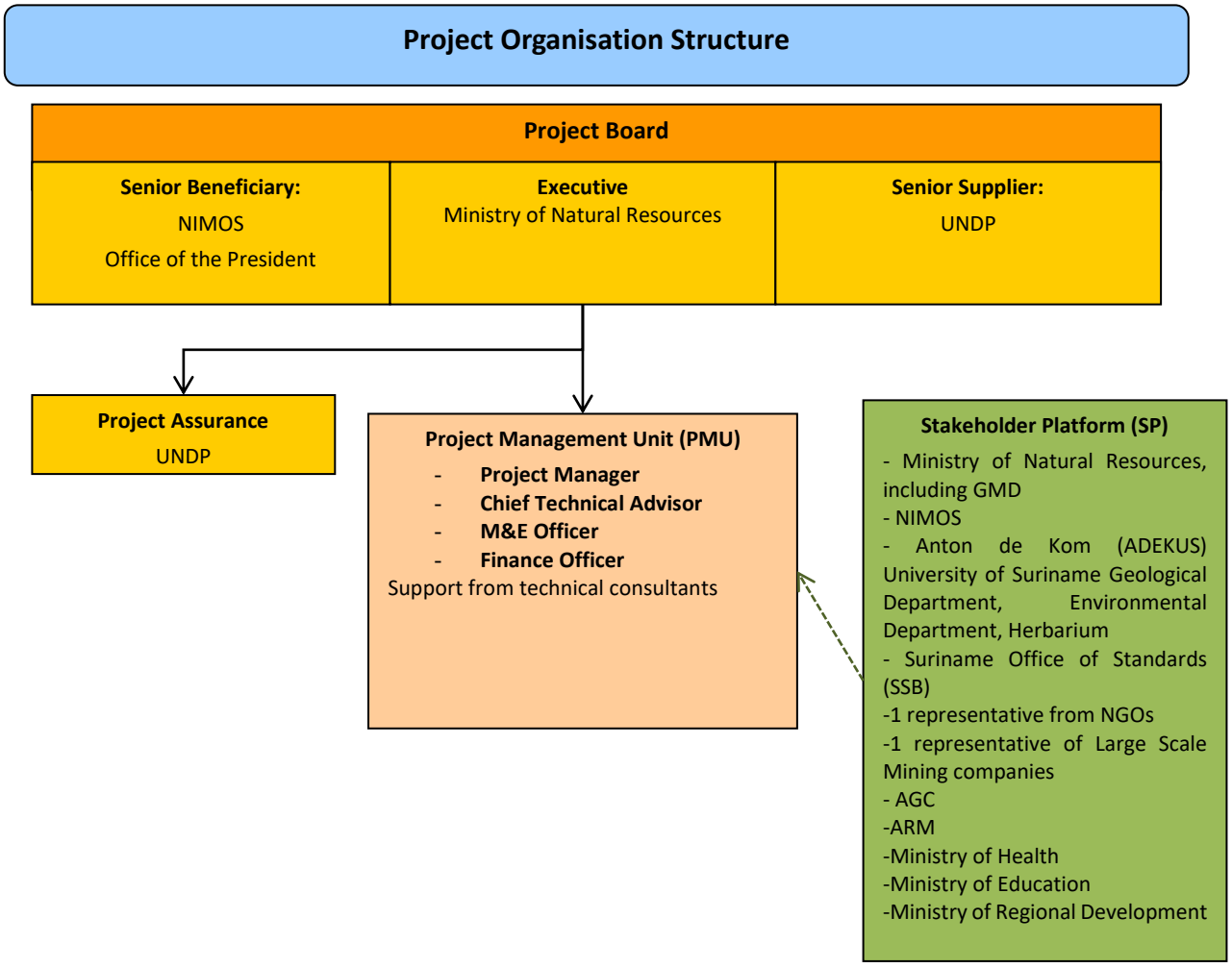


Figure 9: Project organization structure

227. The **Project Board (PB)**, chaired by MNR will be set up at the beginning of the project. The Project Board (PB), will be chaired by MNR and will be set up at the beginning of the project. The entire PB should meet at least

twice per year. Furthermore the Ministry of Natural Resources (NH- Dutch acronym) and NIMOS should be appointed as designated Project Board members in charge of overseeing the day to day activities and operations of the Project Management Unit. The PB will be responsible for making decisions by consensus, management decisions when guidance is required by the Project Manager, including recommendations for UNDP/Implementing Partner approval of Annual Work Plans, procurement and project plans and revisions. The designated PB members, MNR and NIMOS, will then play a critical role in weekly project monitoring and evaluation, by assuring quality of these processes and products, and using evaluations for performance improvement, accountability and learning. The PB's role as a whole will be to take into account the feedback and reporting of the designated PB members MNR and NIMOS to the whole board in order to ensure that required resources are committed to the project's objective, to arbitrate on any conflicts within the project, and to negotiate a solution to any problems with external bodies. If needed the PB can convene at any given moment within a year upon request of the designated PB members. The PB as a whole will be in charge of the appointment and overseeing the responsibilities of the Project Manager (PM) and any delegation of its Project Assurance responsibilities. In case a consensus cannot be reached within the Board, final decision shall rest with the UNDP Programme Manager.

228. Based on the approved Annual Work Plan (AWP), the PB can also consider and approve the quarterly plans (if applicable) and also approve any essential deviations from the original plans. The responsibilities of the PB will be to:

- Supervise and approve the annual work plans
- Suppervise and approve short term expert requirements;
- Supervise project activities through monitoring progress and approving annual reports;
- Provide strategic advice to the implementing institutions to ensure the project achieves its objectives and to ensure the integration of project activities with national and sub-national sustainable development and climate resilience objectives.
- Ensure inter agency coordination and cross-sectoral dissemination of strategic findings;
- Ensure full participation of stakeholders in project activities;
- Assist in organizing project reviews and contracting consultancies under technical assistance;
- Provide guidance to the Project Manager.
- Provide guidance regarding the technical feasibility of the project.

229. Membership of the PB shall include individuals or groups representing the interests of the parties concerned, which provide funding for specific cost sharing projects and/or technical expertise to the project. The draft terms of reference for the Project Board are contained in Annex E.

230. The **project assurance** function will be provided by the UNDP Country Office, specifically the Environment Programme Specialist, Gender advisor and focal point within the Country Office. Additional quality assurance will be provided by the UNDP Regional Technical Advisor.

231. The Project Management Unit (PMU) will be composed of:

- Project manager (PM),
- Chief Technical Advisor

- Monitoring and evaluation (M&E) specialist

- Finance and Administrative Officer

232. They will be assisted, on an ongoing basis, by technical experts and consultants who will be recruited to assist in the completion of project activities. The main consultants include an ASM specialist or geologist, and an Indigenous and Tribal People (ITP) community & stakeholder engagement specialist, who will provide long-term assistance. A list of consultants foreseen for recruitment is provided in Annex M, along with their tasks, deliverables and qualifications.

233. The **Project Manager** (PM) will run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the Board. The PM's function will end when the project's Terminal Evaluation report and other documentation required by the GEF and UNDP, will be completed and submitted to UNDP (including operational closure of the project). The PM's prime responsibility is to ensure that the project generates the results specified in the Project Document, including the required standard of quality within the specified constraints of time and cost.

234. The PM shall be supported by the **Finance and Administrative Officer**, who will prepare project financial reports on the use of resources and co-financing. He/she will supervise the financial implementation of project, signed agreements and sub-contracts. The **M&E specialist** will be responsible for the implementation of Outcome 4 on M&E of the project and knowledge management, in coordination with other members of the PMU. A **Chief Technical Officer** will provide technical support and backstopping to the National Project Manager (PM), staff and other government counterparts.

235. **Stakeholder Platform (SP)**: The SP will support the PB and the PMU on specific technical issues at the national level in the implementation of all Outcomes of the project. The SP will meet once per year, or more as needed. The composition of the SP is proposed as follows:

- Ministry of Natural Resources, including SBB and GMD
- NIMOS
- Anton de Kus (ADEKUS) University of Suriname Geological Department, Environmental Department, Herbarium;
- Suriname Office of Standards (SSB)
- 1 representative from NGOs
- 1 representative of Large Scale Mining companies
- Artisanal Gold Council (AGC)
- Alliance for Responsible Mining (ARM)
- Ministry of Health
- Ministry of Regional Development

236. There will be one **Local Advisory Committee** (LAC) per project site to advise on the management and operations of each MTEC (see Figure 9). These LACs will act as an advisory board or steering committee to support theimplementation of Outcome 3, as well as act as a multi-stakeholder platform at the local level, engaging the following stakeholders:

- NIMOS,
- Ministry of Natural Resources,
- 1 Community/village organization
- 1 women's organization,

- GMD-MINAS,
- OGS,
- District commissioner's office,
- Private sector actors in the area.

237. The Mining Training and Extension Centres (MTECs) will be operated by recognized NGOs, each according to their comparative advantage and experience (e.g., Artisanal Gold Council, Alliance for Responsible Mining), and which will be potential responsible parties of the project.

Financial Planning and Management

238. The total cost of the project is USD 29,721,041. This is financed through a GEF grant of USD 7,589,041 and USD 22,132,000 in parallel co-financing. UNDP, as the GEF Implementing Agency, is responsible for the execution of the GEF resources and the cash co-financing transferred to UNDP bank account only.

239. UNDP will provide targeted services to the project which will entail some Direct Project Costs as requested by the Government of Suriname. The UNDP, as GEF Agency for this project, will provide project management cycle services for the project as defined by the GEF Council. In addition, the Government of Suriname may request UNDP direct services for specific projects, according to its policies and convenience. The UNDP and Government of Suriname acknowledge and agree that those services are not mandatory, and will be provided only upon Government request. If requested, the services would follow the UNDP policies on the recovery of direct costs. These services (and their costs) are specified in the Letter of Agreement (Annex K). As is determined by the GEF Council requirements, these service costs will be assigned as Project Management Cost, duly identified in the project budget as Direct Project Costs. Eligible Direct Project Costs should not be charged as a flat percentage. They should be calculated on the basis of estimated actual or transaction based costs and should be charged to the direct project costs account codes: "64397- Services to projects – CO staff" or "74596 – Services to projects – GOE for CO".These have been calculated based on the 2017 UNDP Universal price list. Please refer to Annex K for detail.

240. Parallel co-financing: The actual realization of project co-financing will be monitored during the mid-term review and terminal evaluation process and will be reported to the GEF. The planned parallel co-financing will be used as follows:

Table 9: Cofinancing

Co-financing source	Co-financing type	Co-financing amount	Planned Activities/Outputs	Risks	Risk Mitigation Measures
Ministry of Natural Resources	In-kind	7,000,000	MNR will participate in project related training in terms of decision-making and environmental issues related to mining operations. They will actively contribute to Outputs 2.1, 3,1, 3.2, 3.5, 4.1, while be leading Output 2.1, 2.2, 4.2, 4.3, and Project Management.	A change in the government administration following next election may constitute a risk for the project, where resources may be redirected in other other ministries. However, due to the economic importance of the mining sector, mining should remain a priority for the next adrministrtion.	Ensure the mining sector remains a priority at the national level. Train the institution in managing the various elements of the project. Communication with key partners.

Co-financing source	Co-financing type	Co-financing amount	Planned Activities/Outputs	Risks	Risk Mitigation Measures
NIMOS	In-kind	1,400,000	NIMOS is focussing its efforts on enabling the access to all available research and studies in relation to environmental and social impacts includingdriers fr deforestation study. Under below listed Oututs, NIMOS will participate in administrative and logistic support including in the determination of gold processing guidelines for sustainable mining practices to be used. Its representatives will join efforts with other stakeholders and partners in participating in various commitees. Their effort will fall under the following Outputs: Output 1.1, Output 2.1, Output 3.2, Output 3.5. While they will be leading Outcome 1, Output 2.3, 3.3, 3.4, 3.5, and 4.1.	Core resources for NIMOS are low; there may not be sufficient capacity to deliver project outputs	Train the institution in managing the various elements of the project, Provide targeted financial support for the delivery of key outputs.
WWF-Guianas	Grant	932,000	WWF focuses its support to national gold mining policy making and mercury-free gold extraction. Their collaboration will be enforced under Outputs 2.1, 3.1, 3.2, and 4.3	Shortage or redirection of their budgets might influence their financial contribution throughout current project.	WWF support will be focused on the contribution of knowledge and data
Tulane University, School of Public Health and Tropical Medicine	Grant	1,600,000	Tulane Universiy co financing will support part of the assessment of the project's work on Mercury use and impacts on the environment and population. Their contribution will be used to help inform the mining strategy and action plan to increase the sustainability of gold mining practices. Additionnally, funds will be used to strengthen inter-regional cooperation mechanisms and collaboration among key stakeholders. Hence, their contribution will be reflected under the following Outputs:	University's priorities may shift as funds to assess and develop health impact of mining practices are not sufficient.	Communication with key partners and with Project Management team to ensure continuity of prioritization for this project

Co-financing source	Co-financing type	Co-financing amount	Planned Activities/Outputs	Risks	Risk Mitigation Measures
			Output 1.2, 1.3, 2.1, 2.2, 2.3, 3.1, 3.2, and 4.3.		
Medische Zending (MZ) Primary Health Care Suriname	Grant	1,000,000	MZ will be a key partner in project where its contribution support awareness raising of mining communities and surrounding communities, and by providing health services as part of the social incentives of the Mining Training and Extension Centres (MTEC).	Although they have agreed with the project partnership, a lack of means or budget capacity to provide health services and health related training might result in not being able to provide such services within the MTEC structure.	The project will seek to mobilize additional financial resources through the Ministry of Health, Ministry of Finance, or other donors for this initiative as needed.
Suriname Environment and Mining Foundation (SEMIF)	In Kind	2,500,000	SEMIF will support the project by implementing awareness-raising and education activities regarding the socio-economic and environment matters. They will particpate in the training on environmentally responsible mining practices and envronmental impacts of mining operations. These trainings will be available for executing authorities (national and local). SEMIF contrilbution will fall under Outputs 1.2, 1.3, 2.1, 2.2, 2.3, 3.1, 3.2, and 4.3	SEMIF derives its funding from large scale mining companies; shortages, while unlikely, could occur, should the CSR priorities of LSM companies change.	Communication with key partners and with Project Management team to advocate for continued allocation
Grassalco Mining co,	Grant	2,500,000	Grassalco will support the projet in financing the establishment of a gold purchasing office and a fire assying office in the project targeted area. Hence, their contribution will reinforce the Outputs 3.1, 3.2, 3.5, and 4.1	There is a small risk that the company opts to focus on mining practices more in line with its interests instead of sharing more environmentally responsible mining practices. Also, if the gold mining purchassing office is not in operation during the project scope, miners will lose the opportunity to access a market locally.	Ensure the t project is prioritized through communication with key partners at high levels.
Newmont Mines	Grant	2,200,000	Newmont will be cofnancing activities related to legislation and policies, strengthening enforcement and M&E, and contributing to the implementation of environmentally responsible practices. Outputs to which	Risk that the company chooses to focus on mining practices more in line with its interests, instead of sharing more environmentally responsible mining practices. There is a risk that companies use their	Ensure t project is prioritized through communication with key partners at high levels.

Co-financing source	Co-financing type	Co-financing amount	Planned Activities/Outputs	Risks	Risk Mitigation Measures
			NewMont will contribute are: 1.3, 2.1, 2.2, and 3.2	participation in the project to promote their own interests in terms of mining and enforcement.	
Rosebel Gold Mines	Grant	2,000,000	Engagement of Rosebel focuses on on institutional capacity and financial mechanisms, and will be making a direct contribution to Output 1.1, 1.3, and 3.1. Rosebel will benefit from training provided to concession holders and will also help disseminate ERM practices on their concession.	Risk that the company chooses to focus on mining practices more in line with its interests, instead of sharing more environmentally responsible mining practices. There is a risk that companies use their participation in the project to promote their own interests in terms of mining and enforcement.	Ensure t project is prioritized through communication with key partners at high levels..
UNDP Suriname	Grant	1,000,000	As senior beneficiary, will contribute to the overall successful implementation of the project, through participation in all outcomes and assistance to the NIM modality.	N-A	N-A
TOTAL		22,132,000			

241. Budget Revision and Tolerance: As per UNDP requirements outlined in the UNDP POPP, the project board will agree on a budget tolerance level for each plan under the overall annual work plan allowing the project manager to expend up to the tolerance level beyond the approved project budget amount for the year without requiring a revision from the Project Board. Should the following deviations occur, the Project Manager and UNDP Country Office will seek the approval of the UNDP-GEF team as these are considered major amendments by the GEF:

a) Budget re-allocations among components in the project with amounts involving 10% of the total project grant or more;

b) Introduction of new budget items/or components that exceed 5% of original GEF allocation.

242. Any over expenditure incurred beyond the available GEF grant amount will be absorbed by non-GEF resources (e.g. UNDP TRAC or cash co-financing).

243. Refund to Donor: Should a refund of unspent funds to the GEF be necessary, this will be managed directly by the UNDP-GEF Unit in New York.

244. Project Closure: Project closure will be conducted as per UNDP requirements outlined in the UNDP POPP. On an exceptional basis only, a no-cost extension beyond the initial duration of the project will be sought from in-

country UNDP colleagues, the UNDP-GEF Regional Technical Advisor, and then the UNDP-GEF Executive Coordinator.

245. Operational completion: The project will be operationally completed when the last UNDP-financed inputs have been provided and the related activities have been completed. This includes the final clearance of the Terminal Evaluation Report (that will be available in English) and the corresponding management response, and the end-of-project review Project Board meeting. The Implementing Partner through a Project Board decision will notify the UNDP Country Office when operational closure has been completed. At this time, the relevant parties will have already agreed and confirmed in writing on the arrangements for the disposal of any equipment that is still the property of UNDP.

246. Financial completion: The project will be financially closed when the following conditions have been met:

a) The project is operationally completed or has been cancelled;

b) The Implementing Partner has reported all financial transactions to UNDP;

c) UNDP has closed the accounts for the project;

d) UNDP and the Implementing Partner have certified a final Combined Delivery Report (which serves as final budget revision).

247. The project will be financially completed within 12 months of operational closure or after the date of cancellation. Between operational and financial closure, the implementing partner will identify and settle all financial obligations and prepare a final expenditure report. The UNDP Country Office will send the final signed closure documents including confirmation of final cumulative expenditure and unspent balance to the UNDP-GEF Unit for confirmation before the project will be financially closed in Atlas by the UNDP Country Office.

X. TOTAL BUDGET AND WORK PLAN

Total Budget and Work Plan			
Atlas Proposal or Award ID:	00107493	Atlas Primary Output Project ID:	00107792
Atlas Proposal or Award Title:	**Improving Environmental Management in the Mining Sector of Suriname, with Emphasis on Gold Mining**		
Atlas Business Unit	SUR10		
Atlas Primary Output Project Title	**Improving Environmental Management in the Mining Sector of Suriname, with Emphasis on Gold Mining**		
UNDP-GEF PIMS No.	5267		
Implementing Partner	Ministry of Natura Resources (MNR)		

Component/Atlas outcome	Responsible party	Fund ID	Donor Name	Budgetary Account Code	Atlas budget description	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Total GEF	Note
Outcome 1: Institutional capacity, inter-institutional coordination and availability of funding increasedfor improved management of ASGM	MNR	6200	GEF-TF	71400	Contractual Services-Ind	11,000	11,000	11,000	11,000	11,000	11,000	11,000	77,000	1
				71600	Travel	14,250	9,750	9,525	12,000	750	750	9,750	56,775	2
	NIMOS			71200	International Consultant	39,000	30,000	31,500	48,000	-	-	-	148,500	3
				71300	Local Consultant	16,500	91,500	27,000	42,000	-	-	60,000	237,000	4

				71600	Travel	-	10,000	10,000	10,000	10,000	10,000	10,000	60,000	5
				72100	Contractual Services-Companies	-	140,000	40,000	-	-	-	-	180,000	6
				72300	Materials and Goods	30,000	35,000	-	-	-	-	-	65,000	7
				74200	Audio Visual & Print Prod Costs	4,500	16,000	5,000	5,000	5,000	7,000	15,000	57,500	8
				72800	Information Technology Equipment	-	8,000	-	-	-	-	-	8,000	9
				72400	Communic & Audio Visual Equip	-	5,000	5,000	5,000	5,000	5,000	5,000	30,000	10
				75700	Trainings, Workshops and Conferences	17,500	58,500	16,000	10,000	5,000	-	30,000	137,000	11
				SUBTOTAL OUTCCOME 1		***132,750***	***414,750***	***155,025***	***143,000***	***36,750***	***33,750***	***140,750***	***1,056,775***	
Outcome 2: Policy and planning framework for the management of the environmental impacts of ASGM strengthened	MNR	6200	GEF-TF	71200	International Consultant	-	-	33,000	-	-	-	-	33,000	12
				71300	Local consultant	-	-	81,000	-	-	-	-	81,000	13
				71400	Contractual Services-Ind	11,000	11,000	11,000	11,000	11,000	11,000	11,000	77,000	14
				71600	Travel	750	9,750	17,850	750	750	750	9,750	40,350	15

				74200	Audio Visual & Print Prod Costs	-	-	28,000	-	5,000	-	-	33,000	16
				75700	Trainings, Workshops and Conferences	-	-	55,000	-	-	-	-	55,000	17
	NIMOS			71200	International Consultant	-	-	86,000	82,000	22,000	-	-	190,000	18
				75700	Trainings, Workshops and Conferences	-	-	30,000	-	-	-	-	30,000	19
	SUB-TOTAL OUTCOME 2					**11,750**	**20,750**	**341,850**	**93,750**	**38,750**	**11,750**	***20,750***	***539,350***	
Outcome 3: Uptake of environmentally responsible artisanal and small-scale gold mining practices increased	MNR	6200	GEFTF	71200	International Consultant	36,000	42,000	42,000	42,000	42,000	42,000	36,000	282,000	20
				71300	Local Consultant	48,000	46,500	46,500	40,500	40,500	40,500	21,000	283,500	21
				72100	Contractual Services-Companies	249,500	198,000	198,000	198,000	198,000	198,000	198,000	1,437,500	22
				72300	Materials and Goods	300,000	300,000	-	-	-	-	-	600,000	23
				74200	Audio Visual & Print Prod Costs	5,500	16,500	8,500	8,500	8,500	8,500	8,500	64,500	24
				73400	Rental and Maintenance of Other Equipment	9,000	36,000	36,000	36,000	36,000	36,000	36,000	225,000	25
				74700	Transport, Shipping and Handling	8,333	33,334	33,333	33,334	33,333	33,333	33,333	208,333	26

				75700	Trainings, Workshops and Conferences	134,437	252,750	111,188	69,000	69,000	69,000	61,500	766,875	27
				71400	Contractual Services-Ind	11,000	32,000	32,000	32,000	32,000	32,000	32,000	203,000	28
				71600	Travel	13,350	17,525	24,725	19,325	22,025	19,775	17,300	134,025	29
	NIMOS	6200	GEFTF	71300	Local Consultant	-	23,333	71,334	41,333	59,334	44,333	53,333	293,000	30
				71600	Travel	-	-	-	-	-	-	80,000	80,000	31
				72300	Materials and Goods	-	-	225,000	-	-	-	-	225,000	32
				74200	Audio Visual & Print Prod Costs	-	-	12,301	-	-	-	-	12,301	33
				75700	Trainings, Workshops and Conferences	5,000	5,000	90,000	15,000	-	15,000	15,000	145,000	34
	SUB-TOTAL OUTCOME 3					**820,120**	**1,002,942**	**930,881**	**534,992**	**540,692**	**538,441**	***591,966***	***4,960,034***	
Outcome 4: Knowledge availability and sharing increased at the national and regional scale on	MNR	6200	GEFTF	71300	Local Consultant	-	15,600	4,800	4,800	4,800	4,500	-	34,500	35
				71400	Contractual Services-Ind	31,000	31,000	31,000	31,000	31,000	31,000	31,000	217,000	36
				71600	Travel	3,750	13,590	14,670	14,670	14,670	14,625	13,950	89,925	37

environmentally responsible ASGM				75700	Trainings, Workshops and Conferences	-	15,000	5,000	5,000	5,000	5,000	-	35,000	38
	NIMOS			71300	Local Consultant	-	-	18,000	18,000	18,000	18,000	18,000	90,000	39
				74200	Audio Visual & Print Prod Costs	-	-	15,000	15,000	15,000	15,000	12,917	72,917	40
				75700	Trainings, Workshops and Conferences	-	-	12,000	12,000	12,000	12,000	12,000	60,000	41
				71400	Contractual Services-Ind	-	-	-	33,000	-	-	40,000	73,000	42
	SUB-TOTAL OUTCOME 4					**34,750**	**75,190**	**100,470**	**133,470**	**100,470**	**100,125**	**127,867**	**672,342**	
PROJECT MANAGEMENT COSTS	UNDP	6200	GEFTF	71400	Contractual Services-Ind	22,000	26,000	26,000	26,000	26,000	26,000	26,000	178,000	43
				71600	Travel	5,000	5,000	5,000	5,000	5,000	5,000	2,500	32,500	44
				74500	Miscellaneous Expenses	1,000	3,000	3,000	3,000	3,000	3,000	2,000	18,000	45
				74596/ 64397	Direct Project Costs	34,599	16,481	13,130	9,813	10,102	9,813	10,102	104,040	46
				75700	Trainings, Workshops and Conferences	4,000	4,000	4,000	4,000	4,000	4,000	4,000	28,000	47
SUB-TOTAL PMC						**66,599**	**54,481**	**51,130**	**47,813**	**48,102**	**47,813**	***44,602***	***360,540***	

GRAND TOTAL	***1,065,969***	***1,568,113***	***1,579,356***	***953,025***	***764,764***	***731,879***	***925,935***	***7,589,041***	

Summary of Funds								
USD	Amount Year 1	Amount Year 2	Amount Year 3	Amount Year 4	Amount year 5	Amount Year 6	Amount Year 7	Total
GEF	1,065,969	1,568,113	1,579,356	953,025	764,764	731,879	925,935	7,589,041
Ministry of Natural Resources	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	7,000,000
NIMOS	200,000	200,000	200,000	200,000	200,000	200,000	200,000	1,400,000
WWF Guianas	133,142	133,143	133,143	133,143	133,143	133,143	133,143	932,000
Tulane University, School of Public Health and Tropical Medicine	228,571	228,572	228,571	228,572	228,571	228,572	228,571	1,600,000
Suriname Environment and Mining Foundation (SEMIF)	357,143	357,143	357,143	357,142	357,143	357,143	357,143	2,500,000
Grassalco Mining co,	357,143	357,143	357,143	357,143	357,143	357,143	357,143	2,500,000
Newmont Mines	314,285	314,286	314,285	314,286	314,286	314,286	314,286	2,200,000
Rosebel Gold Mines	285,714	285,714	285,715	285,714	285,715	285,714	285,714	2,000,000
Medical Mission (MZ)	142,857	142,857	142,857	142,857	142,857	142,857	142,857	1,000,000
UNDP Suriname	142,857	142,857	142,857	142,858	142,857	142,857	142,857	1,000,000

TOTAL	4,227,681	4,729,828	4,741,070	4,114,740	3,926,479	3,893,594	4,087,649	29,721,041

Budget notes:

A. Cross-cutting cost assumptions

The following basic costs assumptions were used for compiling the project budget. These are indicative figures and specific line item budgets may change as goods and services evolve. For number of days allocated to each consultant, please refer to Annex M.

1. Cost of international consultants has been estimated at a daily rate of 600 USD/day.
2. Cost of national consultants has been estimated at a daily rate of 300 USD per day.
3. Travel costs for consultants are calculated on top of honoraria as mentioned above and included as "cross-cutting costs in each outcome". Estimates for travel amount to 15% of the total amount of the consultancies, based on estimates of airfaire, DSA and local transportation. Travel costs for the PMU are itemized under the project management cost.
4. Cost of a one day meeting estimated at 3000 USD including rental of premises, communications costs, transportation for participants.
5. Cost of a basic 2 day training or 2-day workshop estimated at 5,000 USD including rental of premises, communications costs, transportation for participants

Notes			Unit Cost	# units	Cost
1	This includes portions of the salaries and honoraria for the project manager and chief technical advisor, as cross-cutting costs to support all of outcome 1:				
	1a	Portion of the salary of the project manager dedicated to providing technical advice and guidance on actitivities under outcome 1 (e.g. policy, capacity building). The Project manager is expected to spend 75% of their time supporting the project from a technical aspect, and 25% on project management activities and reporting.	577	73	42,000
	1b	Partial cost of the technical advice provided by the Chief Technical Advisor to support outcome 1. For terms of reference please refer to Annex M.	600	58	35,000
2		Travel costs for outcome-related activities, including DSA and airfare for national and international consultants, as well as local transportation when participating in local meetings. Please refer to general budget note above.	N-A	N-A	56,775
3	This includes costs related to two international consultants:				
	3a	IC- Environmentally Responsible Mining (ASM) Expert - (costs spread between various activities and outputs) This IC specialist in ER ASGM will provide technical advice in support of activities 1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.2.2, 2.1.2, 2.1.3, 3.1.1, 3.1.2, in cooperation with national consultants and the PMU. Under this outcome, main outputs will be related to: a. assessment of training needs in terms of improving the gold mining sector and its management b. Delivery of training focusing on assessing the effects of current gold mining practices, identifying and implementing best environmentally responsible mining practices, overseeing and managing ASM, and ASM-related law enforcement, including gender and ASGM training c. capacity building and institutional support. Please refer to Annex M for detailed TOR	600	115	69,000
	3b	IC - Environmental Finance Expert - International Expert on the development of sustainable financing mechanisms to support a stocktake and recommendations report, and to assist NIMOS in designing and setting up selected mechanisms	600	132.5	79,500

4	This includes costs related to local consultants including:				
	4a	NC - Institutional Expert - This National Consultant will be tasked with identifying knowledge sharing gaps and needs related to gold mining, particularly focusing on ASGM, between the relevant government and non-government institutions in Suriname, including NIMOS, MinNatRes, OGS, SEMIF, SGF and others and identify ways and means to improve coordination.	300	25	7,500
	4b	NC - Environmental and social impacts of ASGM Expert (costs spread between various activities and outcomes) This NC expert on environmental and social impacts of ASM will work with the IC ERM expert and the PMU on activities 1.1.1, 1.1.2, 1.1.3, 1.1.6, 1.2.2, 1.3.1, 2.1.3, 3.1.1, 3.1.2, 4.1.1. Under this outcome main outputs will include: a. assessment of training needs in terms of improving the gold mining sector and its management b. Delivery of training focusing on assessing the effects of current gold mining practices, identifying and implementing best environmentally responsible mining practices, overseeing and managing ASM, and ASM-related law enforcement, including gender and ASGM training c. capacity building and institutional support. Please refer to Annex M for detailed TOR	300	65	19,500
	4c	NC - Legal expert on mining activities National Consultant to provide legal advice towards the creation of mining groups and advice to the government on the development of sustainable financing mechanisms, including issues related to the management of royalties, the gold certification or standard system and any other legal issues involved in promoting ER gold. The consultant will also work with MNR to support the development of more applicable conditions and requirements for concessions to obtain small sscale mining permits	300	320	96,000
	4d	NC - Land use mapping expert This NC will build upon the Gonini Portal to update land use maps and delineate the different zones, assisted by 3 land use mapping technicians who will go to the field, through a consultation workshop with mining communities and using drones and GPS to cross-check and digitalize maps. This NC will also be in charge of developing an online digitalized land use map portal, assisted by the technicians.	300	140	42,000
	4e	NC - land use technicians (3) These 3 land use mapping technicians will go to the field to map out and delineate different zones, through a consultation workshop with mining communities and using drones and GPS to cross-check and digitalize maps, under the supervision of the Land use map	300	120	36,000

		expert (mapping will take place in the Greenstone Belt). Also responsible for the development and maintenance of the online land use portal.			
	4f	NC - Real Time Enforcement of Deforestation This National Consultant will support the EPIO and SBB in establishing a protocol, methodology and process for the establishment of near real time monitoring of unplanned mining and mining-related deforestation in the Interior, with an initial focus on the project sites.	300	120	36,000
5	Costs of annual travel and operations for EPIO to conduct checks of the status of environmental impacts of ASGM to project sites and surrounding areas.				60,000
6	This includes costs of two sub-contracts with recognized entities to support the work of the EPIO, SBB and OGS in terms of monitoring environmental impacts of ASGM:				
	6a	The EPIO will enter into a sub-contract with a recognized research facility, NGO or private sector firm in order to develop an inventory and mapping of forests and forest carbon stocks in areas affected by ASGM.	n-a		90,000
	6b	The EPIO will enter into a sub-contract with a recognized research institutiom, NGO or private sector in order to conduct a census of biodiversity in areas affected by ASGM in and around the project sites.	n-a		90,000
7	Costs of equipment and materials acquired to support monitoring of ASGM environmental impacts, near real time monitoring and land use mapping, as follows:				
	7a	Costs of acquiring equipment to conduct land-use mapping will include drones, GPS, computer and software licence for ArcGIS. Equipment will be shared between SBB, GMD and EPIO	n-a		35,000
	7b	Acquisition of remote sensing data for the establishment of a real time monitoring system for ASGM-induced deforestation. This includes Landsat and Terrasat data, at regular intervals, including fees related to printing and digitization, software and storage for remote sensing data	n-a		10,000
	7c	Acquisition by EPIO, SBB and OGS, of equipment to support monitoring, including drones, GPS, computers and servers, software, phones and 2 way radios to support real time enforcement of deforestation/ASGM regulations	n-a		20,000

8	Printing and related costs for workshops, trainings, project related meetings, awareness raising and media, and project-supported information/policy documents, including maps, as well as costs of translation into local languages. Includes cost of production of pamphlets, billboards, etc. and cost of purchasing radio space for radio clips, etc.		n-a		57,500
9	Costs of acquisition by EPIO of equipment, computers, modeling software, GIS tools and observation equipment to support monitoring of environmental impacts of ASGM		n-a		8,000
10	Acquisition of remote sensing data for the establishment of a real time monitoring system for ASGM-induced deforestation. This includes Landsat and Terrasat data, at regular intervals, including fees related to printing and digitization, software and storage for remote sensing data		n-a		30,000
11	Costs of workshops, trainings and meetings to support activiitied under outcome 1 including the following:				
	11a	Costs of a two-day workshop to assess institutions' training needs in terms of ASM mining management.	5000	1	5,000
	11b	A 2-day training of institutions on the needs assessed under 1.1.1, including topics such as gender and ASGM	5000	2	10,000
	11c	A 2-day training for IMAC staff to facilitate the committee's decision-making on environmental issues in regards to ASM operations.	5000	1	5,000
	11d	Costs of training for UNASAT under activity 1.1.4	5000	1	5,000
	11e	Costs of a workshop to help staff at UNASAT access information on ERM practices and highlight ways and means to develop ASGM related curriculum and training courses.	5000	2	10,000
	11f	Costs of workshops to support the identification of gaps in knowledge sharing on gold mining activities between the relevant government and non-government institutions in Suriname, including NIMOS, MinNatRes, OGS, SEMIF, SGF and others and identify ways and means to improve coordination	5000	1	5,000
	11g	Costs of workshops on the development of financing instruments for ecosystem restoration, reforestation, sustaianble livelihoods and BD conservation in mining areas.	5000	2	10,000

	11h	Costs of workshops to discuss findings of the inventory and mapping of forests and forest carbon stocks in areas affected by ASGM.	5000	1	5,000
	11i	Consultations with ASM communities, MTECs operations and LACs to map and delineate different zones through participatory mapping.	5000	12	60,000
	11j	Training workshops and coordination meetings (SPIO, SBB, OGS) for real time monitoring of ASGM-related deforestation	5000	4	22,000
12	IC- Environmentally Responsible Mining (ASM) Expert - (costs spread between various activities and outputs) This IC specialist in ER ASGM will provide technical advice in support of activities 1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.2.2, 2.1.2, 2.1.3, 3.1.1, 3.1.2, in cooperation with national consultants and the PMU. Under this outcome, main outputs will focus on identification of best available technologies for each demonstration location, guidelines on prohibited and best, environmentally-responsible practices, advisory services to the deployment of MTECs and training services and capacity building.		600	55	33,000
13	Costs of national consultants to support activities under outcome 2 related to policy and institutional strengthening as follows:				
	13a	NC - Mining policy Expert This National Mining Policy expert will provide advice on the development, revision and updating of selected policies, plans and guidelines, including support for the development of the SMSAP	300	215	64,500
	13b	NC - legal expert on mining activities to support work on strengthening conditions and requirements for concesssion to obtain small scale mining permits	300	15	4,500
	13c	NC - Environmentl and social impacts of ASM expert to support the work on development and dissemination of exiating guidelines on ERMPs	300	40	12,000
14	This includes portions of the salaries and honoraria for the project manager and chief technical advisor, as cross-cutting costs to support all of outcome 2:				
	14a	Portion of the salary for PMU's Project Manager dedicated to providing technical advice and guidance on activities under Outcome 2 (e.g. policy, capacity, laws, etc)	577	73	42,000
	14b	The Chief Technical Advisor will be an internationally recruited expert that will be involved part-time throughout the implementation of the project. He/She will be responsible for providing overall technical backstopping to the project. He/She will	600	58	35,000

		provide technical support to the National Project Manager (PM), staff and other government counterparts. He/she can be home-based with one to two missions to Suriname per year. Please refer to Annex E for detailed TOR.			
15	Travel costs for outcome-related activities, including DSA and airfare for national and international consultants, as well as local transportation when participating in local meetings.				40,350
16	Printing and communicaions costs for workshops, trainings, project related meetings, awareness raising and media, and project-supported information/policy documents, including maps, as well as costs of translation into local languages				33,000
17	Workshops and meetings to support the collaborative design and adoption of updated laws, policies and guidelines,Workshops and meetings on the strengthening of ASM environmental considerations in the contxt of permitting and licensing,Cost of consultation workshops supervised by the PMU with the SP and the government's relevant staff to increase the sustainability of ASM and develop a mining strategy and action plan.				
	17a	Workshops and meetings to support the collaborative design and adoption of updated laws, policies and guidelines	5000	4	20,000
	17b	Workshops and meetings on the strengthening of ASM environmental considerations in the contxt of permitting and licensing	3000	2	5,000
	17c	Cost of consultation workshops supervised by the PMU with the SP and the government's relevant staff to increase the sustainability of ASM and develop a mining strategy and action plan.	5000	6	30,000
18	IC - TSA Expert This IC will conduct training on TSA for the PMU and will then undertake the two TSA including through existing information provided by government stakeholders and miners, and by gathering additional missing information.				190,000
19	Costs of workshops to support the deployment of 2 TSAs as follows (1) Workshops to conduct the TSA with communities and government stakeholders, and (2) training on TSA to be supported by the IC expert in TSA for the PMU and government stakeholders		5000	6	30,000
20	IC- Environmentally Responsible Mining (ASM) Expert - (costs spread between various activities and outputs) This IC specialist in ER ASGM will provide technical advice in support of activities 1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.2.2, 2.1.2, 2.1.3, 3.1.1, 3.1.2, in cooperation with national consultants and the PMU. Under this outcome the outputs of this consultancy will focus on uptake of environmentally responsible mining practices. Please refer to Annex M for detailed TOR.		600	470	282,000

21	National consultants to support the establishment and operationalization of MTECs, as well as the delivery of training to promote uptake of environmentally responsible mining practices among concession holders and small scale miners				
	21a	NC - Institutional expert to support establishment of MTECs This NC specialist in instituional strengthening and organizational change will support the PMU and the selected RPs in establishing the MTECs in each demonstration site with the collaboration of the NGO/CBO responsbile for operating the future MTECs. This will include overseeing regulatory and administrative arrangements, as well as assistance to formulate strategic plans, workplans and to provide overall guidance to the MTEC creation.	300	50	15,000
	21b	NC - environmental and social impacts of ASGM expert to guide the work of MTECs including the training	300	580	174,000
	21c	NC - Social mobilization and enterprise expert National Consultant specialized in community organization and mobilization to support mining communities in the creation/consolidation of mining groups in demonstration sites. This consultant will support miners and mining groups in their self-organization efforts in order to meet the basic requirements for access to the MTECs. This will include social mobilization, private sector and entrepreneurial advice, and business advice.	300	255	76,500
	21d	NC - Legal expert on mining activities National Consultant to provide legal advice towards the creation of mining groups and advice to the government on the development of sustainable financing mecahnisms, including issues related to the management of royalties, the gold certicification system and any other legal issues involved in promoting ER gold. The consultant will also work with MNR to support the development of more applicable conditions and requirements for concessions to obtain small sscale mining permits	300	60	18,000
22	Costs of contractual services related to the operations of the MTECs as well as the deployment of monitoring tools such as surveys and assessments, as follows:				
	22a	Cost of staff hired to operate the three MTECs and their 3 services (1 manager @ annual salary of 23,000 USD + 1 assistant per type of service: technical services to miners; social services to miners and communities; MTECs management, each receiving an annual stipend of 10,000 USD)	n-a		1,237,500
	22b	Construction costs (labour and material included) of the MTECs (2 in Brokopondo, as the one in SK should use a building already in place, formerly used for the mining school).	n-a		74,000

	22c	Cost of a consultancy or contractual services to deploy physical surveys, supervision and other participatory monitoring exercises, as well as to support the implementation of surveys, physical assessments of forests in project sites, analysis of miners's uptake of ERMPs, and on the ground monitoring of project results, compilation of project lessons reports, and analysis of project indicators on GEBs	600	210	126,000
23	Equipment to demonstrate state-of-the-art environmentally responsible mining and processing of alluvial gold. Equipment will include: vehicles, (1) Mining equipment; (2) Feeder; (3) Crusher; (4) Hopper; (5) Mill; (6) Centrifuge (Cyclone); (7) Concentrator and spirals; (8) Pumps and piping; (9) Gold Furnace; (10) Fire Assay Laboratory; (11) Ancillary equipment; (12) gravity separation plants. Costs calculated on the basis of individual machinery prices, estimated July 2017.				600,000
24	Printing costs for materials to be used during training sessions in the three demonstration sites.				64,500
25	Overhead and running costs for three MTECs (cooling, security, water, electricity, phone, internet, fuel, etc). Costs are estimated at 892 USD per month per MTEC				225,000
26	Transport and shipping costs for ore and equipment, including transport costs for MTEC staff and equipment to conduct training in roving mode				208,333
27	Cost of workshops, meeting and conferences related to the demonstration activities under Outcome 3, including trainings provided by the MTECs, as follows:				
	27a	Costs of workshop for the set up and establishment of the MTECS, management arrangements and steering arrangements.	5000	6	30,000
	27b	Workshops and meetings for the design of incentives schemes to be implemented through MTECs	5000	6	30,000
	27c	Local meetings and discussions on the creation of mining associations and groups	3000	15	45,000
	27d	Training for villagers to become Park rangers and execute community based monitoring short and long-term monitoring of benefits. This training will be held by the NGO/CBO managing the MTECs and supported by the NC expert in environmental and social impacts of ASM, to train villagers and communities to conduct community-based monitoring activities to monitor and collect data on the benefits of sustainable gold mining techniques.	5000	3	15,000

	27e	Training of leaders on best environmentally-responsible practices conducted by MTECs staff and PMU staff as needed	5000	51	253,125
	27f	Training / demonstration provided to miners over the whole mine life cycle, including tailings management, provisions for site closure and rehabilitation and repair and maintenance	5000	49	243,750
	27g	Meetings (travel costs and per diems) of the Local Advisory Committees for each 3 sites	3000	50	150,000
28	Portion of the salaries of the chief technical advisor and the project manager related to technical guidance provided on the establishment of MTECs, the development and deployment of trainings and incentives schemes and other activities under Outcome 3				
	28a	Portion of the salary for PMU's Project Manager dedicated to providing technical advice and guidance under outcome 3. The PM is expected to spend at least 25% of their time providing technical guidance and expert advice on the deployment of MTECs, incentive schemes, alternative livelihood, and ensuring that adequate consultations are maintained wih stakeholders at local level. The PM is also expected to provide senior level technical advice on the demand-side activities under Outcome 3.	577	73	42,000
	28b	The Chief Technical Advisor provides tehcnical advice on all aspectss of the project. Under outcome 2 the CTA provides advice on activities deployed at field level, ensuring adequate consultations and feedback from comunities, provides advice on the engagement of concession holders and gold buyers and helps guide the development and deployment of training on ERMPs.	600	58	35,000
	28c	Physical surveys, supervision and other participatory monitoring exercises			126,000
29		Travel costs for outcome-related activities, including DSA and airfare for national and international consultants, as well as local transportation when participating in local meetings.			134,025
30	Costs of national consultants to support activities under outcome 3, in particular those related to engaging local stakeholders, supporting local communities and engaging gold buyers, as follows:				
	30a	ITP & Stakeholder engagement and gender specialist The Indigenous and Tribal Peoples and Stakeholder Enagement Specialist will work alongside the PMU to support all project outcomes through the transparent and open engagement of local stakeholders, wiht particulat attention to indigenous and tribal peoples, and women. The ITPS specialist will provide assistance in the identification of key cultural and institutional issues, guide local consultations and awareness, contribute to the development of key messages and communications approaches in local	600	233	140,000

		language for the project, ensure adequate gender integration and the consultation of women's groups in all activities, identify gender-related indicators, and ensure the adeqauate procedures for free informed consent are upheld.			
	30b	National Consultant - Community Mobilization and enterprise specialist This national consultant will will with communities in order to identify suitable alternative livlihoods and to support the creation and amangement of production groups. This will include providing assistance to the development of products, market linkages and technical asssitance on production.	300	300	90,000
	30c	NC communications specialist to develop targeted awareness raising materials for gold buyers and users. The Communications specialist will also work with the Project Management Unit under Output 3.5, to develop awareness raising campaigns and materials on the market and benefits of ER gold, with a particular focus on the gold buyers, and the general public. The consultant will support Output 4.1 related to the development of a communication and knowledge management strategy for the project, including through supporting the identification of key messages, and the development of key information products, such as pamphlets, billboards, radio ads and video clips and others as necessary, for dissemination at all levels.	300	120	36,000
	30d	NC - ER mining and certification specialist NC to support advocacy with the gold buyers and users to increase demand for ER gold, including Central Bank	300	90	27,000
31	Travel for study tours under outcome 3. Cost includes the cost of local transportation and international transportation, as well as DSAs and other support for miners participating in study tours in other regions of Suriname or in neighbouring countrie, under Outcome 4.				80,000
32	Acquisition of equipment to support sustainable agricultural production as an alternative livelihood, including hydroponics equipment (pipes, irrigation, greenhouses, renewable energy supply, transport and packaging equipment, transformation equipment for finished products, as well as seeds, and initial expendable materials required to launch production				225,000
33	Printing costs for training and communication material on alternative livelihoods,				12,301
34	Costs of workshops and trainings related to the alternative livelihoods activities, including:				
	34a	Consultation workshop with mining and village communities to identify potential alternative livelihoods within the communities and the skills needed to achieve these livelihoods. This also includes financing for the development and deployment of an FPIC procedure and targeted engagement with indigenous communities around project sites during the 1st year of the project	5000	11	55,000

	34b	Cost of training to be provided to communities on acquiring skills for the identified alternative livelihood (TBD during project implementation, according to the site; cost of NC included).	5000	18	90,000
35	NC - Knowledge management expert The NC expert in knowledge management will supervise the workshops with the PMU, stakeholder engagement officer and M&E officer.		300	115	34,500
36	Contractual services to support the project's knowledge management, monitoring and evaluation under Outcome 4 as follows:				
	36a	Monitoring and Evaluation Officer This NC will use lessons learned from the monitoring activities to support policies updated conducted under Output 2.2, along the whole duration of project implementation. Tasks will include: ➢Provide technical expertise and guidance to all project components, and support the PM and CTA in the coordination of the implementation of planned M&E activities under the project as stipulated in the project document/work plan. Please refer to annex M for detailed TOR	300	467	140,000
	36b	Portion of the salary for PMU's Project Manager dedicated to providing technical advice on knowledge sharing and monitoring under outcome 4. Under this outcome the PM will dedicated 25% of their time to promoting knowledge exchange, including by actively participating in knowledge sharing events and fora			42,000
	36c	Under this outcome the Chief Technical Advisor assists in knowledge management, communications and awareness raising.	600	58	35,000
37	Travel costs related to outcome 4 for knowledge sharing as well as costs related to the travel of international consultants under Outcome 4, as follows:				
	37a	Travel (air/DSA) for project stakeholders to participate in regional knowledge sharing venues, such as the SDSN, Guiana Shield meetings and other regional meetings. Will also include the costs of supporting travel for stakeholders from other countries to attend meetings in Suriname when necessary	n-a		45,000
	37b	Travel costs for consultants related to outcome 4, including airfare, DSA and cost of local transport.	n-a		44,925
38	Costs of meetings and workshops dedicated to knowledge sharing under Outcome 4, as follows				

	38a	Costs of workshops that will be held at the national and at the regional level to identify gaps in sharing knowledge among stakeholders on gold mining. The NC expert in knowledge management will supervise the workshops with the PMU, stakeholder engagement officer and M&E officer.	5000	2	10,000
	38b	Annual workshop held at the regional level to develop/strengthen cooperation on ASM gold mining management	5000	5	25,000
39	NC communications specialist to develop targeted awareness raising materials for gold buyers and users. The Communications specialist will also work with the project management unit under output 3.5, to develop awareness raising campaigns and materials on the market and benefits of ER gold, with a particular focus on the gold buyers, and the general public. The consultant will support output 4.1 related to knowledge management for the project, including through supporting the identification of key messages, and the development of key information products for dissemination at all levels.		300	300	90,000
40	Costs of printing, translation, media and audiovisual requirements or the deployment of knowledge sharing activities under Outcome 4.				72,917
41	Workshops and meetings related to the knowledge sharing component of the project, including local and regional workshops, national level workshops to discuss project lessons and policy progress on ASGM,Workshops and meetings related to the knowledge sharing component of the project, including local and regional workshops, national level workshops to discuss project lessons and policy progress on ASGM				60,000
	41a	Workshops and meetings related to the knowledge sharing component of the project, including local and regional workshops, national level workshops to discuss project lessons and policy progress on ASGM	5000	6	30,000
	41b	Workshops and meetings related to the knowledge sharing component of the project, including local and regional workshops, national level workshops to discuss project lessons and policy progress on ASGM	5000	6	30,000
42	Costs of contractual services related to the implementation of a mid-term review and final evaluation				
	42a	Cost of consultancy for Independent Mid-term Review (MTR)	600	55	33,000
	42b	Cost of consultancy for Independent Terminal Evaluation (TE)	600	66	40,000

43	Costs related to the project manager (25%) and finance/admin officer dedicated to project management, reporting and financial planning.				
	43a	Project manager (PM). a. Responsible for the operational management of the project in line with the Project Document and UNDP policies and procedures for nationally executed projects. Please refer to Annex E for detailed TOR.	577	72	42,000
	43b	The Finance/Admin Manager The Finance and Administrative Manager will be a national staff. He/she will: Estimated annual salary of 20,000 USD.	385	353	136,000
44		Travel for project management	n-a		32,500
45		Miscellaneous costs for the Project Management Unit	n-a		18,000
46		Direct Project Costs for UNDP, please refer to DPC cost calculation table in Annex V.	n-a		104,040
47		Inception Workshop, PB meetings and TAC meetings (2 per year)	2000	14	28,000

XI. LEGAL CONTEXT

248. Any designations on maps or other references employed in this project document do not imply the expression of any opinion whatsoever on the part of UNDP concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

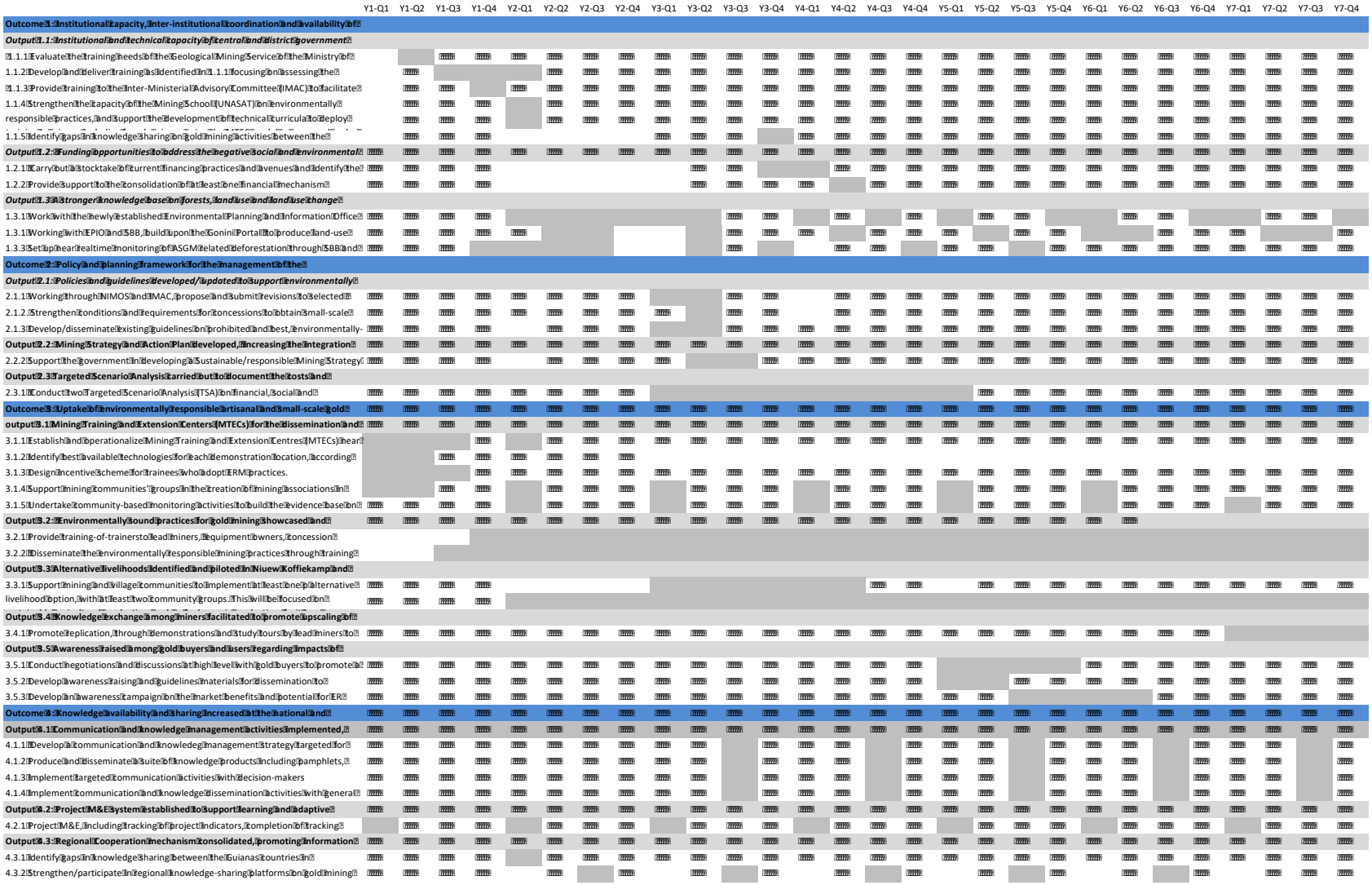
249. Agreement on intellectual property rights and use of logo on the project's deliverables and disclosure of information**:** In order to accord proper acknowledgement to the GEF for providing grant funding, the GEF logo will appear together with the UNDP logo on all promotional materials, other written materials like publications developed by the project, and project hardware. Any citation on publications regarding projects funded by the GEF will also accord proper acknowledgement to the GEF. Information will be disclosed in accordance with relevant policies notably the UNDP Disclosure Policy[84] and the GEF policy on public involvement[85].

[84] See http://www.undp.org/content/undp/en/home/operations/transparency/information_disclosurepolicy/
[85] See https://www.thegef.org/gef/policies_guidelines

XII. MANDATORY ANNEXES

A. Multi year Workplan
B. Monitoring Plan
C. Evaluation Plan
D. GEF Tracking Tool (s) at baseline
E. Terms of Reference for Project Board, Project Manager, Chief Technical Advisor and other positions as appropriate
F. UNDP Social and Environmental and Screening (SESP)
G. Environmental and Social Management Plan (ESMP) for moderate and high risk projects only (to be prepared during project inception, if necessary)
H. UNDP Project Quality Assurance Report (to be prepared during project inception)
I. UNDP Risk Log
J. Results of the capacity assessment of the project implementing partner and HACT micro assessment (to be completed before project implementation begins)
K. Letter of Agreement for Direct Project Costs
L. Stakeholder Engagement Plan
M. Summary of Consultants and Contractual Services Financed by the Project for the First Two Years
N. Gender Analysis and Project Gender Mainstreaming Plan
O. Context (additional Background information on Suriname)
P. Details on the MTEC model
Q. Capacity Scorecard
R. Report on project preparation activities and list of consulted stakeholders
S. EX-ACT Carbon Balance Tool model
T. Cofinancing letters
U. Landscapes profile
V. Activity Based Budget

ANNEX A - MULTI YEAR WORK PLAN



ANNEX B - MONITORING PLAN:

The Project Manager will collect results data according to the following monitoring plan.

	Objective and Outcome Indicators	**Description**	**Data source /collection method**	**Frequency**	**Responsible for data collection**	**Means of Verification**	**Assumptions**
Project Objective: To improve the management of artisanal and small-scale gold mining in Suriname (ASGM) and promote uptake of environmentally responsible mining technologies in order to reduce the negative effects on biodiversity, forests, water, and local communities, while also reducing greenhouse gas emissions							
mandatory indicator	# Direct project beneficiaries (number of miners and local community members who benefit directly from the project disaggregated by sex)	Number of people who benefit from the project activities, including women, men, miners, youth, concession holders, government staff	Project reports, activity reports, surveys and physical assessments, MTEC register of attendance	Annually Reported in DO tab of the GEF PIR	Project Manager M&E Officer	Review of project reports and MTEC attendance data	Active participation and engagement of women and men in the project to ensure that they will fully benefit from the project outcomes.
Sustainable Forest Management (SFM) and Biodiversity	Number of hectares forest and habitat conserved as a result of promotion of	The area that will not be deforested as a result of project activities; or the area of direct influence	Physical assessment and community -based monitoring	Annually Reported in DO tab of the GEF PIR	Project Manager, M&E Officer	Survey of participating mining groups, Review of	Miners are willing to use more environmentally responsible gold mining

(BD) related indicator	environmentally responsible mining practices, by end of project	on forest around the three MTEC and associated demonstration areas	(under Outcome 3)			physical assessments,	techniques, over the whole mine life cycle, and incentives for the adoption of ERM techniques are sustainable in the long-term
BD and SFM Indicator	Number ha of land under improved management to protect globally significant biodiversity through strengthened planning and management as a result of the project	Area of land that will be better managed for biodiversity conservation as a result of enhanced planning and management of ASGM through the project	Mining guidelines and policies, as well as of Responsi-ble Mining Strategy and Action Plan Capacity index of institutions responsible for manageme nt of ASGM	At mid-term and at end of project	Project Manager, M&E Officer	Review of mining guidelines and policies, as well as of Responsible Mining Strategy and Action Plan to strengthen planning and management of land under mining in the Greenstone Belt, Review of capacity index of institutions charged with	Political support for implemen-tation of enhanced plans and policies facilitates improved management over the entire Greenstone belt

						managing ASGM	
Climate Change Mitigation (CCM) indicator	Number of tons of CO2 emissions reduced through avoided deforestation and forest rehabilitation, by end of project	The tons of GHG that will not be emitted into the atmosphere due to avoided deforestation, as derived from areas not undergoing deforestation due to better mining practices	GHG emissions model (EX-ACT) and forest carbon assessment undertaken under output 1.3	At mid-term and at end of project	Project Manager, M&E Officer	Review exact simulation based on results of miner surveys (above); Field surveys and carbon inventories under output 1.3, and traking tool	all participating miners agree not to clear new mining sites and exploration uses responsible practices throughout the area of the project

Outcome 1: Institutional capacity, inter-institutional coordination and availability of funding increasedfor improved management of ASGM	a)Level of institutional capacity for planning, management and dissemination of environmentally responsible ASGM and for inter-institutional cooperation among central government institutions with a mandate related to ASM, as measured through a capacity scorecard and the availability of improved policy and regulatory instruments	a) the level of institutional capacity includes measures of the capacity to engage stakeholders, particularly local and vulnerable groups, the capacity to understand and address environmental impacts of ASGM, and the capacity to generate and use information, among others.	a) Capacity Score Card Self Assessment by all key stakeholder s	At start and finish of project	Project Manager, M&E Officer	Capacity Score Card (see Appendix R); policy and regulatory documents; Project reports and financing reports	Institutions are willing to receive training on improved management of gold mining

	b)Avenues for sustainable, reliable and predictable funding/ incentives identified to support upscaling of ERM practices	b) This measures the existence of a financial incentive system for upscaling of ERM practices	b) Project reports and analysis reports on financial instruments under Output 1.2	At start and finish of project	Project Manager, M&E Officer	Capacity Score Card (see Appendix R); policy and regulatory documents; Project reports and financing reports	The political will to improve the management of ASM sector is present among the government institutions. There is ongoing interest among private sector, large scale mining operations and government authorities to mobilize resources towards environmental rehabilitation and alternative livelihoods

	C) Percentage of total area of small and medium scale mining operations with regular monitoring through near real-time deforestation monitoring in mining zones	This measures the percentage of the total area in which small and medium scale mining occurs with regular monitoring through near real-time deforestation monitoring	EPIO and SBB reports	Biannually	Project Manager, M&E Officer	Verification of EPIO and SBB reports	SBB will coordinate this work in line with similar operations it is conducting related to illegal logging in other areas, in cooperation with GMD and OGS. Equipment and data provided is applied to the entire Greenstone belt.

Outcome 2: Policy and planning framework for the management of the environmental impacts of ASGM strengthened	A) Number of gender-sensitive policies and guidelines for the responsible management of gold mining and for sustainable forest management updated and approved by end of project and beginning to be implemented.	This measures the level of influence of the projcet on the legal and institutional framework governing ASGM	official documents, laws and texts	at end of project	Project Manager, M&E Officer	Legal and official docments	Political will of relevant ministries is sufficient to update policies, strategies and plans for the sustainable management of gold mining.Political will of relevant ministries is sufficient to develop strategy for the sustainable management of ASGM. Key stakeholders are able to reach consensus for the development of such a strategy.

	B) Existence of a Responsible Mining strategy and Action Plan to guide ASGM in a sustainable fashion	This measures the level of influence of the project on the legal and institutional framework governing ASGM	official documents, laws and texts	at end of project	Project Manager, M&E Officer	Legal and official docments	Political will of relevant ministries is sufficient to update policies, strategies and plans for the sustainable management of gold mining.Political will of relevant ministries is sufficient to develop strategy for the sustainable management of ASGM. Key stakeholders are able to reach consensus for the development of such a strategy.

Outcome 3: Uptake of environmentally responsible artisanal and small-scale gold mining practices increased	a) Existence of a sustainable system for the dissemination, uptake and monitoring of environmentally responsible ASM practices at local level)	a) This measures the extent of operationalization and institutionalization, as well as the sustainability of the MTEC model	Field Data, Records of attendance at MTEC, community-based M&E exercises, Physical observation	Annually Reported in DO tab of the GEF PIR	Project Manager, M&E Officer, MTEC managing responsible Parties	Field assessments by MTEC staff; surveys of participating miners and communities; project reports; surveys of policy-makers. The survey targeting decision makers will also measure their level of understanding of the costs and benefits of current techniques versus more environmentally responsible techniques	Ministries and technical partners will collaborate on the design and development of MTECs as mechanisms to disseminate best ASGM practices. Avenues will be identified for the successful delivery of incentives for miners. The local mining communities are engaged and willing to adopt proposed improved mining techniques. Sustainable financing by the social
	b) Number of small scale miners , % of which are women, implementing at least 75% of the environmentally responsible mining practices promoted in the project sites, such as (sustainable exploration, establishment of tailing ponds, responsible practices for decommissionin	b) This measures the number of miners who are adopting the demonstrated practices					

	g, rehabilitation of sites, and methods to reduce mercury, among others						development partners to the project is maintained throughout the project, and mining communities can easily access services Decision-makers, gold buyers and users are wiling to participate in awareness raising and training activities supported by the project.
	c) Reduction in the Hg:Au ratio	c) This measures the extent to which the miners are reducing their use of mercury					
	d) Number of people accessing improved health and education services throgh the MTECs, % of which are women	d) this measures the number of people who are using the incentive schemes put forward by the MTEC					
	e) Number of people implementing alternative income generating activities by end of project, % of	e) this measures the number of people who are adopting alternative livelihoods					

	which are women						
	f) Level of awareness among population in project area and key decision-makers of environmental and health impacts of small and medium-scale gold mining using non-environmentally responsible techniques and benefits of more environmentally responsible techniques and practices	f) This measures the level of awareness of project beneficiaries regarding the negative impacts of ASGM and the positive impacts of ERMPs					

Outcome 4: Knowledge availability and sharing increased at the national and regional scale on environmentally responsible ASGM	a) Level of regional knowledge sharing and learning with Brazil, Guyana and French Guiana on environmentally responsible mining as measured by survey to be administered to participants of relevant regional fora, such as the Sustainable Development Solutions Network and the Sustainable Gold Platform in which Suriname stakeholders participate and at which ASGM is discussed	a) this measures the increase in knowledge dissemination and exchange among the various stakeholders at national and regional levels, through an increase in the activities of the networks and venues at which ASGM is discussed.	Surveys, minutes of meetings with participant lists Knowledge products	Annually	Project Manager, M&E Officer	Project reports, meeting minutes; survey results, capacity scorecard; review of knowledge products	Institutions in Suriname are willing to share and collaborate knowledge generated through M&E activities with neighbouring countries' institutions.

	b) Number of knowledge products that are produced by the project that are disseminated regionally;	B) this measures an increase in knowledge availability and dissemination through the publication and distribution of reports, information, guidance and other awareness raising materials					

ANNEX C - EVALUATION PLAN:

Evaluation Title	Planned start date Month/year	Planned end date Month/year	Included in the Country Office Evaluation Plan	Budget for consultants	Other budget (i.e. travel, site visits etc.…)	Budget for translation
Mid-Term Review	Year 3 – Q3	Year 3 – Q4	Yes	30,000	No	Included
Terminal Evaluation	Year 7 Q3	Year 7 Q4	Yes	40,000 USD	No	Included
Total evaluation budget				70,000 USD		