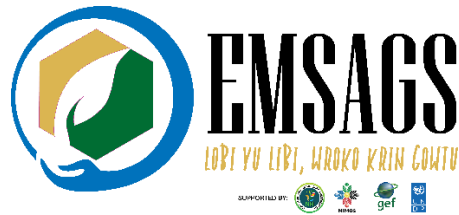


## Training Needs Assessment of key institutions to monitor ASGM and promote environmentally responsible practices



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**Cover picture taken at Lala Rookh Building 1 by Minouschka Fernand during the TNA validation meeting on 13 October 2022**

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## List of Abbreviations

AdeKUS	<i>Anton de Kom Universiteit van Suriname</i> – Anton de Kom University of Suriname
ASGM	Artisanal and Small-Scale Gold Mining
ASM	Artisanal and Small-Scale Mining
BBS	<i>National Herbarium Suriname</i> – National Herbarium Suriname
BIS	<i>Bauxiet Instituut Suriname</i> - Bauxite Institute Suriname
CE&D	Community Engagement and Development (unit at the Ministry of Natural Resources)
CN	Cyanide
EMSAGS	Improving Environmental Management in the Mining Sector of Suriname, with Emphasis on Artisanal and Small Scale Gold Mining (ASGM)
ESS	Environmental Services & Support N.V.
GMD	<i>Geologische Mijnbouwkundige Dienst</i> – Geological Mining Division
Hg	Mercury
ITP	Indigenous and Tribal Peoples
KAMPOS	<i>KAMPOS Samenwerkingsverband Tribale Volken</i> – KAMPOS Partnership of Tribal Peoples
MNR	<i>Ministerie van Natuurlijke Hulpbronnen</i> – Ministry of Natural Resources
MTEC	Mining Training and Extension Center
MZ	<i>Medische Zending</i> – Medical Mission
NIMOS	<i>Nationaal Instituut voor Milieu en Ontwikkeling in Suriname</i> - National Institute of Environment and Development in Suriname
NRTM	Near Real Time Monitoring
NZCS/CMO	<i>Nationale Zoologische Collectie Suriname/ Centraal Milieu Onderzoek</i> – National Zoological Collection Suriname/ Center for Environmental Research
OGS	<i>Ordering Goud Sector</i> – Gold Sector Organization
PMU	Project Management Unit
ProDoc	Project Document
RGD	<i>Regionale Gezondheids Dienst</i> – Regional Health Service
ROM	<i>Ministerie van Ruimtelijke Ordening en Milieu</i> – Ministry of Spatial Planning and Environment
ROS	<i>Ministerie van Regionale ontwikkeling en Sport</i> – Ministry of Regional Development and Sport
SBB	<i>Stichting Bosbeheer en Bostoezicht</i> – Foundation Forest Management and production Control
TNA	Training Needs Assessment
ToR	Terms of Reference
VG	<i>Ministerie van Volksgezondheid</i> – Ministry of Public Health
VIDS	<i>Vereniging van Inheemse Dorpshoofden in Suriname</i> – Association of Indigenous Village Leaders in Suriname

# 1 Scope of the Deliverable

According to the Terms of Reference (ToR) this deliverable includes activities 1.1.1 and 1.1.2 from the ProDoc under outcome 1: Institutional capacity, inter-institutional coordination and availability of funding increased for improved management of ASGM and 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.

- Activity 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 Mission , and other relevant government institutions. Also, (b) Conduct a workshop, based on individual assessment with relevant institutions, to discuss and agree on their training needs in terms of improving the gold mining sector and its management.
- Activity 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.

There are mainly two groups of stakeholders who need training: stakeholders in Paramaribo (government offices, the University, NGOs etc.) and the miners. The capacity strengthening as part of this deliverable focuses on the first group. Training of the second group is covered by deliverable 3 (MTEC support; see 2.3.3). Although training of the first group will be executed in Paramaribo, it should be considered to closely involve the MTEC (operator), especially if field visits will be included.

Part of the training material was already formulated by Patience Singo, International ERM consultant (Singo, 2022); this was screened by our team and adapted to local circumstances. As part of the training needs assessment (TNA) Singo had meetings with MNR department of Mining, GMD and CE&D, NIMOS and the Department of Geology and Mining at AdeKUS. His findings are summarized in appendix B of the current report. Based on this TNA, he developed training material (outlines, modules and/or powerpoint slides) on the following topics:

- Exploration of minerals in ASGM;
- Mineral processing;
- Mining techniques;
- Environmental management in ASGM;
- Safety and Health in ASGM;
- Gender mainstreaming and human rights in ASGM; and
- Formalization, Policy Legal Framework for ASGM

Not all the institutions were consulted by Singo. At least the Ministries of ROM and ROS, VIDS, KAMPOS, BIS, MZ and RGD needed to be consulted as well. Based on additional TNA efforts, topics will be added to the training program as needed. Obvious gaps, from our perspective, are e.g.:

- Basic introduction geology and gold mineralization;
- Exploration (sampling techniques);
- Mine closure;
- Reducing operational, health and safety risks; and
- Opportunities for sustainable livelihood transitions and alternative income streams.

However, the definitive training program was determined during the TNA and subsequent validation workshop.

The deliverable on Capacity Strengthening consisted of the following activities:

- 1.1. Training needs assessment (TNA): have meetings with GMD, OGS, BIS, CE&D, NIMOS, ROS, ROM, MNR, AdeKUS, Ministry of Public Health, MZ, RGD, VIDS and

KAMPOS, SBB to evaluate training needs. This will result in an overview of training needs for all consulted agencies;

- 1.2. Validation workshop: to validate training needs of all agencies / institutions;
- 1.3. Training development: screen and adapt training material developed by the ERM expert. Fill-in gaps of the training material especially with regards to topics with strong national and local content/approach, such as gender, environment, legal and policy framework, child labor, waste management, occupational health & safety etc. Training needs that cannot be met by the ESS consultant team will be addressed by a separate contract (to be arranged by PMU);
- 1.4. Delivery of training: based on training needs and material developed, provide training to the agencies / institutions;

This current report is to finalize deliverable 2, i.e. report after completion of deliverable 2, containing all activities and recommendations for the project. The implementation timeline is depicted in appendix A.

## 2 Our Approach

### 2.1 Training Needs Assessment

The Training Needs Assessment (TNA) was done through meetings (in-person and virtual) and email exchange with representatives of the relevant organizations / institutions in July, August and September 2022. During these meetings, the EMSAGS project was briefly introduced as well as the consultant's current role in its execution. Furthermore, the scope of the training needs assessment and next steps were explained. Interviewees were then asked what they think the training needs were of their institution given their role within EMSAGS. The individual feedback received from these interactions is provided in appendix B. Furthermore, our team also identified gaps based on our own expertise and insights. The training needs identified during the TNA by Singo (2022) and our team include topics regarding social aspects, policy and legislative aspects and technical aspects (mining and other). The consultants were unable to interview the RGD and VIDS. There are four ranges of topics identified:

1. Topics that can be provided by the ESS team as part of deliverable 2, 3 or 5:
  - Gender mainstreaming and human rights: deliverable 5 will provide input for the development of this training
  - The following will be developed primarily for deliverable 3, but also provided (in adjusted form) as part of deliverable 2:
    - i. Exploration of minerals (incl. sampling technique)
    - ii. Basic introduction geology and gold mineralization
    - iii. Mineral processing
    - iv. Mining techniques
    - v. Best practices on environmentally responsible mining (ERM) (incl. tailings management)
    - vi. Mine closure
    - vii. Operational health and safety risk reduction
2. Topics that can fall under other activities within the EMSAGS project:
  - Formalization, Policy Legal Framework for ASGM: To be provided by legal consultants working on the revision of the mining Law (through MNR) and NIMOS for the Environment related legislation. This will be arranged by the PMU
  - The Minamata Convention and its obligations for Suriname (including NAP and monitoring): To be provided by NIMOS
  - Opportunities for sustainable livelihood transitions and alternative income streams: Can be developed at a later stage under activity 3.3
  - Horticulture production systems: Can be developed at a later stage under activity 3.3
  - Conflict resolution & nonviolent communication
  - Mine inspectors training: activity 2.4
  - Mercury use and its long-term environmental and health effects: Support MZ for a train-the-trainers program
  - More in-depth training for health workers for health education and biomonitoring program: Support MZ for a train-the-trainers program
  - Identification of hazardous substances in the field (e.g. field measurements of Hg and CN): Should be part of the competency of MTEC personnel. The implementation will be discussed further.
  - Will be implemented as part of the NRTM in activity 1.3
    - i. Basic and advanced ArcGIS and QGIS
    - ii. Remote Sensing
    - iii. Advanced GPS knowledge
    - iv. Drone operation
3. Topics that are important but outside of the EMSAGS scope
  - Basic and advanced Microsoft Excel and Access

- General taxonomy of flora and fauna to upgrade current knowledge of technical staff
  - Academic botany training (oversees)
  - Flora training for technical staff
  - Treepotter training
  - Interpretation of RADAR images to enable forest carbon mapping without ground-truthing: Verify if the Amazon Sustainable Landscapes (ASL) project can support this
  - Environmental Impact Assessment processes: responsibility of NIMOS
  - Management and networking for ITP board members: Verify if the Amazon Sustainable Landscapes (ASL) project can support this
  - Data collection, report and summary writing: Follow training at existing training programs / schools
  - Basic and advanced English, French and Portuguese: Follow training at existing training programs
  - Defensive driving: important for MTEC employees. Follow training at existing training programs
  - (Project) financial management and accounting: follow training at existing training programs / schools
4. Topics that are not considered a training:
- Coordination between ministries: this should be covered by an inter-ministerial committee / mechanism
  - Enforcement of the Environmental Framework Law: responsibility of the National Environment Authority (NMA, to be established)
  - Enforcement of the nuisance law and establishing limits and guidelines in gold shop licenses: responsibility of NIMOS and ROS
  - Environmental management and spatial planning in ASGM: responsibility of ROM
  - Translations to Okanisi and Saamaka: translators can be hired when needed (ad-hoc)
  - Establishing and maintenance of a database: hire an expert to establish a database and provide advice for maintenance

Table 1 is a matrix showing the identified training topics that can be provided by the ESS team as part of deliverable 2, 3 or 5 and which institutions expressed their interest in these topics (yellow cells). Other topics and the interest per organization is provided in appendix C.



**Table 1. Matrix showing interest or relevance of training topics per institution**  
 (yellow = interest indicated during interviews, x = interest indicated during validation)

Topic	GMD	OGS	BIS	CE&D	NIMOS	ROS	ROM	MNR	VG	AdeKUS Geosciences	AdeKUS NZCS/CMO	AdeKUS BBS	MZ	RGD	BOG	SBB	VIDS	KAMPOS	
<b>Social aspects</b>																			
Gender mainstreaming and human rights	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
<b>Technical aspects - Mining</b>																			
Exploration of minerals (incl. sampling technique)	x	x	x	x	x			x		x	x	x				X			x
Basic introduction geology and gold mineralization	x	x	x	x	x			x		x	x	x							x
Mineral processing	x	x	x	x	x			x		x	x	x							x
Mining techniques	x	x	x	x	x			x		x	x	x					x		
Best practices on environmentally responsible mining (ERM) (incl. tailings management)	x	x	x	x	x			x		x	x	x							
Mine closure	x	x		x	x			x		x	x	x					x		x
<b>Technical aspects - Other</b>																			
Operational health and safety risk reduction	x	x	x	x		x	x	x		x			x						x

## **2.2 Validation Workshop**

To validate training needs of all agencies / institutions a validation session was organized on 13 October 2022 at the Lala Rookh Building 1, with the following schedule:

- 8:00-9:00 Walk-in and breakfast
- 9:00-10:00 Presentation TNA
- 10:00-11:00 Feedback and discussion
- 11:00-11:15 Recap & closing

The session was attended by 20 persons (11 male/9 female) who are representatives from MNR (Directorate of Mining, CE&D, GMD, BIS, OGS), ROM, NIMOS, AdeKUS (Geosciences, NZCS/CMO, BBS) SBB, KAMPOS and UNDP. The feedback consisted mostly of participants expressing their interest in training components that were identified by other organizations during the initial interviews. Based on this feedback, the matrix (table 1) was adjusted. Yellow cells indicate interest shown for a training topic during the initial interviews, while the 'x' were added during the validation session. Organizations that were not present at the validation sessions will be invited for the different training courses; they can then confirm or deny their interest.

## **2.3 Training Development & Delivery**

The ESS team will screen and adapt training material developed by the ERM expert. The team will also fill-in gaps of the training material especially with regards to topics with strong national and local content/approach, such as gender, environment, legal and policy framework, child labor, waste management, occupational health & safety etc. Training needs that cannot be met by the ESS consultant team will be addressed by a separate contract (to be arranged by PMU). The training will be provided to selected institutions. Training material and training schedules and attendance lists will be provided as separate (follow-up) documents. An important request made during the TNA validation was to consider splitting the training courses into introductory level and more advanced levels. This will allow people with different background to enter (parts) of the training as appropriate for their work. The consultants will take this request into account during training development to see where and how this is relevant and possible.

### 3 Appendices

#### Appendix A. Expected (orange) versus actual (X) implementation timeline

Deliverable	Activity	2022							2023				
		Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
2. Capacity strengthening	2.1. Training needs assessment (TNA)		X	X	X								
	2.2. Validation workshop					X							
	2.3. Training development												
	2.4. Delivery of training												

## Appendix B. TNA Input per Organization

Patience Singo (2022) held meetings with several institutions to assess their training needs. His findings were as follows:

Organization Representative	Training Needs
Ministry of Natural Resources (MNR) - Directorate of Mining (DM) Preciosa Simons, Angela Monorath	<ul style="list-style-type: none"> <li>● Need to strengthen environmental issues in the ASGM sector in Suriname</li> <li>● Mining rehabilitation is a requirement and ASGM should conduct it before leaving to another site</li> <li>● Miners are largely aware of mercury and the mining regulations have articles on it</li> <li>● There are technical and capacity gaps within GMD and trainings will be required in management, geophysics, and testing and laboratory infrastructure</li> <li>● Need for special monitoring of ASGM activities in highly forested areas</li> <li>● Important for the team to get a deep understanding of the different mining processes from prospecting, exploration, proper mining techniques, improved processing and gold recovery. Mercury free methods need to be understood by both the GMD teams and the miners</li> <li>● Priority to update the cadastral system to align with international developments</li> <li>● Need for capacity strengthening of the GMD through equipment support</li> </ul>
MNR – Community Engagement & Development Unit (CE&D Unit) Rudger Rensch	<ul style="list-style-type: none"> <li>● The Department’s priorities on ASGM include issues on FPIC and community engagement, community development, moving away from mercury-based production, and understanding of financial benefits of improved gold recovery techniques</li> <li>● There are limited environmentalist and mineral processing capacity in the department, most staff specialized in social sciences</li> <li>● The approach to the communities will be critical to achieve progress with demonstration of environmentally friendly mining techniques</li> <li>● Priorities for capacity strengthening and intervention include a focus on mercury decrease, safe mercury use and mine rehabilitation</li> </ul>
Anton de Kom University of Suriname (AdeKUS)- Department of Geosciences (DoG) Ramon Finkie	<ul style="list-style-type: none"> <li>● The need for processing knowledge in training institutions, there are limited professors with mining and processing knowledge as most have joined the private sector. There is also limited knowledge of the different types of processing technologies</li> <li>● There have been past projects that students were involved in training and demonstrations such as the WWF project. Working with students in the MTECs is a good idea and training can be both for students as well as miners</li> <li>● Miners like the concentrators but use it the wrong way by not controlling the size of materials loaded to the device making it inefficient</li> <li>● It is critical to set up several flowsheets to compare different technologies and performance as part of training and establishing the correct equipment for the different ores</li> </ul>

	<ul style="list-style-type: none"> <li>Miners tend to understand the context they use mercury amalgamation in. Use of mercury by miners depend on the size of gold they deal with. There was mention of miners who do not use mercury when gold is coarse</li> <li>Proposed that students can do research and publish academic papers from the work done with MTECs</li> </ul>
National Institute for Environment and Development in Suriname (NIMOS) Donovan Bogor	<ul style="list-style-type: none"> <li>The University of Suriname and Polytechnical colleges train young engineers and environmental scientists that can benefit from the EMSAG project</li> <li>Within the mining discipline at the Universities, there are a lot potential students that are willing to go to the field and engage in sampling, prospecting and processing</li> <li>Local communities have their own formal way of communication and it is important to establish communication for entry and continued collaboration with indigenous communities</li> </ul>

The results of this consultancy's TNA are as follows:

<b>Date Time Location</b>	<b>Organization Representative Title / Role</b>	<b>Training Needs</b>
7 Jul 22 ROM Office 9:00-10:00	Ministry of Spatial Planning and Environment (ROM) Meredith Cumberbatch Legal Advisor  Viresh Bharosa Chemicals & Waste	<ul style="list-style-type: none"> <li>Ways to approach and establish a stable working relationship with Small Scale Miners (SSM)</li> <li>Policies and best practices on environmentally responsible mining (ERM) and spatial planning / zoning, and how these can be integrated between ministries</li> <li>Necessary legislation to manage ASGM and related activities</li> <li>General understanding of ERM practices, needed environmental monitoring and how these are linked to relevant international conventions (UNCBD, UNFCCC, Minamata, UNCCD)</li> </ul>
29 Jul 22 9:00-10:00 Zoom	AdeKUS – National Zoological Collection / Center for Environmental Research (NZCS/CMO) Gwendolyn Landburg Acting Head	<ul style="list-style-type: none"> <li>General taxonomy of flora and fauna to upgrade current knowledge of technical staff</li> <li>Mapping and GIS</li> </ul>
29 Jul 22 9:00-10:00 Zoom	AdeKUS – National Herbarium Suriname (BBS) Eliza Zchuschen Head	<ul style="list-style-type: none"> <li>Academic botany training (oversees) for one staff member</li> <li>Flora training for technical staff</li> <li>Treespotter training</li> <li>Mapping and GIS</li> </ul>
29 Jul 22 15:00-16:00 Zoom	Foundation for Forest Management (SBB) Cindyrella Kasanpawiro	<ul style="list-style-type: none"> <li>Interpretation of RADAR images to enable forest carbon mapping without ground-truthing requirement</li> </ul>

<p>5 Aug 22 8:30-9:30 Zoom</p>	<p>NIMOS Donovan Bogor Office Director Environmental Planning &amp; Information Management Office (EPIMO)</p>	<ul style="list-style-type: none"> <li>● In case new personnel is hired to fill the current vacancies at NIMOS, they will need training in: <ul style="list-style-type: none"> <li>○ Overseeing Environmental Impact Assessment (EIA) processes</li> <li>○ Understanding and enforcement of the Environmental Framework Law, especially regarding environmental licenses and discharge of contaminants</li> <li>○ Environmental impacts of the ASGM sector</li> </ul> </li> <li>● Suggested to provide training to: <ul style="list-style-type: none"> <li>○ District Commissioners (DC): enforcement of the nuisance law and establishing limits and guidelines in licenses for gold shops to reduce mercury emissions</li> <li>○ Central Bank of Suriname (CBVS): mandating gold shops to report the gross and net weight of gold purchases. This way of accounting will provide data of mercury emissions at the gold shops as the tare weight is the mercury burnt off from the amalgam</li> </ul> </li> </ul>
<p>5 Aug 22 8:00 – 9:00 Zoom</p>	<p>Medical Mission (MZ) Maureen Wijngaarde-van Dijk, deputy director Melvin Uiterloo, coordinator for MZ projects</p>	<p>MZ conducted an extensive study with Radboud university (Nijmegen, the Netherlands) in 2015-2016 (Prosamigo project), focused on effectiveness and feasibility of a health education and mercury exposure program. Education materials were developed and used. The MZ health workers were trained to identify mercury-related health issues, give information and health education. A malaria-related study in ASGM areas was also done in 2020, which yielded quite a lot of health and social data.</p> <p>MZ suggests the following:</p> <ul style="list-style-type: none"> <li>● follow up (more in-depth) training for health workers for health education and biomonitoring program</li> <li>● biomonitoring program in pilot area</li> <li>● health unit in MTEC to provide health education, biomonitoring (and acute care)</li> </ul> <p>MZ will brainstorm internally and send more information in 2 weeks.</p>
<p>11 Aug 22 10:00 - 11:00 Google meet</p>	<p>KAMPOS Renatha Simson Director of Bureau KAMPOS</p>	<p>KAMPOS is a young umbrella organization of the Maroon tribal peoples. (est 2019). Its main problem is a lack of management and networking skills among the board members. Moreover, the organization has the feeling that they are invited because representation of Maroon people has to be on the sign-in list of the activity, since the objective of the project in preparation is not always one that the organization agrees with.</p> <p>According to KAMPOS outsiders approach goldmining communities like regular Maroon village communities, but the two are totally different and should be treated differently, since the traditional hierarchical village structure is lacking in goldmining camps.</p> <p>KAMPOS has draft FPIC protocols, approved by the relevant tribal peoples. The next step is to meet with VIDS and the government to discuss a final FPIC protocol agreeable for everyone.</p>

		<p>KAMPOS is interested in the following capacity-strengthening:</p> <ul style="list-style-type: none"> <li>• a basic management and networking training for board members, so that KAMPOS is better able to function and coordinate activities among the different tribal peoples</li> <li>• workshop/ training on mercury use and the long-term effects of mercury on health of the people, so that this knowledge can be used to inform the community structures</li> <li>• information on the Minamata Convention and its obligations for Suriname (incl. how does mercury reach Suriname if it is forbidden) so that they can use the information in negotiations with the government</li> </ul> <p>Training/ information should be at least in Dutch, making sure that someone is available to translate or explain in Sranan Tongo.</p>
<p>01 Sep 22 09:30 - 11:00 GW office (AdeKUS)</p>	<p>AdeKUS - Geoscience department (GW) of Faculteit der Technologische Wetenschappen (FTeW) Ramon Finkie</p>	<p>Topics for training:</p> <ul style="list-style-type: none"> <li>• training for gold mining (training of trainers)</li> <li>• practical training for the operating of equipment for gold processing (lab-scale and field-scale)</li> <li>• training for manufacturing thin sections</li> <li>• basic and advanced GIS</li> <li>• training for drones</li> </ul>
<p>05 Sep 22 09:00 - 10:30 BIS</p>	<p>Bauxiet Instituut Suriname (BIS) Ashwin Ramkhelawan Raymondo Emanuels</p>	<p>The Bauxiet Instituut Suriname (BIS), together with GMD and OGS, will be transformed to the Delfstoffen Instituut Suriname (DIS). For this transformation, a training needs assessment (TNA) was already performed to increase the capacity at BIS. The results can be found at the Ministry of Natural Resources (MNR):</p> <ol style="list-style-type: none"> <li>1. Ortega, E., 2022, Competitiveness and sector diversification project – Support to the Minerals Institute of Suriname – Inception Report</li> <li>2. Hijweege, W., 2022, Competitiveness and sector diversification project – Support to the Minerals Institute of Suriname – Change Management Plan</li> </ol> <p>BIS expertise lies in large-scale mining (LSM). They do not have experience with ASM, but they could assist in the ASM-LSM interaction.</p> <p>Topics for training:</p> <ul style="list-style-type: none"> <li>• legal training related to mining</li> <li>• training in mine closure, in particular gold mines</li> <li>• advanced ESIA training (modern technique)</li> </ul>

		<ul style="list-style-type: none"> <li>• training in business economics</li> <li>• practical training in community engagement</li> <li>• Basic and advanced GIS</li> <li>• training for drones</li> </ul>
06 Sep 22 09:00 - 11:00 CE&D	MNR - Community Engagement & Development Unit (CE&D Unit) Gladys Kloof (senior beleidsmedewerker & coordinator) Novella Alcantra (hoofd beleidsmedewerker) Selcius Poeketi (Beleidsmedewerker)	<p>The CE&amp;D unit of MNR started in 2020. This unit consists of 13 members (of which five have a higher degree as MULO). At the moment, they work mainly with people from the rural areas in Suriname (mainly Aucaners and Saramacaners). Their goal is to have employees, who are familiar with the tradition in all rural communities. Because they are a relatively new department, they lack PPE for the field, making it hard to engage with the communities.</p> <p>Topics for training:</p> <ul style="list-style-type: none"> <li>• module for collecting data</li> <li>• module for writing good reports and summaries</li> <li>• module for basic and advanced english (reading, writing and speaking), French and portuguese is desirable as well</li> <li>• module translation to Aucaans and Saramacaans</li> <li>• how to set up a good database and monitoring of the database</li> </ul>
08 Sep 22 10:59 Email	MNR - Geologische Mijnbouwkundige Dienst (GMD) Lindsey Sanné	<p>Topics for training:</p> <ul style="list-style-type: none"> <li>• Basic ARCGIS &amp; QGIS</li> <li>• Advanced ARCGIS &amp; QGIS</li> <li>• Basic Excel &amp; Access</li> <li>• Advanced Excel &amp; Access</li> <li>• Remote sensing</li> <li>• Advanced GPS knowledge</li> </ul>
9 Sep 22 9:44 Email	Ministry of Regional Development and Sport (ROS) Mavrick Boejoekoe Permanent Secretary	<p>Taking into account the role of ROS as described in the EMSAGS ProDoc: 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”</p> <p>District level representatives from the Domestic Agricultural Development Directorate (Directoraat Agrarische Ontwikkeling Binnenland - DOAB) can be trained in aspects of horticulture production systems. The Environmental and Health Departments (Milieu Gezondheids Dienst - MGD) of the Commissariat of Brokopondo and Upper Coppename could be trained in the principles of FPIC, Community Engagement Strategies, and ITP participation in local decision making.</p>



<p>15 Sep 22 10:00-10:45 Zoom</p>	<p>Ministry of Health Jules de Kom Toxicology Focal Point Ministry of Health, Senior Policy Advisor</p>	<p>Based in the role of the Ministry, he does not expect immediate training needs as MZ will be on the level of implementation. Facilitation of MZ by the ministry means making finances available, MZ has and deploys its own technical capacity.</p> <p>An important factor is good coordination between medical professionals and institutes concerned with treatment of persons who (potentially) suffer from the health effects of mercury. There is a need for a chemical board (which includes mercury and other toxic chemicals) for coordination, better treatment of patients and translating available data to policy. In addition, if MZ applies protocols for determining mercury poisoning and the results are positive, these people need further testing and treatment. The Central Laboratory (Centraal Lab - CL) at the Bureau of Public Health (Bureau Openbare Gezondheidszorg - BOG) used to have the capacity (people, equipment and material) for mercury analysis in urine. It is however, unclear if the laboratory still has this capacity. Mr. de Kom will verify and send us an update next week.</p>
<p>16 Sep 22 10:00 - 11:00 OGS</p>	<p>Ordering Goud Sector (OGS) Wilson Balansi (General Manager)</p>	<p>OGS is a department for guiding the gold mining sector in Suriname, e.g., improved communication between concession holders, miners (formal and informal), and the communities. OGS is a “quick response team” who needs good equipment and PPE for their fieldwork. It is advisable that all employees of OGS are “buitengewoon agent van politie” (BAvP), for this they need to get the training for BAvP.</p> <p>Topics for training:</p> <ul style="list-style-type: none"> <li>● the use of mercury and its consequences (training of trainers)</li> <li>● training for mine inspectors</li> <li>● GPS training (basic and advanced)</li> <li>● GIS training (basic and advanced)</li> <li>● drone training (piloting)</li> <li>● training to recognize hazardous substances in the field (field measurements e.g. mercury, cyanide, etc.)</li> <li>● training in defensive driving</li> <li>● training in soft skills, e.g., exercises for engagement and approach techniques</li> </ul>

## Appendix C. Matrix showing interest or relevance of training topics per institution

Topic	GMD	OGS	BIS	CE&D	NIMOS	ROS	ROM	MNR	VG	AdeKUS Geosciences	AdeKUS NZCS/CMO	AdeKUS BBS	MZ	RGD	BOG	SBB	VIDS	KAMPOS
<b>1. Topics that can be provided by the ESS team as part of deliverable 2, 3 or 5</b>																		
Gender mainstreaming and human rights	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Exploration of minerals (incl. sampling technique)	x	x	x	x	x			x		x	x	x				x		x
Basic introduction geology and gold mineralization	x	x	x	x	x			x		x	x	x						x
Mineral processing	x	x	x	x	x			x		x	x	x						x
Mining techniques	x	x	x	x	x			x		x	x	x				x		
Best practices on environmentally responsible mining (ERM)	x	x	x	x	x			x		x	x	x						
Mine closure	x	x		x	x			x		x	x	x				x		x
Operational health and safety risk reduction	x	x	x	x		x	x	x		x			x					x
<b>2. Topics that can fall under other activities within the EMSAGS project</b>																		
Formalization, Policy Legal Framework for ASGM	x	x		x				x		x						x		x
The Minamata Convention and its obligations for Suriname	x		x	x			x	x		x	x	x						
Opportunities for sustainable livelihood transitions and alternative income streams																		
Horticulture production systems																		
Conflict resolution & nonviolent communication																		
Mine inspectors training																		
Mercury use and its long-term environmental and health effects							x	x						x			x	x

Topic	GMD	OGS	BIS	CE&D	NIMOS	ROS	ROM	MNR	V/G	AdeKUS Geosciences	AdeKUS NZCS/CMO	AdeKUS BBS	MZ	RGD	BOG	SBB	VIDS	KAMPOS	
More in-depth training for health workers for health education and biomonitoring program														X					
Identification of hazardous substances in the field (e.g. field measurements of Hg and CN)																			
Basic and advances ArcGIS and QGIS	X	X	X	X							X	X							
Remote Sensing	X	X	X	X							X	X							
Advanced GPS knowledge	X	X	X	X							X	X							
Drone operation	X	X	X								X	X							
Environmental monitoring and how these are linked to relevant international conventions																			
<b>3. Topics that are important but outside of the EMSAGS scope</b>																			
Basic and advanced Microsoft Excel and Access																			
General taxonomy of flora and fauna to upgrade current knowledge of technical staff																			
Academic botany training (oversees)																			
Flora training for technical staff																			
Treespotter training																			
Interpretation of RADAR images to enable forest carbon mapping without ground-truthing																			
Environmental Impact Assessment processes	X	X		X															
Management and networking for ITP board members																	X		
Data collection, report and summary writing																			
Basic and advanced English, French and Portuguese																			
Defensive driving																			

Topic	GMD	OGS	BIS	CE&D	NIMOS	ROS	ROM	MNR	V/G	AdeKUS Geosciences	AdeKUS NZCS/CMO	AdeKUS BBS	MZ	RGD	BOG	SBB	VIDS	KAMPOS	
(Project) financial management and accounting																			
<b>4. Topics that are not considered a training</b>																			
Coordination between ministries																			
Enforcement of the Environmental Framework Law																			X
Enforcement of the nuisance law and establishing limits and guidelines in gold shop licenses																			
Environmental management and spatial planning in ASGM																			
Translations to Okanisi and Saamaka																			
Establishing and maintenance of a database																			

## Appendix D. Capacity Score Card (From EMSAGS ProDoc Annex Q)

Capacity Score Card						
Managing the Environmental Impacts of Artisanal Small Scale Gold Mining						
<p>This Capacity Score Card has been developed in order to assist in monitoring evolution in capacity of all stakeholders to identify, implement and manage environmentally responsible artisanal small scale mining. It was adapted from the following: (adapted from UNDP Capacity Assessment Score Card (REF) and Monitoring Capacity Development Results in GEF (REF). It is designed to be completed at inception, mid-term and end of project. The Score Card will deliver different results according to stakeholders called upon to fill it in. Therefore, a participatory process for measuring the scorecard is required, that brings together a broad spectrum of stakeholder groups, to ensure a thorough reflection of various points of view.</p>						
Person Filling: _____		Name of Institution: _____		Date: _____	Type of Stakeholder: _____	
Element of Capacity and Indicator	0	1	2	3	Rating	Comment
Capacity for Engagement						
Degree of legitimacy/mandate of lead organization(s)	Organizational responsibilities for environmental management of ASGM are not clearly defined	Organizational responsibilities for environmental management of ASGM are identified	Authority and legitimacy of all lead organizations responsible for environmental management of ASGM are partially recognized by stakeholders	Authority and legitimacy of all lead organizations responsible for environmental management of ASGM recognized by stakeholders		This indicator measures if the lead organizations for ASGM are identified, if their respective responsibilities are clearly defined and if the authority of these organizations is recognized.
Existence of cooperation among stakeholder groups in addition to their involvement (participation and engagement) in decision-making on environment and mining	Identification of stakeholders and their participation/involvement in management decision-making on environment and mining is poor	Stakeholders are identified but their participation in management decision-making on environment and mining is limited	Stakeholders are identified and regular consultations mechanisms are established related to environment and mining	Identified stakeholders cooperate with each other, and they actively contribute to established participative management decision-making processes on environment and mining		This indicator measures the involvement of stakeholders, their identification, the establishment of stakeholder consultation processes and the active contribution of these stakeholders to decision-making on environment and mining.

Degree to which local populations, miners, indigenous people, women and other vulnerable groups are engaged in policy-making for the ASGM sector	All policies and regulations are enforcement-based and top down, with no local consultation or buy-in	Some forums for local participation in ASGM policy-making exist but few participate	There exist formal avenues for local stakeholder participation in policy-making and their contributions are recognized	Policy-makers and local populations, miners, IPs and women participate on an equal footing in ASGM-related policy-making and a climate of trust exists based on mutual benefits		This indicator measures the extent to which policies, regulations and decisions related to environmental management of ASGM are aligned with local populations priorities, and the contribution of local populations in policy-making
<b>Capacities to generate, access and use information and knowledge</b>						
Degree of environmental awareness of stakeholders on the environmental impacts of ASGM	Stakeholders are not aware about environmental impacts of ASGM or about potential solutions	Stakeholders are aware about environmental impacts of ASGM not about the possible solutions	Stakeholders are aware about environmental impacts of ASGM and of the possible solutions but do not know how to implement them	Stakeholders are aware about environmental impacts of ASGM and are actively participating in the implementation of related solutions		This indicator measures the level of awareness of stakeholders about the environmental impacts of ASGM and the solutions being implemented and their possibility to participate in the implementation of these solutions.
Access and sharing of ASGM information by stakeholders	The ASGM information needs are not identified and the information management infrastructure is inadequate	The ASGM information needs are identified but the information management infrastructure is inadequate	The ASGM information is partially available and shared among stakeholders but is not covering all focal areas and/or the information management infrastructure to manage and give information access to the public is limited	Comprehensive ASGM information is available and shared through an adequate information management infrastructure		This indicator measures the information needs, if they are identified, the adequacy of the information management infrastructure in place and the sharing of ASGM information.

<p>Adequacy of the environmental information available for decision-making on ASGM</p>	<p>The availability of environmental information on ASGM for decision-making is lacking</p>	<p>Some environmental information on ASGM exists but it is not sufficient to support environmental decision-making processes</p>	<p>Relevant ASGM environmental information is made available to environmental decision-makers but the process to update this information is not functioning properly</p>	<p>Political and administrative decision-makers obtain and use updated ASGM environmental information to make environmental decisions</p>	<p>This indicator measures the adequacy of the ASGM information available for decision-making; if the information is made available to decision-makers and if this information is updated and used by decision-makers</p>
<b>Capacities for strategy, policy and legislation development</b>					
<p>Extent of the ASGM related planning and strategy development process</p>	<p>The ASGM-related planning and strategy development process is not coordinated and does not produce adequate environmental plans and strategies</p>	<p>The ASGM-related planning and strategy development process does produce adequate environmental plans and strategies but there are not implemented /used</p>	<p>Adequate ASGM-related plans and strategies are produced but there are only partially implemented because of funding constraints and/or other problems</p>	<p>The ASGM planning and strategy development process is well coordinated by the lead environmental organizations and produces the required environmental plans and strategies; which are being implemented</p>	<p>This indicator measures the quality of the planning and strategy development process; if the planning and strategy development process produces adequate plans and strategies related to environmental management of ASGM; and if the resources and coordination mechanisms are in place for the implementation of these plans, programmes and projects.</p>
<p>Existence of an adequate policy and regulatory frameworks in terms of environmental aspects of ASGM</p>	<p>The policy and regulatory frameworks are insufficient; they do not provide an enabling environment for environmental aspects of ASGM</p>	<p>Some relevant policies and laws exist with regards to environmental aspects of ASGM but few are implemented and enforced</p>	<p>Adequate policy and legislation frameworks exist with regards to environmental aspects of ASGM but there are problems in implementing and enforcing them</p>	<p>Adequate policy and legislation frameworks are implemented and provide an adequate enabling environment with regards to environmental aspects of ASGM; a compliance and enforcement mechanism is established and functions</p>	<p>This indicator measures the completeness of the policy and regulatory frameworks, the existence and the adoption of relevant policies and laws and if the mechanisms for enacting, complying and enforcing these policies and laws are established with regards to environmental aspects of ASGM.</p>

Capacities for management and implementation						
Existence and mobilization of resources by the relevant environmental organizations to manage ASGM	The environmental organizations don't have adequate resources with regards to ASGM or their programmes and projects and the requirements have not been assessed	The resource requirements in terms of gold mining are known but are not being addressed	In order to manage ASGM, the funding sources for these resource requirements are partially identified and the resource requirements are partially addressed	In order to manage ASGM, adequate resources are mobilized and available for the functioning of the lead environmental organizations		This indicator measures the availability of resources within the relevant organizations in order to manage ASGM, if the potential sources for resource funding are identified and if adequate resources are mobilized.
Availability of required technical skills and technology to manage ASGM	The necessary required skills and technology to manage ASGM are not available and the needs are not identified	The required skills and technologies needed to manage ASGM are identified as well as their sources	The required skills and technologies needed to manage ASGM are obtained but their access depend on foreign sources	The required skills and technologies to manage ASGM are available and there is a national-based mechanism for updating the required skills and for upgrading the technologies		This indicator measures the availability of skills and knowledge to manage ASGM, if the technical needs and sources are identified and accessed by the programme or project and if there is a basis for an ongoing national-based upgrading of the skills and knowledge.
Capacities to monitor the environmental impacts of ASGM						
Adequacy of monitoring process related to the environmental impacts of ASGM and the extent to which the monitoring information informs policymaking for ASGM	Irregular monitoring is being done without an adequate monitoring framework or indicators related to environmental impacts of ASGM	An adequately resourced monitoring framework is in place but project monitoring is irregularly conducted	Regular participatory monitoring environmental impacts of ASGM is being conducted but this information is only partially used by the government in setting new policy	Environmental monitoring information is produced timely and accurately and is used by the government to learn, inform and possibly to change policies related to ASGM		This indicator measures the extent to which the monitoring and enforcement process for the environmental impacts of ASGM is used to create a better-informed policy context.



## Appendix E. Indicator sheet to be used for each report within this consultancy

(relevant indicators highlighted)

Outcome/Indicators	Objective and Outcome Indicators	Baseline	Mid-term Target (Expected by 3rd or 4th GEF PIR)	End of Project Target (Expected at terminal evaluation)	Contributions of current report
<b>Mandatory indicator</b>	# direct project beneficiaries (number of beneficiaries 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)	
<b>Sustainable Forest Management (SFM) and Biodiversity (BD) related indicator</b>	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	
<b>SFM and BD indicator</b>	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)	
<b>Climate Change Mitigation (CCM) indicator</b>	Number of tons of CO2 emissions mitigated through avoided deforestation, by end of project	643,000 tons of CO2 emitted through deforestation due to ASM mining activities (scenario without project)	600,000 tCO2e reduced through avoided deforestation and rehabilitation of forest by mid-term	1,227,961 million tCO2e reduced through avoided deforestation and rehabilitation of forest by end of project	
<b>Outcome 1: Institutional capacity, inter-institutional coordination and availability of funding increased for improved management of ASGM</b>	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	

Outcome/Indicators	Objective and Outcome Indicators	Baseline	Mid-term Target (Expected by 3rd or 4th GEF PIR)	End of Project Target (Expected at terminal evaluation)	Contributions of current report
	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	
	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	
<b>Outcome 2: Policy and planning framework for the management of the environmental impacts of ASGM strengthened</b>	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	
	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	

Outcome/Indicators	Objective and Outcome Indicators	Baseline	Mid-term Target (Expected by 3rd or 4th GEF PIR)	End of Project Target (Expected at terminal evaluation)	Contributions of current report
<b>Outcome 3: Uptake of environmentally responsible artisanal and small-scale gold mining practices increased</b>	Existence of a sustainable system for the dissemination, uptake and monitoring of environmentally responsible ASM practices at local level	0 MTECs established	Protocols, Incentives and infrastructure for the 3 MTECs agreed and established by mid-term	3 MTECs are operational and providing services to miners in a self sustaining manner in the three sites	
	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	
	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	
<b>Outcome 3: Uptake of environmentally responsible artisanal and small-scale gold mining practices increased</b>	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	
	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	TBD	An increase in 30% of awareness as determined by the surveys	An increase of 50% in awareness	

Outcome/Indicators	Objective and Outcome Indicators	Baseline	Mid-term Target (Expected by 3rd or 4th GEF PIR)	End of Project Target (Expected at terminal evaluation)	Contributions of current report
	environmentally responsible techniques and practices				
<b>Outcome 4: Knowledge availability and sharing increased at the national and regional scale on environmentally responsible ASGM</b>	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.	
	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	