

THE UNITED REPUBLIC OF TANZANIA



VICE PRESIDENT'S OFFICE UNION AND ENVIRONMENT



NATIONAL ENVIRONMENT MANAGEMENT COUNCIL (NEMC)

TERMS OF REFERENCE

IDENTIFICATION, ASSESSMENT, AND MAPPING OF THE ASGM HOT SPOTS AND ABANDONED SITES

PROJECT TITLE	ENVIRONMENTAL HEALTH AND POLLUTION MANAGEMENT PROJECT
GRANT NUMBER	P 167788,TF0B 3310
EXPERT TITLE	ASGM HOTSPOT ASSESSMENT EXPERT
CONTRACT TYPE	LUMPSUM
DURATION	3 MONTHS
START DATE	15 th August 2022
SELECTION METHOD	CQS

1. Background

Tanzania is one of five African countries participating in the GEF-funded and the World Bank supervised Africa Environmental Health and Pollution Management Program, whose objective project aims is to reduce exposure to mercury and uPOPs pollution at pilot sites and strengthen the institutional capacity to manage and regulate mercury use in artisanal small-scale gold mining (ASGM) and e-waste in selected countries in Africa.

The mining sector in Tanzania is currently contributing 5.2% of the country's Gross Domestic Product (GDP), the bigger share being gold. Artisanal Small-Scale Gold Mining (ASGM) activities are constantly increasing and dominated by local miners using basic methods to extract near-surface deposits. ASM is associated with low investment and low productivity, but it accounts for most of the sector's employment. Mercury is the most common chemical used by Artisanal and Small-Scale Gold Miners (ASGM) in gold recovery. This creates a risk to human health and the environment as mercury gets into aquatic ecosystems through atmospheric deposition and surface runoff. It can be transformed into an extremely toxic organic methylmercury which bioaccumulates into the food chain. The Mining Commission in Tanzania indicated

that for the financial year 2020/21, a total of 50.6 tones of gold was produced in the country of which 15.43 tones equivalent to 30.5% were from ASGM

In 2017, a total of 128 countries including Tanzania signed the Minamata Convention on mercury. Article 7 of the Convention is about reducing and where feasible phasing out the use of mercury in Artisanal and Small Scale Gold Mining (ASGM). In response to that, Tanzania prepared a five (5) year National Action Plan (NAP) for 2020-2025 with the objective of implementing article seven (7) of the Minamata Convention. According to Tanzania's NAP on Minamata convention, by 2025 use of mercury in ASGM should be reduced by at least 30% which necessitates the collection of the baseline information of the ASGM hotspot for effective monitoring and evaluation of the project's impact on public health and environment.

As one of the country's strategies to implement the NAP for mercury reduction, the Environmental Health and Pollution Management Project (EHPMP) was formulated and it was signed by both the Government of Tanzania and the World Bank on 19th October 2020 and was declared effective on 26th October 2020. In Tanzania, the project will be implemented in seven (7) regions which include Geita, Mwanza, Mara, Shinyanga, Singida, Mbeya and Songwe.

2. Objectives of the Assignment

The Objective of the Consultancy Services is to collect accurate and current environmental contamination, health and social baseline data on ASGM sites to determine exposure paths and mitigation measures that can inform future sector reform in terms of formalization of community ASGM sites as well as strengthening of monitoring and enforcement and in support of government ongoing activities related to Minamata Convention implementation. The baseline data collected is expected to be part of the planned National ASGM Information Management System hosted by NEMC that could in the future aggregate more information and facilitate data visualization and interpretation.

3. Scope of the Assessment and Responsibilities of Parties

3.1. Scope of the Assignment

The assessment intends to map all ASGM active hot spots and abandoned sites within EHPMP Project regions that include Geita; Mwanza, Mara, Shinyanga, Singida, Mbeya and Songwe. In this matter, all active and abandoned sites for ASGM activities will be covered.

3.2. Responsibility of the Consulting Firm

The task for this consulting service will include but is not limited to the following:

- a) Research and Data Collection:** As part of the Needs Assessment exercise, the Consulting Firm is expected to conduct desk research on information and spatial distribution of the ASGM in project regions.
- b) Apply** qualitative and quantitative research techniques to develop tools for data collection for the assessment of hotspots and abandoned sites;

- c) Mobilise staff required to carry out the assessment;
- d) Mobilize all equipment and logistics required for the conduct of the assessment;
- e) Collect detailed and accurate data which will reflect ASGM information on the following aspects;
 - 1) Information for the distribution of ASGM activities on the following aspects:
 - i. Geographic locations for ASGM (sites, community settlements and environmental aspects);
 - ii. History of the site and morbidity;
 - iii. Relative sizes and workforces of each ASGM site;
 - iv. Specific activities being undertaken in each ASM site;
 - v. Location of formal and informal ASGM activities, including mercury sell points;
 - vi. Site accessibilities;
 - vii. Chain of operation, mercury demand value chain etc.
 - viii. other existing activities and services on each site;
 - 2) ASGM mineralogy and technologies on the following aspects:
 - i. Number of active mine pits and abandoned pits;
 - ii. Sources of mercury used;
 - iii. Type of the deposit being extracted and other associated minerals
 - iv. Estimated ore grades and gold purity;
 - v. Mining capacity and mining technology;
 - vi. Processing technology involved;
 - vii. Gold Recovery Methods;
 - viii. Management of the tailings;
 - ix. ASGM site zonings and mine infrastructures available; and
 - 3) ASGM governance on the following aspects:
 - i. ASGM status (formal or informal);
 - ii. ASGM permits or licenses;
 - iii. Mode of organization and entities involved;
 - iv. Types of the governing structures in respective mining sites;
 - v. The gold value-chains among ASGM;
 - vi. The stakeholders involved and roles; and
 - vii. The degree of formalization and number of ASM Associations.

- 4) Site socioeconomics, environmental and occupational health and safety issues of ASGM sites including:
 - i. Awareness aspect of mercury use and its impacts;
 - ii. Handling and storage of mercury;
 - iii. Gender aspects related to the distribution of roles in the ASGM;
 - iv. Vulnerable groups involved in the ASGM activities;
 - v. Degradation status and affected environmental aspects;
 - vi. Unsafe health practices within the site;
 - vii. Source of water used;
 - viii. Social services available at each site location.
 - ix. Occupational health and safety risk issues related to the site.
- f) Conduct a comprehensive mapping of the ASGM in the project areas;
- g) Design and develop an online data-driven interactive tool (Dashboard) based on collected data. The tools should be able to process, analyse and present results in plots, maps and tables related to ASGM;
- h) Prepare manual for operationalising the dashboard; and
- i) Prepare and submit a report according to these terms of reference.

3.3. Client and Consulting Firm Obligation

The Council will be responsible to facilitate the Consulting Firm in the performance of the activity including but not limited to introducing the Consulting Firm to various stakeholders and payments according to the contract.

The Consulting Firm will be in charge of the logistical arrangements for the task's administration and operation. The Consulting Firm will further liaise with the personnel designated for the Project from the Government agencies including Technical Committee members as may be required in order to facilitate the Consulting Firm's work in accordance with these Terms of Reference. The Consultant will be responsible to do the presentation of the draft report as organised by NEMC.

4. Expected Deliverables and Duration

The consultancy firm is expected to submit the following deliverables prepared in English and submitted electronically. Two copies of the report are required – one MS Word copy and one PDF copy. The Consulting Firm will be paid following satisfactory submission and acceptance of the deliverables. All data and reports related to this exercise shall be submitted and belong to Council, and therefore the Consulting Firm will not provide it to the third party unless there is written consent from the Council.

Duration of the Consultancy from the signing of the contract to submission of the Final Report will not exceed four (4.0) calendar months including review and approval periods. The timelines (Table 1) for the execution of the assignment are exclusive of

reviews and validation workshops after each deliverable that will be facilitated by the Council.

Table 1: Timelines for the execution of the assignment

SN	Deliverable	Deliverable Deadline	Remarks
1	Submission of Inception Report – An inception report should have a detailed work plan and a detailed description of the proposed methodology and data collection tools, the proposed format and content of the Final Report submitted to the Council	14 days from the signing of the contract	14 days for the PIT and TC to review and provide comments
2	An initial assessment workshop with the Project team to understand more about their needs and expectations	21 days after acceptance of an inception report	To harmonize the data collection tools
3	Submission of Draft Reports: The draft report with preliminary analysis shall include the methodology explaining how the assignment was undertaken, the results obtained and a detailed explanation of the tasks covered under 3.	30 days from the initial assessment workshop	The report will be discussed by PIT and TC Members for comments and further improvement.
4	Presentation workshop of the Draft Submitted Report for their feedback and comments.	Within 14 days	The proposed timing may depend on the selection of the date for the presentation
5	Submission of Final Report: The final report all reviews and recommendations and transfers hosting of a dashboard to NEMC.	14 days from the presentation of the revised draft document	
6	A training workshop to onboard PIT on the visualization of data.	14 days from Final submission	Date to be determined by the PIT

5. Qualifications Requirements

Shortlisted firm engaged in small scale mining activities with a qualified team of individuals or professionals and support staff available to be deployed to execute this assignment. The firm should consist of a team leader, researchers or experts specialized in the different aspects of artisanal and small-scale mining or the topics related to this assignment. The minimum qualification of the firm should include the following:

- a. Proven track record of community engagement, preferably in the ASGM communities;

- b. Demonstrated interpersonal and diplomatic skills, as well as the ability to communicate effectively with all stakeholders and to present ideas clearly and effectively; proven ability to work in a collaborative and multi-stakeholder team environment;
- c. Demonstrate strong knowledge and understanding of ASGM work environment; and
- d. Excellent expertise and proven track record in data science and big data analytics.

The key personnel/ team of experts shall have the following qualifications.

5.1. TEAM LEADER

a. Qualification:

Preferably, the team should consist of a team leader with at least ten (10) years of broad experience in managing and leading studies of conducting comprehensive assessments on the various undertaking or similar assignments with at least a Master's Degree in Geosciences, Mineral Processing Engineering, Mining Engineering or related fields;

b. Specific Requirements:

- Good understanding of the business related to Artisanal and Small-Scale Mining;
- Experience in conducting environmental, social and health assessments in the ASGM sector;
- Demonstrable experience and knowledge of the obligations under the Minamata conventions with a specific focus on Article 7 of the Minamata Convention (Mercury use in ASGM);
- Demonstrate a competent ability to compile and process the collected data independently and in a group;
- Knowledge of legal frameworks related to Mining, Environment and Health requirement standards in Tanzania;
- Excellent verbal and written communication skills in English
- Demonstrable experience in working with stakeholders from the ASGM sector, government institutions, NGOs and international organisations, traditional local leaders, and local communities in the developing countries or sub-saharan Africa.
- Demonstrate a competent ability to compile and process collected data independently and in a group.

5.2. Environment and Health Experts

a. Qualification:

Education: At least a Bachelor's degree in Environmental Sciences, Environmental Management, Environmental Sustainability studies, or any Environmental Studies.

b. Specific Requirements

- At least 5 years of professional experience in assessments related to the collection of the environmental and health baseline data or a relevant related field;
- Good understanding of the environment and health impacts related to ASGM;
- Good understanding of the business related to formal and informal ASGM sectors;
- Demonstrate a competent ability to collect, compile and process environmental information;
- Excellent verbal and written communication skills in both Swahili and English language;
- Experience and past performance in assignments of similar nature and complexity.

5.3. Social Science Experts

a. Qualification:

Education: At least a Bachelor's degree in Social Sciences, Social / Community Development or any relevant discipline.

b. Specific Requirements:

- At least five (5) years of experience in conducting comprehensive studies and socio-economic assessments on the various undertaking or similar assignments in the ASGM sector, or relevant related fields;
- Experience in working with various stakeholders, and maintaining professional relationships;
- Demonstrate a competent ability to compile and process collected data independently and in a group;
- Excellent verbal and written communication skills in both Swahili and English language;
- Demonstrated experience working with a variety of stakeholders, including senior government officials, the local/communities in ASGM areas, ;

5.4. Field Data Collectors and Entry – 12 Nos.

a. Qualification:

Education: At least a Bachelor's degree in social sciences, social / Community, environmental-related studies, natural resources studies, Development or any relevant discipline.

b. Basic Requirements:

- Excellent communication skills are required.
- Fluency in English and Swahili is required.
- Ability to understand implementation protocol required.
- Ability to record data required.

- Knowledge of the use of the computer (including mobile devices).

5.5. Interactive Data Visualization Expert

a. Qualification:

Education: Minimum certificate degree in a relevant field such as computer science, data/information management, GIS and Remote Sensing, advanced statistical analysis, information technology, software engineering, Monitoring and Evaluation etc

b. Basic Requirements:

- Demonstrated strong analytical skills for qualitative, quantitative and spatial data visualization;
- Proficient in scripting programming languages for data processing, analytical and visualisation including Python and R;
- Should be proficient in markup language; HTML, CSS, Markdown etc
- Should have excellent analytical oriented skills, presentation, graphic and problem-solving;
- Prior experience with version control systems eg Gitlab and Github will be an added advantage;
- Experience in developing data visualization tools/dashboards using shiny will be added advantage;
- Extensive database management skills including complex queries, performance tuning and database development.

5.6. Estimated Staff-Months

The consulting firm will provide staff for the assignment as follows; One(1) team leader, Two (2) Environment and Health Experts, Two (2) Sociologists, Two (2) Data entry operators, ten (10) Data Collector. The Consulting firm will need to draw up a team of key experts with 11.5 estimated staff-months

Table 2: Estimated Staff time

SN	Team member	Input (Person months)
1	Team Leader	3.0
2	Supporting Experts <i>Two Env. and Health Experts-I (each 0.5)</i> <i>Two Sociologist -I(each 0.5)</i>	2.0
3	<i>Field Data Collectors and Entry</i> <i>Field Data Collector- I (0.5)</i> <i>Field Data Collector- II (0.5)</i> <i>Field Data Collector- III (0.5)</i> <i>Field Data Collector- IV (0.5)</i> <i>Field Data Collector- V (0.5)</i> <i>Field Data Collector- VI (0.5)</i> <i>Field Data Collector- VII (0.5)</i> <i>Field Data Collector- VIII (0.5)</i> <i>Field Data Collector- IX (0.5)</i> <i>Field Data Collector- X (0.5)</i> <i>Field Data Entry- XI (0.5)</i> <i>Field Data Entry- XII (0.5)</i>	6.0
4	<i>Interactive Data Visualization Expert (0.5)</i>	0.5

TOTAL	11.5
--------------	-------------

6. Ownership of Materials, Equipment and Accessories

- a. All reports, documents, data, maps, learning materials and/or briefs generated during the assignment shall be the property of NEMC

7. Precautions against Covid 19 Pandemic

When carrying out the assignment in situations that may include interactions with groups of people such as interviews, demonstrations and other such activities, necessary precautions against COVID 19 shall be taken including wearing masks, sanitizing, washing hands with soap and running water, social distancing and others as may be directed by Health Authorities.

8. Schedule of Payments

The client will effect the first instalment of 20% after submission of the inception and presentation of the approved inception report acceptable to the client.

The second instalment of 40% will be paid after the submission and approval of the Draft report acceptable to the client.

The final instalment of 40% will be paid after submission and the approval of the final report and data visualisation tool acceptable to the client

9. Submission

Interested Consulting Firm shall submit Expression of Interest (EoI) together with their CVs to the Project Coordinator, EHPMP-Project by 15th July ,2022 via email: prosper.munis@nemc.or.tz and copied to dg@nemc.or.tz , befrina.igulu@nemc.or.tz.