

**FEDERAL REPUBLIC OF NIGERIA  
MINISTRY OF MINES AND STEEL DEVELOPMENT**

**MINERAL SECTOR SUPPORT FOR ECONOMIC DIVERSIFICATION  
PROJECT (MinDiver)**

**Terms of Reference for the engagement of a Technical Expert  
Consultant to develop a Programme for the Formalization of  
Artisanal Miners into Cooperatives and Small-Scale Miners into  
Larger Mineral and Financial Enterprises together with the Design  
and Implementation of an ASM Remote Sensing Monitoring System  
in the Mining and Steel Sector**

**1.0 INTRODUCTION**

The Federal Government of Nigeria has obtained a credit from the International Development Association (IDA) to fund the Mineral Sector Support for Economic Diversification (MinDiver) Project. The project has the following development objectives:

- a. To improve the attractiveness of the Nigerian Mining sector, as a driver for economic diversification, for long-term private sector investment in the exploration and production of minerals.
- b. To create a globally competitive sector capable of contributing to wealth creation, providing jobs and advancing our social and human security.

**2.0 BACKGROUND**

The Federal Government of Nigeria has embarked on an economic diversification campaign with the aim of leveraging on the Nation's vast natural resources to diversify the economy from the oil and gas sector to achieve economic emancipation.

The sector's growth and contributions to GDP have remained less than ideal, accounting for only about 0.33% in 2015. To address this, the Ministry of Mines and Steel Development (MMSD) recently developed a roadmap for mining growth and development with objectives to deepen sector reforms, attract new investors and collaborate with a wide network of partners and stakeholders to rejuvenate the sector and build a prosperous economy propelled by inflows from the solid minerals sector. The overall objective of the MinDiver Project is to link with the Roadmap and enhance the mining sector's contribution to the economy by

strengthening key government institutions, improving information infrastructure and knowledge, and fostering domestic investment in the sector. The Project consists of the following parts:

**Part A. Establishing a Strong Foundation for Mining Sector Development**

1. Carrying out of a program of activities designed to strengthen the MMSD's capacity for governance and administration of the mining sector;
2. Carrying out of a program of activities designed to strengthen the Nigerian Geological Survey Agency as well as geological knowledge and information infrastructure for the mining sector,
3. Implementing a program of activities designed to strengthen the Recipient's capacity for management of environmental, health and social impacts in the sector

**Part B. Facilitating Downstream Sector Development and Enhancing Competitiveness**

1. Strengthening administration of the artisanal and small-scale mining sub-sector,
2. Implementing a program of activities designed to leverage the mineral sector for regional development
3. Implementing a program of activities designed to enhance value addition to mineral products (including upstream development of industrial minerals and dimension stones domain) in the mining sector,
4. Implementing a program of activities designed to advance proof-of-concept investments and to attract private sector investments

**Part C. Project Management and Coordination**

1. Strengthening the capacity of the MMSD for implementation, supervision and management of the Project through the provision of goods, consulting services, non-consulting services, operating costs and training for the purpose.
2. Supporting quality control of Project activities and outputs as well as monitoring and evaluation of Project outputs and results.

The key results of the project will include:

- i. Increased availability of precompetitive geo-science data enhancing mineral transactions;
- ii. Institutional information systems integrated with multi-sector planning tools;
- iii. Incentives created for Artisanal and Small-Scale Mining (ASM) formalization;
- iv. Improved environmental and social compliance by mining industry operators

### **3.0 OBJECTIVES**

It is against this background that the MMSD is engaging the services of a Technical Consultant to support the ASM Department of MMSD in improving the ASM sector and harnessing its potential, by the development of a program to formalize artisanal miners into cooperatives and support growth and transformation of small-scale miners into larger mineral and financial enterprises by structuring them and ensuring their direct access to mineral and financial markets. In addition, there is a requirement to design, and implement an ASM remote sensing monitoring system, using satellite imagery in combination with field work to create a database of ASM activities. This would enable ease of ASM data acquisition, analysis and interpretation.

The primary objective is therefore to enhance economic opportunities of artisanal miners through formalization, reduce smuggling practices, create incentives for their inclusion into the formal economy, review and revitalize the streamlining of the informal mining into the regulatory and legal system as well as facilitating the up-scaling of small-scale mining concerns into larger mineral and financial enterprises.

### **4.0 SCOPE OF WORK**

The main role of this Consultancy is to provide technical advisory support to the ASM Department of the MMSD in realizing the objectives of the project. The scope of the consultant's duties, responsibilities and activities include the following:

- i. Review and evaluate the ASM Department records of the +600 formalized ASM cooperatives across Nigeria.
- ii. Conduct a comprehensive mapping of ASM sites and trading centres including existing initiatives (registered co-operatives) through the establishment of remote sensing monitoring system, to include provision for:
  - a. Acquiring and processing satellite data; prepare geo referenced, high-resolution image maps on ASM areas and use cell phone and smart devices to continuously cross-reference and update ASM operators' basic information as they move in and out of ASM areas.
  - b. Developing and installing a system for holding, updating and revising high resolution satellite imagery (multidata and multispectral) and GIS information locally on ASM sites as a supplementary tool for inspection and validation purposes and
  - c. Provision of an inventory of ASM operations and activities to assess their scale, range extent and rate of change, for monitoring purposes.
- iii. Develop and install a remote sensing system for processing satellite imagery and GIS information on ASM sites as a supplementary tool for inspection purposes
- iv. Design a technical framework for interpreting mine statistics collated in the field and literature combined with remote sensing and aerial photography to provide opportunity for monitoring and understanding of trends, patterns, and projections of ASM activities. The following statistics regarding the extent and effects of ASM are presented:
  - a. Area mined, extent and location of ASM operations
  - b. Number of operations and their mobility
  - c. Pollutant emissions (e,g) resulting from ASM
  - d. Riverine pollutant transport
  - e. Prospective sites for mine reclamation
- v. The assignment will also include the setting up of an IT unit (equipped with all necessary computer hardwares and softwares and other peripheral components) at the ASM department in the Ministry of Mines and Steel Development Abuja and App for data inputs, processing, analysis, interpretations and presentations;

- vi. Recommend user-friendly hand held GIS tools fitted with specialized software that will aid speedy data collections for processing at the imageries processing centre.
- vii. Training of **ASM Staff** at specialized institutions on the operations and applications of GIS and remote sensing techniques as they apply to the use of the ASM monitoring platform; determine the number of staff for specialized training at international GIS institutions, Besides, the training will encompass fieldwork data gathering and ground truthing techniques.
- viii. Conduct on-sight sensitization of ASM workers and stakeholders to the objectives of this assignment, through representative community engagement and participation in meetings or by other means of public engagement, across the six geopolitical zones for the country;
- ix. Develop a programme for the formalization, registration process, acquisition of Small Scale Mining Title and compliance with work obligations for ASM cooperatives and operators;
- x. Conduct in conjunction with ASM Department MMSD, the distribution of application forms to register eligible cooperative groups and thereafter, collate, verify and register artisanal workers into cooperatives;
- xi. Design and implement a programme for providing extension services to the mining co-operatives;
- xii. Determine the most effective and efficient mode of monitoring and evaluating the growth of the cooperatives into small, medium and large-scale operations and to measure improvement in performance and results;
- xiii. Determine the mode and scope of engagement of NGOs and technical experts to assist the groups in registration and rendering sustainable extension services to formalized cooperatives across the country
- xiv. Evaluate the ASM value chain and develop strategies for value addition/processing for job creation, investment opportunities and increased mineral commodity marketability;
- xv. Undertake comprehensive market analysis of mineral-related industries to facilitate market connectivity between ASM sector and other downstream sector;
- xvi. Design an institutional strengthening programme to build capacity of staff in ASM department in:
  - a. Small-scale mineral processing/ore dressing techniques including gold ore processing;

- b. Small-scale, surface and underground mining, equipment choice, mine planning and design
  - c. Assessment of environmental and social consequences of mining including the conduct of Environmental and Social Impact Assessment (ESIA) and development of ESIA reports;
  - d. Assessment of occupational safety and health hazards and prevention in mines and mineral operations;
  - e. Minerals Policy, economics and marketing issues associated with the production and use of mineral commodities;
  - f. Formulation and implementation of ASM best practice, policies and regulations
- xvii. Develop programmes for the development of ASM organizations along the mineral value chain
  - xviii. Formulate best practice for Nigerian ASM guidelines and regulations;
  - xix. Evaluate options for and provide recommendations on the sustainable delivery of extension services to formalize the ASM sector
  - xx. Design programmes to facilitate market access and connectivity between ASM sector and other downstream sectors as well as international and domestic traders.
  - xxi. Develop a database of artisanal mining and trading sites with online application facilities for regular updates from MMSD State mines offices with linkages to the Ministry web portal.

#### **5.0 CONSULTANT'S QUALIFICATION:**

The Consultant firm will provide a team with competences in: **geology/mining (two (2) persons), mineral processing (two (2) persons), mineral economics (two (2) persons), social science/sustainable development (two (2) persons)**. The firm must have been involved in Artisanal and Small-scale management in the past five years with extensive knowledge of mapping ASM sites using GIS and remote sensing techniques. Experience of working as a consultant on World Bank assisted projects or similar Multilateral Institution environment such as ADB or similar organizations in the last 8-10 years, will be an advantage.

S /No	Consultants	Educational Qualification	Cognate Experience	Additional Qualification	Competence
1	<b>Lead consultant</b>	Possession of at least a master's degree in GIS/remote sensing, Information Technology or computer science.	<ul style="list-style-type: none"> <li>• Minimum of 6 years of international experience in issues related to mining, environment and ASM development.</li> <li>• Minimum of 3 years of experience in supervising teams in similar assignments;</li> <li>• At least 2-years' experience of working on development projects in Africa with World Bank or other multilateral bodies on ASM</li> </ul>	Possession of additional qualification in geological science, mining engineering or environmental management would be an added advantage.	Excellent communication skills in English. Excellent research and writing skills.

2	<b>6 nos. Subordinate consultants</b>	<p>a) 2nos Geologist: Possession of at least Bachelor's degree in geology.</p> <p>b) 2nos Mining Engineering: possess a degree or higher certificate in the field</p> <p>b) 2nos Mineral Processor: should possess a degree or higher degree in mineral processing field.</p> <p>c) 2nos Minerals economics.</p> <p>d) Natural resource management.</p>	Minimum of 5 years' experience in research/development projects related to mining and ASM.	Possession of additional qualifications in Business administration or management science would be an added advantage.	Excellent communication skills in English. Excellent research and writing skills.
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		e) Social Science/Sustai nable development			
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All candidates must have a minimum degree level qualification in their field of specialism with a minimum of five (5) years' experience. The possession of higher degree qualifications will be an advantage.

The experience required of the experts is as detailed below:

- a. Knowledgeable of the mining sector and conversant with international ASM practices, mineral policy development, mineral economic impacts and experience in the mining sector;
  - b. Skills and experience in assessing artisanal, small and large-scale mining activities, environmental and social management, health & safety hazard identification and prevention in the international mineral sector. Having such experience in any African country is an added advantage;
  - c. Track record of experience in production and maintenance of field based interactive web maps;
  - d. Good interpersonal skills will be essential, including the ability to work with the staff of MMSD and other stakeholders involved in steering the reform program.
- The Project Manager/Team Leader must have a higher degree in natural resource management, geology, or mining engineering, GIS and remote sensing, Information Technology or computer science, a minimum of 3 years of experience in supervising teams in similar assignments and a minimum 10 years of relevant international experience.

**6.0 REMUNERATION AND PAYMENT TERMS**

Remuneration of the consulting firm is attractive and commensurate with those offered by international bodies for similar assignment. The Consultant will also be reimbursed for operational expenses such as travel, accommodation and telephone incurred while carrying out this assignment and in line with World Bank guidelines and procedures. Before reimbursement can be made, the consultant will need to submit a statement of expenses supported by valid documentation.

The successful consultant would be paid a lump sum amount in accordance with an agreed schedule of deliverables, on the agreed rate of professional fee and reimbursable expenses.

#### **7.0 DURATION OF SERVICE**

It is expected that service of the Consultant is required for a period of two and a half (2<sup>1/2</sup>) years subject to adequate consultation periods with stakeholders.

#### **8.0 DELIVERABLES**

The consultant will produce the following reports:

- a. **An Inception Report** to outline the work plan of the consultant, define its tasks and the planned implementation periods and schedules, identify targets submission dates on each task. Particular attention will be given towards the planned coordination within other teams and preparation of a detailed schedule. Stakeholder mapping will be included in the Inception Report. The inception report will be submitted within one month of the commencement of the assignment and once approved and issued in its final form, will serve as the consultancy's baseline for the management and monitoring of the tasks;
- b. **Quarterly Progress Reports:** The Consultant will present quarterly reports with a summary of all activities and conclusions on all pertinent issues concerning the assignment. In addition, the consultant will submit monthly reports outlining recommendations, any amendments or solutions to issues and matters or any information considered necessary in furtherance to the prompt service delivery of the assignment.
- c. **A draft Final Report** within the first week of the penultimate month of the assignment.
- d. **Final Report** bound in five (5) copies and an electronic copy in CD, within the last week of the assignment.

**All Reports Shall Be in English and Presented in Hard and Soft Copies to the Project Coordinator.**

#### **9.0 SELECTION METHOD**

The consultant will be selected through QCBS Consultancy selection method.