

## Terms of Reference

### AGRO-CLIMATIC RESILIENCE IN SEMI-ARID LANDSCAPES (ACReSAL)

#### *GOMBE STATE PROJECT MANAGEMENT UNIT (SPMU)*

### TERMS OF REFERENCE FOR CONSULTANCY SERVICES FOR STATE ENGINEERING

#### SUPERVISION WORKS OF EROSION CONTROL SITES

#### 1.0 INTRODUCTION

- 1.1 The soils in Northern Nigeria are not highly susceptible to water erosion. Gullies are not prevalent in the North but when a gully starts, it expands rapidly and is difficult to control. The causes of gully formation differ by site, but are largely human, including: (i) improper road drainage design and construction, inadequate road drainage maintenance, gully development monitoring, and timely gully control; (ii) poor solid waste management in urban and peri-urban areas that choke the already inadequate drainage meant to prevent erosion; and (iii) destructive and unsustainable land-use practices that remove protective vegetation cover including protective biodiversity and carbon-rich areas, or disturb the fragile soil such as overgrazing, deforestation, cultivation of marginal lands, and uncontrolled mining for building material, and which are linked to poverty.

Various manifestations of rural land degradation have led to the massive gullies along with siltation of waterways, stream bank collapse and river course re-routing, and have undermined the existing infrastructure capacity (e.g., reservoirs, roads, drainage, urban development). Watershed erosion is causing heavy sedimentation of GOMBE STATE, leading to stream bank erosion and attendant community vulnerability, with resulting high dredging costs. Nationwide, cropland degradation accounts for 1.7 – 6.4% of GDP. In some areas of Nigeria, land degradation has caused yield reductions of between 30 to 90% as well as reductions of the food crop productivity of the densely populated areas.

- 1.2 Rapidly expanding gully complexes have resulted in extensive impacts including loss of human life and loss of both built and natural assets. Damage to

infrastructure includes highways, rural and urban roads, and water pipelines severed by large gullies, houses and buildings, silted waterways, and reservoirs. Losses to natural assets include loss of productive farmland and forest. Forest and farmland degradation also compromise watershed functions. This process exacerbates erosion downstream and siltation compromises biodiversity that is important for livelihoods and habitats and weakens natural buffers against climate change and erosion risks. Many of the region's land degradation hotspots are also the most densely populated areas, such as Gombe State among others. Ongoing attempts by states and federal institutions to stabilize or prevent gullies are at best partially or temporarily effective, for complex reasons.

- 1.3 As part of the Government's commitment to the transformation of the Nigerian socio-economy landscape, a multi-sector project is being executed in Nigeria to mitigate the vulnerability to erosion and support the people as they relate to their land. To achieve this, the Federal Government has applied for and received credit from the International Development Association (IDA) towards the implementation of the Agro-Climatic Resilience in Semi-Arid Landscapes (ACReSAL) project, and in which the Gombe State Government intends to apply a portion of the credit for eligible payments for the provision of consulting services for the **Engineering supervision of erosion control sites in GOMBE STATE, Nigeria.**

The Agro-Climatic Resilience in Semi-Arid Landscapes (ACReSAL) is a 6-year multi-sectoral and multi-scale program.

- 1.4 An Engineering Design Firm had been engaged to prepare a detailed Engineering Design, including detailed consultation and planning for integrated watershed planning and management, involving topographic surveying, geotechnical investigation, hydrological, hydraulic, geotechnical (incl. survey of construction materials) and structural engineering analysis, engineering cost estimates and Bill of Quantity (BOQ) for the identified sites.

The Gombe State ACReSAL now requires the services of a consulting firm,

consortium, or Joint Venture (JV) for the **Engineering Supervision works of gully erosion control sites.**

## **2.0 OBJECTIVE OF ASSIGNMENT**

2.1 The main objective of the assignment is to assist the Gombe State Project Management Unit in the engineering supervision of Works over a 1-year period for the **Federal College of Education (FCE) Gully Erosion Control in Gombe L.G.A.**

## **3.0 SCOPE OF SERVICES**

### **3.1 General Supervision Considerations**

To achieve the core objectives of this assignment, the supervisory consulting firm will develop a work plan and provide qualified and skilled personnel in sufficient numbers to ensure the completion of the tasks listed below in a manner consistent with the international best practices and standards adopted for the Gombe State ACRoSAL.

The scope of the assignment will include but not be limited to the following:

- 3.1.1 Hand-over site to the construction contractor in the company of the client and any relevant stakeholders.
- 3.1.2 Supervise the works and approve the construction materials and workmanship.
- 3.1.3 Give order after consulting the Federal Quality Control Engineering Design Firm (FQCEDF) for any work entailing delays or any extra payment. It will carry out the measurements and quality control and make engineering decisions whenever required. It will administer the contract and ensure that all its clauses are respected.
- 3.1.4 Organize site meetings and act as secretariat.
- 3.1.5 Assign a Resident Engineer [RE] in the State and Onsite Clerk (one per site). Specifically, the RE will carry out the following tasks:
  - a. give the order to commence the works and variation orders as specified above;

- b. approve the materials, equipment and construction procedures;
- c. approve the species, plantation and vegetative measures;
- d. approve the quality of the civil and vegetation-related works according to the contract specifications;
- e. approve the contractor's work programme, method statement and the source of materials;
- f. approve and/or issue the schedule, and working drawings, approve the setting out of the works and give instructions to the contractor;
- g. make measurements and keep the measurement books;
- h. issue interim certificates for periodic payments to the contractors, certify completion of parts or totality of works;
- i. order tests of materials and of completed works, order removal of improper works;
- j. advise the SPMU on all matters relating to the execution of the contract;
- k. make sure that the environmental management plan (EMP) and settlement action plan (RAP) are implemented timely and maintain the desired quality standards; and
- l. issue reports as described under clause 5.0.

3.1.6 The supervisory consulting firm will have no authority to relieve the Contractor of any of its duties or obligations under the contract.

**3.2** The Firm will seek the prior approval of the Federal Quality Control Engineering Design Firm (FQCEDF) on:

3.2.1 Issue of any variation orders with financial implications (as specified above), except in an emergency situation, as reasonably determined by the supervision consultant;

3.2.2 Issue variations in work quantities;

3.2.3 Sanction additional items, sums or costs;

3.2.4 Approve the subletting of any part of the works; and

3.2.5 Approve any extension of contractual time limits.

### 3.2.6 Prepare Final Account.

### 3.3 Duties and Responsibilities of the Firm's Representative Resident Engineer (RE)

The RE in the State shall be appointed by and be responsible to the Firm and will be supported by the Onsite Clerk once per site to supervise the construction works.

#### 3.3.1. The principal duties of the RE shall be to:

- a. inspect the performance of the works with regard to workmanship and compliance with the specifications and to order, supervise or perform tests on materials and/or works and to approve or disapprove the contractors' plant and equipment;
- b. order, if required, the uncovering of completed works and/or the removal and substitution of proper materials and/or works;
- c. check systematically the progress of the works and order the initiation of works which are parts of the contract;
- d. examine and attend measurement of any works which are about to be covered or put out of view before permanent work is placed thereon and/or to examine and attend the measurement of the completed works in the prescribed form;
- e. check the contractors' accounts, invoices, claims and other statements with respect to claims and other statements with respect to arithmetical error and compliance with the contract and if required to make corrections thereof;
- f. take samples materials where necessary and analyze them as per the requirements of the national regulations;
- g. direct the contractor to carry out all such work or to do all such things as may be necessary in the opinion of the RE to avoid or to reduce the risk in case of any emergency affecting the safety of life or of the works or of adjoining property and to advise the Client thereof as soon thereafter as is reasonably practicable;
- h. the maintenance of a day-to-day project diary which shall record all events pertaining to the administration of the Contract, requests from and orders

given to the Contractor, and any other information which may be at a later date be of assistance in resolving queries which may arise concerning the execution of the works; and

- i. Prepare payment certificates which will be verified by the FQCEDF.

### **3.4 Additional Services**

3.4.1. The Firm shall provide any of the additional services specified below as required by the Client and the recommendations of the Federal Quality Control Engineering Design Firm (FQCEF):

- a. preparation of reports or additional contract documents for consideration of proposals for the carrying out of additional works; and
- b. advise the Client with respect to carrying out the works following the appeal to arbitration or litigation relating to the works;
- c. any other specialist services by the RE or other specialists as may be agreed upon.

3.4.2 All additional services, other than minor extras without materially affecting the scope of work, will be authorized by the Client and the FQCEDF at rates or on a man-month basis and under conditions to be mutually agreed. Communication of any such assignment shall follow applicable contract procedures.

### **3.5 Reporting**

#### **3.5.1 Monthly Progress Reports**

The Consultant shall prepare consolidated Monthly Progress Reports covering the progress on all the construction contracts. The reports shall provide a brief but comprehensive end-of-month progress assessment for the contracts. Tabulated and graphical representations of physical and financial progress compared with the work program and cash flow forecasts, relevant photographs and details of impediments to the works and proposals for overcoming them. These reports shall be submitted within the first week of the succeeding month.

#### **3.5.2 Quarterly Progress Reports**

These reports shall make use of the information previously reported monthly but suitably modified to include, summarize, and draw conclusions, on all pertinent

issues concerning the assignment. In addition, the Quarterly Progress Reports shall summarize the Consultant's activities, with solutions adopted, financial statements with the Consultancy Agreement and any other relevant information considered necessary in respect of the services delivery. Each of these reports shall be submitted no later than the 7th day of the first month of the following quarter.

### **3.5.3 Final Project Report**

The Consultant shall produce a Final Project Report, summarizing all the activities under the Project, including financial summaries and project implementation particulars. The report shall be submitted within one (1) month after the Consultant's services are completed.

## **4 CONSULTANT EXPERTISE AND STAFFING REQUIREMENT**

The Firm will be composed of highly experienced professionals, who should be able to provide leadership, oversight, and coordination, to assure proper integration and quality of findings and results, fill capacity gaps, and bring advanced analytical skills and global experience to the assignment. Local professionals should be able to ensure study relevance and effectiveness in the context of prevailing local conditions and to ensure sensitivity to social and cultural aspects, as well as to assist with linguistic aspects. Their inclusion in the team would also contribute to important local capacity building and to containing study costs. The firm's nominated team leader must have been a permanent employee of the firm for at least two years prior to the bid date.

- a. All international staff should have at least a master's degree in their field of specialization or related fields, and at least 10 years of professional experience in related assignments, including working in Africa and preferably in Nigeria. National staff should have similar years of professional experience in related assignments.
- b. Prospective Firms are required to propose a multi-disciplinary team that will bring an appropriate mix of disciplines, education, skills and experience, a sound understanding of development issues, and strong international and/or regional experience on similar projects. Satisfactory execution of soil erosion control

intervention feasibility studies and supervision shall also be required.

- 4.1 **Team Leader** should have extensive management experience working in a developing country environment on land and water resources management/development projects involving substantial engineering, social, institutional, environmental, and economic components. Experience in executing RAP and EMP is an added value. Demonstrated skills in project planning and management, execution of multi-disciplinary studies, assessments, facilitation of stakeholder consultations and interactions, as well as supervision are essential. This quality must be supported by sound technical experience and understanding gained through a career in land and water resources management/development. He/she should have a professional background in land and water resources management/development engineering and experience in directing and managing similar multi-disciplinary assignments in Africa and preferably in Nigeria.
- 4.2 **Geotechnical Engineers** should have an advanced degree in geology and at least 10 years of experience in geotechnical engineering. Experience working in fragile soils in moderately low rainfall areas similar to Nigeria's context is essential. Demonstrated ability in carrying out geotechnical surveys and analysis is very important.
- 4.3 **Hydrologists** should have an advanced degree in hydrology and at least 10 years of experience in hydrological analysis. Experience working in fragile soils in moderately low rainfall areas similar to Nigeria's context is essential. Demonstrated ability in carrying out hydrological surveys and analyses is very important.
- 4.4 **Hydraulic Structure Engineers** should have an advanced degree in Hydraulic Engineering and at least 10 years of experience in hydraulic structure design. Experience working in fragile soils in moderately low rainfall areas similar to Nigeria's context is essential. Demonstrated ability in designing hydraulic structures, hands-on experience in using flexible structures such as gabions and geo-membrane combined with vegetation measures and understanding of the O&M requirements are very important.
- 4.5 **Watershed Management Specialists** should have at least 10 years of experience in a wide area of disciplines (ranging from policy/institutional to technical and



effectively interacting with communities) related to participatory watershed management at the basin, sub-basin and national levels and demonstrated experience design and implementation of participatory watershed management programmes.

4.6 **Resident Engineers** should be Senior Civil, Hydraulic or Agricultural Engineers (having an advanced degree in either of these subjects) with at least 10 years of experience in design, construction, and O&M of erosion control schemes. Experience in implementing RAP and EMP is an added value. He/she should have a demonstrated ability to lead, coordinate and manage resources, (both timing and quality of outputs) in a complex project implementation environment.

4.7 **ESHS Expert.** The specialist(s) must have the expertise and advanced degree(s) earned in the fields of environmental engineering, environmental sciences, or related social sciences. Minimum experience should be eight (8) years with a minimum specific experience of four (4) years in environmental management planning related to infrastructure development or disaster response. The candidate must have competency and documented experience in social and environmental scientific analysis and the development of operational action plans. The expert's working knowledge of World Bank operational safeguards policies and environmental and social framework gained through hands-on experience in the preparation and implementation of environmental and social management plans in an urban area will be an added advantage.

Prospective Firms should demonstrate that their proposed team members have the relevant and appropriate qualifications and experience to meet the requirements of the TOR. Detailed Curriculum Vitae should be included for each proposed professional team member.

## 5 CLIENT'S OBLIGATION

The client is to provide the following facilities:

- i. Office accommodation.
- ii. All local travels in accordance with the agreed breakdown of reimbursable expenses.
- iii. Organize inception meeting between Engineering Design and Supervision

Firm, Construction Contractor, Gombe State ACRoSAL, Federal Quality Control Engineering Design Firm (FQCEDF), Environmental and Social Consultant Team and other stakeholders.

- iv. Secretarial support at the office of SPMU
- v. Any relevant documents that will enhance the execution of the works.

## **6 CONDUCT OF THE CONSULTANT**

- i. The Consultant will, at all times, be expected to carry out the assignment with the highest degree of professionalism and integrity. The Consultant will be expected to conduct his duties in an open and transparent manner.
- ii. The Consultant will not, under any circumstance, take any actions or be seen to be taking any actions, which may hinder or prevent the Gombe State ACRoSAL from executing this assignment.
- iii. The Consultant will study all Gombe State ACRoSAL guidelines and policies and will be expected to ensure that the assignment is concluded with the strictest adherence to all such policies and regulations.
- iv. The Consultant will not, under any circumstances, take any material decision pertinent to this assignment without the express permission and written consent of an authorized representative of the Gombe State ACRoSAL.
- v. The Consultant will not, under any circumstances, discuss, divulge, or use any information regarding this assignment or any other transaction conducted as part of the FGN's Program, without the express written permission of an authorized representative of Gombe State ACRoSAL.