

Terms of Reference-KIS

1.0 INTRODUCTION

1.1 GHANA COMMERCIAL AGRICULTURE PROJECT (GCAP)

1. Agriculture has driven Ghana's economic growth in the past and remains the primary livelihood for the majority of its population of 22.5 million inhabitants, especially for the rural poor. Agricultural Gross Domestic Product (GDP) grew by around 6% per annum over 2007 –2010, driven largely by the liberalization of the sector and by domestic and regional market demand. Agriculture accounts for 30% of GDP and 60% of employment, indicating a significant labour productivity gap with other economic sectors and a need to increase labour productivity and attract capital investment.

2. Under the first *Ghana Poverty Reduction Strategy* (GPRS I), 2003-2005 agriculture was to be modernised to catalyse rural development. The second Growth and Poverty Reduction Strategy (GPRS II) recognized that no significant progress could be made in raising the average real incomes of Ghanaians as a whole without significant improvements in the productivity of the agriculture sector and agro-based/processing industry. Its sequel, the *Ghana Shared Growth and Development Agenda* (GSGDA), 2010-2013, sought to improve the wellbeing of Ghana's poor, most of which reside in rural areas and are dependent on agriculture for their primary livelihoods.

Ghana's agriculture sector strategy, known as FASDEP II¹ (2010 – 2015) is organized around six priority themes: (a) Food Security and Emergency Preparedness; (b) Increased Growth in Incomes; (c) Increased Competitiveness and Enhanced Integration into Domestic and International Markets; (d) Sustainable Management of Land and Environment; (e) Science and Technology Applied in Food and Agriculture Development and (e) Improved Institutional Coordination. FASDEP's policy principles include a pro-poor focus, gender inclusion (in an effort to promote greater gender equality)², and consideration of environmental and social sustainability. The investment framework for FASDEP II is articulated in the *Medium Term Agriculture Sector Investment Plan* (METASIP), which constitutes the national agriculture investment plan under the Comprehensive African Agriculture Development Programme (CAADP). Broadly speaking, Ghana's agriculture agenda is defined by elements of programmes seeking to increase incomes (priority area (b)) and increased competitiveness and market integration (priority area (c)).

3. Against this background, the Government of Ghana has signed an agreement with the International Development Agency (IDA) for a credit in the amount of US\$100 million and a grant of US\$45 million from USAID for the Ghana Commercial Agriculture Project (GCAP) which became effective in April 2013. The development objective of the project, which is being executed by the Ministry of Food and Agriculture, is *“to improve agricultural productivity and production of both smallholder and nucleus farms in selected project intervention areas within the country.*

4. The project comprises four components:

- Component 1: Facilitating investment promotion in commercial agriculture

¹ The revised *Food and Agriculture Sector Development Policy*.

² The *Gender and Agricultural Development Strategy* is given due attention in FASDEP II as the basis for mainstreaming gender into the policies and programs of the agricultural sector.

This component aims at strengthening government's capacity to identify, attract, retain and expand investment; improving land access and local rights; and strengthening out-grower arrangements all in the context of commercial agriculture. The implementation of this component will be strongly promoted with the help of the International Finance Corporation (IFC) working in collaboration with the Ghana Investment Promotion Centre (GIPC), the Ministry of Food and Agriculture (MOFA) and the Ghana Irrigation Development Authority (GIDA) and the Land Commission (LC)

Component 2: Promoting private sector investments and small-holder linkages in selected areas. The interventions supported under this component are meant to promote sustainable land use and enhanced food security (i.e. through improved rainfed crop production technologies), rehabilitation and support for commercial seed production under the Planting for Food and Jobs Program (PFJ), including targeted support for climate smart agricultural technologies focusing on the drier parts of the northern regions of the country

Component 3: Rehabilitation and modernization of irrigation schemes and reforming of irrigation institutions and management. The interventions supported under this component are meant to fully finance the rehabilitation, modernization and construction of new irrigation and drainage infrastructure to help to reduce farmers' exposure to the risk of drought.

Component 4: *Project Management and Monitoring & Evaluation.* This will finance the operational costs of project management including monitoring and evaluation activities. It would also include necessary training and capacity building for the staff.

2.0 PROJECT BACKGROUND

2.1 Overview of the Agriculture Sector

In the context of Ghana's agriculture-dominated economic and employment profile (39.2% GDP and employing over 60% of the population in 2003, respectively), rapid growth in the agricultural sector will be central to any strategy for reducing poverty and creating employment and growth opportunities. With growth of 6.1%, the highest since 1985, agriculture's contribution to foreign exchange earnings was \$1.06 billion in 2003 (cocoa accounted for \$802 million). The contribution of all non-traditional exports to total foreign exchange earnings rose from \$504 million in 2002 to \$589 million in 2003, with the agricultural sector contribution to non-traditional exports increasing from \$87.5 million in 2002 to \$138 million in 2003.

Ministry of Food and Agriculture's (MOFA) mission (as in Food and Agriculture Sector Development Policy (FASDEP)) is to promote sustainable agriculture and thriving agribusiness through research and technology development, effective extension and other support services to farmers, fishermen, processors and traders for improved human livelihood. Specific interventions in the agriculture sector for reducing poverty as outlined in the GPRS and equally supported by FASDEP are:

- Agriculture infrastructure development;
- Use of appropriate technology; and
- Provision of extension services.

In order to accomplish its mission, MOFA is pursuing the following objectives in the short to medium term:

- i) Ensure food security
- ii) Facilitate the production of agricultural raw materials for industry
- iii) Facilitate the production of agricultural commodities for export
- iv) Facilitate effective and efficient input supply and distribution systems
- v) Facilitate effective and efficient output processing and marketing system
- vi) Formulate and coordinate the implementation of policies and programmes for the food and agriculture sector

2.2 Existing Irrigation Facilities in Ghana

Developed irrigated agriculture has been practiced in Ghana since the early 1960s. The development of irrigation has been given a priority in the past decades to satisfy the country's food needs and production of industrial raw materials. Variation in rainfall amount and intensity and the occurrence of intermittent droughts that cause crop failure and food shortage has prompted the government to use the perennial water resources and embark on irrigation development programmes. The availability of land and water resources and the suitable agro-climatological condition would allow double cropping.

Government through the Ghana Irrigation Development Authority (GIDA) has constructed 22 public irrigation schemes with a combined area of 8,745 ha designed to grow rice either

double cropped or in rotation with vegetables. Nine are gravity schemes while eight are irrigated by pumping and the rest are a combination of reservoir and pumping. The beneficiaries include 10,848 farmers. Private individual farmers or farmers groups are currently also engaged in irrigated agriculture.

GIDA is the only Government Agency responsible for the development of public irrigation schemes and is responsible for setting the policies and standards for Irrigation development in Ghana.

2.3 Current Situation with Rice

It is estimated that Ghana spends more than 600 million dollars annually on rice importation to augment local demand. In 2009 the country spent 218 million dollars on importing rice, an amount which is higher than that spent in 2008 (187 million dollars) and in 2007 (157 million dollars).

In spite of efforts made in local rice production, it is said that the cost of production remained high and uncompetitive in the domestic market due to relatively cheaper imported rice. Imported rice which comes mainly from the US, Taiwan, Vietnam or Thailand compete with rice produced locally due to significant quality gap that existed between locally produced and imported rice caused by cost of inputs, poor post-harvest handling, lack of access to improved processing technologies and marketing challenges.

The Government of Ghana is putting in all efforts to reduce the importation of rice by increasing local production. The Kpong Irrigation Scheme (KIS) which has a long history of producing rice for the local market is key to the success of government strategy for increasing local rice production and reducing importation.

The current yield per hectare for rice on KIS ranges from 4.0 tonnes to 7.5 tonnes with an average of 5.5 tonnes per hectare.

2.4 The GCAP Intervention

In line with the Government of Ghana's policy of reducing poverty and the World Bank, and the USIAD through the Ghana Commercial Agriculture Project (GCAP) to invest in the development of irrigation systems to ensure all-year round cultivation. GCAP considers the Kpong Irrigation Scheme a good candidate for rehabilitation and modernization to improve its efficiency.

GCAP will support the design review, rehabilitation and modernization of the scheme including an assessment of the economic rates of return and poverty reduction impacts of the Irrigation Scheme. GIDA caused an Environmental and Social Impact Assessment (ESIA) study to be made for the Accra Plains Irrigation Project (APIP) of which the KIS forms part. GIDA proceeded to apply and secured an Environmental Permit for the implementation the APIP. The Consultant would be given the ESIA to review and take note of all issues in order to prepare a mitigation or management plan to be implemented at the construction/rehabilitation and post implementation operations.

The Consultant will also prepare the final design, procurement, and construction supervision and assist the client to set up an effective Water User Association.

A brief description of the Kpong Irrigation Scheme (KIS) follows:

2.5 The Kpong Irrigation Scheme (KIS)

Following completion of the Kpong Dam in 1982 gravity irrigation became possible and an initial area of about 3 000 ha on the right bank of the river was developed as a public irrigation scheme, known as Kpong Irrigation Scheme (KIS).

The Kpong Irrigation Scheme is owned and operated by the Government of Ghana. It is located about two hours north east of Accra, the capital near the towns of Akuse and Asutsuare. It was constructed with African Development Bank (AfDB) funding in the late 1990s. It derives water from Volta River via the Kpong Reservoir which is primarily a relatively low head hydroelectric generation and storage facility.

The system was designed Sir M MacDonald & Partners in association with Hunting Technical Services /K. K. Mercer & Partners. Twelve hundred hectares of the scheme are slightly higher and cannot be served by gravity. Therefore the water has to be pumped about two meters to reach this area. This land has been provided to a French company for commercial banana production under drip irrigation. The bananas are directly export to France and Europe.

The government subsidizes the scheme's operation by seconding the management staff and covering their salaries outside the annual rent and water use fees charged the farmers that are retained in the scheme to defray the operating costs. This involves some 120 employees of the scheme, including professional officers, managers, extension officers, clerical staff and support personnel.

The land is officially allocated to the farmer beneficiaries in one hectare allocations. These beneficiaries are obliged to be members of the farmers' cooperative that is mostly involved in managing credit through the local branch of the Agriculture Development Bank.

The typical climate of the area is that of Northern Accra plains with a bimodal rainfall pattern totalling 1016-1270 mm a year. Around Akuse, a major town, rainfall ranges from 625 mm to 1961 mm a year with a wind speed of 40 km/hr. Mean temperature is highest in February and March (29oC) and decreases to 26oC in July and August (cloudy period). Annual potential evapotranspiration (Accra plains) is about 1676 mm (intermediate between Forest – 1372 mm; and Northern Savannah – 1981 mm).

2.6 Objectives of the Assignment

The objective of this assignment are:

1. to rehabilitate and modernize the KIS Irrigation and Drainage system to make them operational with optimal use of water with improved efficiency in technical operations, maintenance and in management
2. set up an efficient scheme management
3. set up an effective scheme management structure and water user association (WUA) to ensure long term sustainability of the investment

3.0 DESCRIPTION OF ASSIGNMENT

After years of poor maintenance the scheme was rehabilitated in 2003, with assistance from the African Development Fund. It continues to be publicly managed (by Ghana Irrigation Development Authority – GIDA). However, the irrigation infrastructure is again in need of rehabilitation and modernisation.

3.1 Inventory of Existing Infrastructure

The main infrastructure on the KIS which are in various stages of deterioration are presented in the table below. Section A comprises of the area from Akuse to the main Asutsuare road near the old sugar factory; Section B is the area served by the Northern Low Level Canal and the Southern Low Level Canal together with Distributary Y and Z; Section C is the area served by the High Level Canal (Golden Exotic area) See attached Map of Irrigation and Drainage Layout.

Table 1: Existing Irrigation and Drainage Infrastructure

DESCRIPTION	SECTION A	SECTION B	SECTION C	TOTAL
Main canal, km	16	8.7	7.1	31.8
Branch canal, km	9.9	19.6	0	29.5
Intakes and outfalls	1	2	0	3
Canal cross regulator	7	4	2	13
Main canal offtakes	16	2	5	23
Branch canal turnout	53	28	0	81
Lateral check & drop	320	180	0	500
Syphons, no	6	2	2	10
Night storage Res	4	18	4	26
Lateral culverts, no	28	90	0	118
Main drains, km	19	11.3	18.1	48.8
Branch drains, km	12.8	13.8	3	29.6
Drain culvert, large	14	29	31	74
Drain culverts , small	130	26	27	183
Grass spillway, km	9.5	1	2.2	12.7
Project main roads	18.3	25.7	14.7	58.7
Drain roads, km	17.6	7.5	8	33.1
Link Roads	44.4	15.9	0	60.3
Field roads, km	20	39	50	109
Sub-laterals, km	102.6	39.0	0	141.6
Irish Crossing, no	7	1	1	9
Houses , no				56
Workshop & Stores, no				3
Drying Floors, m2	2200	3720	0	5920
Pump station, no	In use by Golden Exotic			1
Pump station, no	Defunct			1
Foot bridges	3	0	0	3

The above inventory does not include infrastructure constructed by Golden Exotic which was done using private sector funds and is not included in the infrastructure earmarked for rehabilitation

4.0 SCOPE OF SERVICES

The Assignment is a follow-up of the design phase assignment carried out by M/s BRLi Ingenierie which involved the design of the irrigation systems, automation/instrumentation, development of operations and maintenance manuals and scheme management structure involving private entities and water users associations (WUA) for KIS.

The supervision consultant is expected to carry out the following scope of services;

- (i) Study the approved designs, engineering drawings, specifications, BOQ and bid documents prepared by Messrs BRLi and advise the Client of any errors, deficiencies, omissions or shortcomings. To this end, the Consultant shall submit a **Design Review Report to the Client, six to eight (6-8) weeks after commencement of construction works**. If instructed by the Client prepare necessary documents including, including drawings and specifications, required for the proper fulfilment of the Works or make changes in scope and/ or scale of KIS rehabilitation works.
- (ii) Supervise the construction and post construction activities of the contractor for rehabilitation/modernization of all the irrigation and drainage infrastructure as approved.
- (iii) Administer and manage the construction contract(s) for KIS as the **“Engineer”**
- (iv) Review Operation and Maintenance Manual developed by M/S BRLi and that to be submitted by the contractor, harmonise and facilitate its implementation.
- (v) Review Organization and Management plans for schemes which have been discussed and finalized with stakeholders.
- (vi) Ensure environmental and social safeguards conform to requirements of the legislation and policies of Ghana, World Bank OP/BP 4.01 and OP/BP 4.12, and the WB Environmental, Health & Safety Guidelines;
- (vii) Ensure that the works under the contract are executed to the correct level and that the quality of workmanship, materials and equipment are in compliance with the technical specifications

Phase B

The consultant is expected to use up-to-date techniques in surveys and designs and suggest least cost solutions to achieve the objective of optimal use of available water in the system.

At all phases of the assignment, in order to ensure environmental safeguards conforming to the requirements of the legislation and policies of Ghana, World Bank OP 4.01 and 4.12, and the WB Environmental Guidelines and Gender Policy the Consultant shall design and ensure implementation of appropriate Environmental Management Strategies.

GCAP will make available to the Consultant relevant available reports, documents or data listed in Instructions to Consultants, E. Data Sheet under Clause 2.4. The Consultant shall, however, be solely responsible for the accuracy, analysis and interpretation of all data received and for the recommendations in the reports.

The development of Organisational and Management System and the required Implementation Plan for the Designed System.

- The preparation of O & M Manuals of the schemes in close consultation with the WUA/FBO and the provision of the necessary theoretical training for both operational & managerial staff and provide the WUAs with all operational /record keeping formats.

The Consultants' Methodology must demonstrate a clear understanding of the design needs of the systems to be rehabilitated and how the Consultant's team will address the Technical and Management requirements of the Scheme.

6.0 PHASE B – CONSTRUCTION SUPERVISION, IMPLEMENTATION OF ORGANISATIONAL AND MANAGEMENT SYSTEM, AND DEFECTS LIABILITY SUPERVISION

Phase B commences once Environmental and Water Resources Permits have been renewed or obtained by GCAP. The works shall be let out to private construction companies and the Consultant shall be required to supervise works during the construction and Defects Liability periods. The supervision consultancy contract shall be undertaken by Ghana Irrigation Development Authority (GIDA).

Phase B has been packaged into two Sub-Phases (Sub-Phase B1 and Sub-Phase B2). Sub-Phase B1 covers **Construction Supervision** whilst Sub-Phase B2 covers **Attendance during Defects Liability Period (Post Construction)** and **Implementation of Organisational and Management System**.

The estimated duration of Phase B is 30 calendar months, broken down into 18 months for physical construction and 12 months for defects correction and implementation of Organisational and Management System. The Consultant shall provide the following services on behalf of GCAP during the period:

6.1 Scope of Service

- Administer and manage the construction contracts, issue instructions to the contractor, as the “Engineer” in accordance with the authority specified in the Conditions of Contract, such that the works can proceed expeditiously and as per the requirements of the Contract.
- Ensure that the Works under the construction contract are executed to the correct levels and that the quality of workmanship, materials and equipment are in compliance with the Technical specifications
- Carry out or witness as necessary test inspections of materials and equipment components, as required under the construction contract.
- Carry out full contract administration, including, inter alia the agreement and certification of monthly measurements and assessment of any contractual claims by the contractor.
- Monitor progress on-site, including checking quality of work and adherence to drawings, specifications and to the provisions of the Contract, rules and regulations of the World Bank.
- Participate in regular site meetings with the contractor.
- Prepare agreed minutes of meetings and approval of contractual payments.
- Supervise tests and trials of all installed equipment arranged by the contractor.
- Supervise in final delivery trials, approval and acceptance of the completed project and handing over procedures.

- Prepare updates of drawings and specifications as required.
- Prepare final inspection report covering final inspections of equipment at the end of the guarantee period.
- Prepare final project completion report.

6.2 Objective of Construction Supervision

The objectives of the supervision contract are as follows:

- i. Represent GCAP in carrying out quality assurance inspection of construction and installation activities to ensure the achievement of standards and quality of the physical outputs in a timely and cost-effective manner.
- ii. Support GCAP to achieve the reporting lines as spelt out in the PAD and PIM and other associated agreements, high levels of accountability and transparency, effective communication lines with all the key stakeholders, and timely and professional decision-making.

The Consultant shall, therefore, perform the principal services outlined below as the Engineer responsible for the supervision of the works. The scope of service of the Consultant will include but not be limited to the following (note in all cases, quality and specifications are inclusive of environmental, social and health and safety requirements:

- Issue instructions, in accordance with the authority specified in the Conditions of Contract, to the contractor, such that Works can proceed expeditiously.
- Organise regular Progress Meetings with the contractor and stakeholders at the project site.
- Ensure that the works under the contract are executed to the correct level and that the quality of workmanship, materials and equipment are in compliance with the technical specifications.
- Inspect completion of various aspects of the project in accordance with technical specifications and standards and test the functionality of such facilities as completed by the contractor for payment.
- Instruct contractor in writing to perform any additional works or change orders within the limits set out in the contract or that have been duly authorised by GCAP.
- Report monthly and on a quarterly basis to GCAP on the physical and financial progress of the works and their estimated final value for budgetary purposes.
- Ensure that the contractor, in particular, complies with its contractual obligations in respect of labour standards and mitigation of impacts on the environment by

withholding payment against appropriate items in applications for interim payment in accordance with the provisions of the contract, where necessary.

- Monitor the project for unanticipated environmental impacts and make recommendations for any necessary mitigation measures.
- Maintain a supervisory presence on-site at all times when the contractor is executing permanent works and installation of equipment.
- Ensure that the contractor follows good practices in respect of labour standards, including health and safety and Sexually Transmitted Infections (STI) awareness issues.
- Inform GCAP of and keep detailed particulars and records pertaining to any matters that may constitute a contractual dispute.
- Produce and submit four hard copies and a soft copy of the Final Report including “as built” drawings and test results.
- Carry out inspections and instruct and supervise any necessary remedial works before the issuance of the Taking-Over and Defects Liability Certificates.
- Perform all other tasks not specifically mentioned herein but necessary to ensure proper supervision and control over all construction and installation activities, in accordance with the duties and responsibilities of the Engineer, as set out in Conditions of Contract of the World Bank Bidding Document for the works.
- Prepare “as-built” drawings in digital format acceptable to GCAP and produce hard copies for records purposes.

The Consultant, apart from the above, will also be accountable for the issuance of the Certificate for Payment for work done by the contractor. In the preparation of Interim Payment Certificates, the Consultant must be satisfied that relevant, reliable and sufficient evidence exists indicating that:

- ✓ The tasks for which payment is being requested have properly been performed; and
- ✓ The amounts claimed by the contractor have actually and necessarily been incurred in accordance with the requirements of the contract.

6.3 Post-Construction Services

During this period, which will start upon completion of construction and which is assumed to last for 12 months, the Consultant shall assist GCAP by:

- Inspecting the works and installation of equipment prior to the expiry of the Defects Liability Period;
- Preparing a final deficiency list;

- Supervising remedial works and recommending to GCAP the date of the Final Inspection of Works;
- Carrying out Final Inspection of Works and Installation of Equipment, together with representatives of stakeholder and the contractor;
- Preparing and issuing Final Acceptance Certificate, in consultation with GCAP and the collaborating agencies;
- Preparing the Final Payment Certificate.

6.4 Implementation of Organisational and Management System

The Consultant shall work with GCAP and newly formed Water User Associations (WUAs) to ensure that a workable organizational structure for an effective management, operation and maintenance of facilities to be rehabilitated are in place before the Schemes are handed over to the Beneficiaries. This is to run concurrently with the period for defects correction

Among the tasks to be undertaken by the Consultants shall include the following:

- To ensure that the systems are operated and maintained properly, the Consultant shall provide training to the WUAs on the schemes. The training shall be carried out during the construction and installation activities.
- Implement Service Agreement stipulating obligations of Users of Irrigation facility and Management team
- Implement acceptable water delivery operation and maintenance schedules for the Irrigation Facilities

7.0 REPORTING REQUIREMENTS

7.1 Time Schedule

The following time schedule, expressed in months (M), shall be adhered to in carrying out the assignment. As such, the various deliverables shall be submitted not later than the dates shown below:

Phase B

The Reporting Schedule for Phase B is as detailed below:

Sub-Phase B1: Construction Supervision & Attendance during Defects Liability Period

Reports		
Design Review Report		
Mobilisation Report		M + 0.5 Months
Design Review Report		M + 1.5 to 2 Months
Monthly Progress Reports		Monthly after commencement
Quarterly Progress Reports		
Special Reports (as required)		As and when required
Practical Completion Report		M + 18.00
Final Completion Report and Final Accounts at end of Defects Liability Period		M + 30.00

M is Signing of Contract/ Effective Date

At the end of the Defects Liability Period the Consultants shall submit to GCAP the Final Completion Report including the Final Accounts.

Sub-Phase B2: Implementation of Organisational and Management System, O&M Plan

Under Sub-Phase B2 the consultant shall submit to GCAP the following Implementation Reports at the periods shown in the table below, where M represents the commencement date for the Implementation of Organisational and Management System and the Operation and Maintenance System. The implementation of the management system and O&M plan will involve a continuous process of management review and continual improvement which will be documented as the plan progresses.

Reports	
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Inception Report on Implementation of Organisational and Management System and O&M Plan	M + 1.0
Progress Report on Implementation	M + 3.0
Final Report on Implementation of Organisational and Review of Implementation and Final Report	M + 6.0

The various progress reports and Special Reports will be submitted in accordance with requirements for Phase B Reporting.

Note:

1. The Client will require two (2) weeks to review and submit comments on any report submitted by the Consultant, if needed;
2. Reports shall be submitted in both hard and soft copies (in word format). However, final versions of all reports may be submitted in pdf format.

7.2 Reports

The Consultant will prepare and submit reports related to the services being rendered to GCAP. The following reports pertain to the consultancy services:

7.2.1 Sub Phase B1 Reports

The following reports will be submitted to GCAP with respect to the supervision of the Works and attendance during the Defects Liability Period:

- Mobilisation Report
- Monthly Reports
- Quarterly Reports
- Final Report
- Special Reports

a. Mobilisation Report

The Mobilisation Report will describe the planning the Consultant has established for the construction supervision portion of the assignment, the staffing plan, and remarks as deemed appropriate. This report will update the methodology and programme of work that was included in the proposal and used as a basis for agreed pricing, noting the changes and detailing any difficulties encountered, together with a proposal on how they may be overcome. GCAP will comment on the Mobilisation Report. The supervisor's established programme of work may be revised from time to time, but acceptance by GCAP must be sought each time.

The Mobilisation Report will include at least the following:

- Methodology
- Scoping
- A statement defining the proposed supervision services, including:
 - methods and parameters;
 - any changes to the composition of the Consultant's team and specialists needed;
 - methods of consultation with GCAP, MOFA and Stakeholder Organisations;
 - Methods of consultation with the construction contractors, including Quality Assurance and Health and Safety issues;
 - Methods of consultation with the GCAP
- Proposed methodology for tracking compliance with WB Environmental Guidelines, applicable GOG environmental laws and regulations, and site-specific EMPs.
- Detailed program of work, showing time, duration and personnel as well as the inter-relationship between activities.

b. Monthly Reports

The Consultant shall submit comprehensive monthly reports on the progress of the works. Five (5) hard copies and a soft copy of the Monthly Progress Report will be submitted not later than fifteen (15) days after the end of the reporting month. The Monthly Reports will address the following, among others:

- Overall progress of work
- Programme for the coming month
- Forecast of activities
- Recommendation for the future.
- Activities of Consultant
- Financial forecast and projection of the works
- Revised programme for the completion of Works
- Summary of progress and problems
- All necessary contract data (both financial and physical)

c. Quarterly Progress Reports

The Consultant shall submit a comprehensive summary of activities and progress of work in the last three months in lieu of the Monthly Progress Report for that particular month. In addition, quarterly reports shall be submitted during the Defects Liability Period. The Quarterly Reports shall include, among others, the following topics:

- Progress of work for the last quarter
- Programme for the upcoming period
- Record of Defects
- Remedial Action Plan to be carried out.

d. Minutes of Meetings

The Consultant shall issue comprehensive minutes of regular and special meetings and distribute copies as provided for the Monthly Reports. Minutes of the regular meetings may

be attached to the works Monthly Progress Reports or, depending on the circumstances, may be submitted as separate documents.

e. Final Report

A Final Report, including “As Built” drawings, will be submitted within 4 weeks after issuance of the Certificate of Provisional Acceptance.

f. Special Reports

The Consultant shall issue, if the need arises, ad-hoc reports related to the performance of the Works contract. Dispute/litigation or even arbitration, acquisition of land, evaluation of claims, changes of the design, etc. are among the issues the Consultant is likely to be requested to advise on within the scope of the assignment.

The Consultant is required to make provision in his proposal for appropriate personnel to carry out each phase of the services to meet requirements. These are Review of Design and Bidding Documents, Contract Supervision Services, and Post-Construction Services.

7.2.3 Sub Phase B2 Reports

The following reports will be submitted to GCAP with respect to the Implementation of Organisational and Management Systems:

- Inception Report
- Progress Report
- Draft Final Report
- Final Report

a. Inception Report

The Inception Report will describe the planning the Consultant has established for the Implementation of the approved Organisational and Management Systems, the staffing plan, and remarks as deemed appropriate. This report will update the methodology and programme of work that was included in the proposal and used as a basis for agreed pricing, noting the changes and detailing any difficulties encountered, together with a proposal on how they may be overcome. GCAP will comment on the Inception Report.

b. Progress Report

Progress Report will be submitted after three months of Implementation. The Report shall detailed work done since commencement Sub-Phase B2. The report shall also include challenges and measures by Consultant to overcome them in order to achieve the objectives of the Organisational and Management Systems developed.

c. Final Report

On completion of Sub-Phase B2, the Consultant shall prepare a Final Report which will give a comprehensive documentation of work done, including any changes or modification of the systems developed. The final report shall also capture problems encountered and solutions advanced for sustainable use of the O & M system.

8.0 STAFFING REQUIREMENTS

8.1 Consultants Staffing Requirements

GCAP considers that the following Personnel will be required, however the Consultant is invited to suggest the Team that they consider can best achieve the aims and objectives of this assignment. The evaluation of key personnel will consider the use of local expertise by the consultant

Consultants Staffing Requirements:

It is envisaged that a multidisciplinary team of consultants will be required. The indicative staff will include the following of which the first five are the Key Staff:

1	Senior Irrigation Engineer – Team Leader/ Resident Engineer
2	Senior Drainage Engineer - Deputy Team Leader
3	Instrumentation Engineer
4	Scheme Management Specialist including WUA Role
5	Construction/Contract Management Expert
6	Design Engineer – Irrigation Engineer
7	Agricultural Engineer
8	Agro – meteorologist
9	Maintenance Engineer
10	Geodetic Engineer
11	Quantity Surveyor
12	Environmental Expert
13	Health and Safety Specialist
14	Sociologist/Social Scientist
15	Institutional & Organisational Development Expert

GIDA will be required to strengthen the supervision team listed above with individual consultants for 4 positions namely (a) Senior Irrigation Engineer/ Team Leader/ Resident Engineer; (b) Instrumentation Engineer (c) Sociologist/ Social Scientist (d) Institutional & Organisational Development Expert. These Individual Consultants will be recruited using the appropriate GCAP procurement procedures.

In addition to the above experts, there shall be a **Project Director**, to be appointed by GIDA to monitor and oversee the general conduct of the Assignment on its behalf.

The expected staff of the Consultants and the person–month inputs for each phase of the assignment are estimated for as follows:

	Consultant's Staffing	Person-month Inputs	
		S-PHASE B1	S-PHASE B2
1	Senior Irrigation Engineer – Team Leader/ Resident Engineer	18	6
2	Senior Drainage Engineer - Deputy Team Leader	18	0

3	Instrumentation Engineer	3	3
4	Specialist in Scheme Management including WUA Role	0	6
5	Construction/Contract Management Expert	18	1
6	Design Engineer – Irrigation Engineer	1	0
7	Agricultural Engineer	4	2
8	Agro – meteorologist	1	3
9	Maintenance Engineer	0	2
10	Geodetic Engineer	8	0
11	Quantity Surveyor	3	0
12	Environmental Expert	1	2
13	Health and Safety Specialist	6	0
14	Sociologist/Social Scientist	1	2
15	Institutional & Organisational Development Expert	0	5
	Total	82	32

Sub-Phase B1: Construction/Rehabilitation Phase

Sub-Phase B2: Post Construction Period Implementation of O & M system

It is estimated that a total of 114 person-months will be spent on the assignment. The consultant is however free to organise the person-months to be allotted to each of the Consultant's Staff in the team for the assignment with justification. Appropriate additional short-term resources shall be drafted as may be required.

8.2 Other Staff Inputs

The Consultant is free to make any variation to these Key Personnel inputs to suit his perceived requirements to effectively carry out the assignment. Provision should also be made in the Proposal for all supporting staff that will be required to execute the Services.

The indicative supporting staff requirement include:

	Others/Support Staffing	No. Required	Person-month Input	
			Phase B1	Phase B2
1	Civil Engineers	2	36	0
2	Agricultural Engineer	1	4	6
3	Survey Technician Engineers	2	18	0
4	AutoCAD Expert1	1	2	0
6	Computer/IT Technician	1	6	
7	Office Assistant 1	1	18	
	Total		84	6

9.0 RESPONSIBILITIES AND QUALIFICATIONS OF KEY PERSONNEL

9.1 Key Personnel for Phase B

- **Project Director**

The Project Director shall be an experienced engineer not below the rank of a Director in GIDA. In addition to the B.Sc. in a relevant engineering field, he/ she must have an M. Sc in Irrigation Engineering/ Soil & water Engineering or or related discipline with at least 20 years' experience overseeing in similar assignments. He will report to the GIDA management.

- **Resident Engineer (Team Leader)**

The Resident Engineer shall be responsible for the review of the feasibility designs and will be responsible for all the services associated with the technical control of the construction works. He / She shall perform the duties of the Engineer as defined in the Construction Contract and be responsible for the Construction Supervision Team. The Resident Engineer is expected to be based on-site full time during the construction period. He shall report directly to the Project Director.

Among his/her specific duties are:

- Overall supervision of the construction works.
- Ensuring that works are carried out in accordance with Technical Specifications and contract documents
- Approve the Contractor Work Programme and monitor the implementation
- Advise GCAP on all matters relating to the Project as may be necessary for the satisfactory performance of his duties, including:
 - ✓ Contractor's claims for extension of time, extra compensations, work or expenses, etc.;
 - ✓ Changes in contract document;
 - ✓ Change orders;
 - ✓ Problems or potential problems, which may arise in connection with the construction contract;
 - ✓ Disputes, and matters relating to arbitration.
- Organize Site Meetings and prepare minutes of the same;
- Check and clarify Interim Payment Certificates;
- Keep records of all communications with the contractor;
- Prepare Mobilisation, Monthly Reports, and Quarterly Reports on the progress of the works;
- Supervise the preparation of "as-built" drawings;
- Ensure the application of sound quality control procedures for all aspects of the work.
- Assist GCAP in the substantial completion, inspection, final inspection and handing over of the completed works;
- Prepare Final and Completion Report, identify any contractual problems which may have arisen during the implementation of the Project and make appropriate recommendations for mitigating these in future contracts.

The Irrigation/Resident Engineer must be a professionally qualified / certified Senior Civil /Irrigation/ Agricultural Engineer and must hold a post-graduate degree (Post Graduate Diploma or MSc) in Irrigation/ Soil & Water Engineering or related discipline and have at least fifteen (15) years post-qualification experience in similar position., He / She should demonstrate experience from at least three (3) projects of similar nature and complexity, of which at least one must be from Sub-Saharan Africa. Fluency in written and spoken English is essential.

- **Deputy Resident Engineer**

The Deputy Resident Engineer shall assist the Resident Engineer to carry out all his responsibilities and shall act in the absence of the Resident Engineer. He/She shall coordinate the Geodetic Engineer, Quantity Surveyor and Construction Supervisors. He/She may be given any other assignment as may be necessary by the Resident Engineer.

He/She shall have a minimum qualification of BSc. In Civil Engineering, Irrigation Engineering or relevant discipline with minimum experience of 10 years in irrigation.

- **Geodetic Engineer**

The Geodetic Engineer shall be responsible for the setting out and provision of levels during construction. He shall assist the Resident Engineer to monitor the construction process. He must have a minimum qualification of BSc (Eng.) – Geodetic Engineering with a minimum of five (5) years experience in the Construction of Irrigation infrastructure.

- **Quantity Surveyor**

The Quantity Surveyor shall be responsible for Site measurements of works executed by Contractors. He/She shall assist the Resident Engineer in ensuring works are executed within the limits of the Contract.

He/She has to be qualified with a minimum of BSc Degree in Building Technology or Quantity Surveying and a minimum of 5 years working experience in the field of Irrigation Construction works.

Prospective Consultants must provide copies of qualification certificates of Key Personnel as part of the Technical Proposals. All key personnel must also indicate their professional licences or certificates of membership of their respective professional bodies.

- **Institutional & Organisational Development Expert**

The Institutional & Organisational Development Expert shall be responsible for the implementation of the organisational and management systems designed for the newly constructed schemes. He/She shall implement agreed strategies under Phase B and carry out the requisite manpower training for the management of the schemes.

He/She must demonstrate involvement in establishing successful water user management systems for rural irrigation schemes. He/She shall establish maintenance and cost recovery systems permit the management of the schemes as commercial ventures to support on-going operations. He/She will be required to show evidence of working on similar schemes.

He/She shall have a minimum qualification of a first degree in any of the Social Sciences, Business Administration, Agriculture, Human Resources Management with at least ten (10) years post qualification experience in the management and organisation of water user associations or community enterprises.

- **Environmental Expert**

The Environmental Expert will be responsible for ensuring implementation of the Environmental, Health and Safety issues in accordance with the approved Management Plans and other pertinent requirements as detailed in the Special Technical Specifications.

The Environmental Expert will have an advanced degree in environmental planning or similar discipline and at least eight (8) years of experience in implementation of environmental, health, safety and social plans, including experience in similar projects and geographical area. He/She should demonstrate experience from at least one (1) project of similar nature and complexity. Fluency in written and spoken English is essential.

- **Health and Safety Specialist**

The Health and Safety Specialist will be responsible for ensuring implementation of Health and Safety issues in accordance with the approved Management Plans and other pertinent requirements as detailed in the Special Technical Specifications.

The Health and Safety Specialist will have an advanced degree in Public Health or similar discipline and at least eight (8) years of experience in implementation of health and safety plans. He/She should demonstrate experience from at least one (1) project of similar nature and complexity. Fluency in written and spoken English is essential.

10.0 OTHER SERVICES

10.1 Services and Facilities to be Provided by the Consultant

The Consultant shall be responsible for the provision of all necessary facilities, including housing, vehicles, off-site offices if needed, supplementary furniture, the cost of consumables, utilities and maintenance for all housing, etc. This also includes all labour, such as support staff and Head-Office back-up staff etc.

10.2 Services and Facilities to be provided by GCAP

GCAP will make available to the Consultant all existing reports related to the project and shall assist the Consultant to obtain:

- Entry and exit visas, etc. (if applicable)
- Any permits required for the Consultant's staff to carry out their duties within the country.
- Resident permits, etc.
- The GoG shall grant the Consultant and their expatriate staff the following facilities and exemptions:
- Immunity from any legal action which might be instituted for any acts accomplished by them in the discharge of project-related activities;
- Inviolability of secrecy and immunity from seizure of documents relating to the project; and
- Taxes, duties, levies, consistent with the tax provisions of the Compact.

10.3 Correspondence and Consultation with GCAP

Liaison meetings shall be held with GCAP at monthly intervals. Meetings would be attended by members of the Supervision Staff as necessary and would have the objective of expanding on contents of the Progress Reports, discussing any problems and relevant matters.

GCAP shall see to it that correspondence exchanged in connection with the execution of the Project is dealt with promptly, by its agencies, so as not to cause any delay.

The Consultant shall liaise closely with GCAP during the course of the assignment.

10.4 Language of the Project

The spoken and written language of the Project will be English. Proposals and all reports must be submitted in English.

10.5 Reports and Documents to be made available to the Consultant

GCAP will provide the Consultant with available data and documents relevant to the assignment. The Consultant shall, however, be solely responsible for the accuracy, analysis and interpretation of all data received and for the recommendations in the reports. For the execution of the assignment the following reports, hand-outs and documents on KIS shall be made available to the Consultant:

- 1) Final Technical Assessment Report
- 2) Design Standards Criteria
- 3) Preliminary Design Report
- 4) Final Detailed Design Reports which includes the Main Design Report, Engineering Drawings, and Bidding documents
- 5) Final Organisation and Management System Reports
- 6) O&M Manuals
- 7) Dam Safety Report ESIA and ESMP Reports