

Irrigation Schemes Development Project in Unyama, Namalu And Sipi Regions

TERMS OF REFERENCE (TOR)

Consultancy Services for Conducting the Agri business Needs Assessment Survey in the Catchment Districts of the 3 schemes of Unyama, Namalu and Sipi

1.0 Introduction:

The Government of the Republic of Uganda received a loan from Islamic Development (IsDB) to finance the Irrigation Schemes Development Project In Unyama, Namalu And Sipi Regions under the Ministry of Water and Environment (MWE). The project is implemented by Ministry of Water and Environment (MWE), with Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) as a technical implementation partner. The Irrigation Schemes Development Project In Unyama, Namalu And Sipi Regions is designed within the context of the Government of Uganda's National Development Plan (NDP 3) and the long-term development strategy, the Vision 2040 both of which aim to promote agricultural infrastructure and income enhancement. Particularly, the project is focused on construction and development of 3 irrigation schemes; i) Unyama in Gulu and Amuru districts, ii) Namalu in Nakapiripirit District, and iii) Sipi in Bulambuli District. The overall goal of the Project is to contribute to poverty reduction and economic growth in Uganda through enhanced productivity and commercialization of agriculture. The Development Objective of this project is to improve household incomes, food security, and climate resilience through sustainable natural resources management, enhance access to sustainable water resource use and agricultural enterprise development by constructing irrigation schemes covering about 2900 in the three schemes. The project is implemented by four coordinated components namely: (i) Agriculture Infrastructure Development; (ii) Agribusiness Development; (iii) Integrated Natural Resources Management; and (iv) Project Management with a total cost of USD US\$86.50million. The project seeks to consolidate and expand the notable achievements of the FIEFOC Programme of the first and second phase implemented by 2012 and 2023 respectively.

2.0 Background

The Agribusiness Development component will focus on increasing the business outlook of the Project's beneficiaries, hence contributing to increase household average income and poverty reduction. This will be done by strengthening and supporting capacity building activities, including demonstrations and training as well as developing marketing strategies for all the value chain actors along the commodity value chain. Four commodities will be promoted in the three schemes namely; i) Fish, honey, rice and fruit/vegetables through promoting best farming and value addition practices /technologies in aquaculture, apiculture, rice farming and horticulture enterprises respectively. The irrigation infrastructure development will provide water for production that will improve agricultural production, productivity and profitability of supported enterprises of rice, horticulture, apiculture and aquaculture. The supported enterprises should be viable, adapted to the respective agro-ecological zones, sustainable and competitive on the local, regional and international market in order to generate enough revenue to sustain both the enterprises and the irrigation infrastructure while at the same time giving farmers a big market share and improving their livelihoods. Currently the four enterprises are dominated by smallholder/subsistence farmers with little application of improved inputs/technologies which results in reduced productivity hence low incomes. The farmer institutions are weak and require strengthening and capacity building in areas of commodity bulking, collective marketing, agribusiness skilling and mobilization and utilization of agricultural finance. The detailed state of affairs in the four commodities are detailed below.

Fish is one of the key leading Uganda's exchange earners after coffee and it contributes about 3% to the 12% of Agriculture's total contribution to the Nation's GDP. The current Fisheries and Aquaculture policy 2018, and in line with the NDP III targets, seeks to promote an annual production of one million metric tons of fish to be able to meet the growing demand for cheap protein source and improved nutrition of its 45 million population; and also save more for export earnings. Apparently only 120,000 metric tons are produced in the country. FIEFOC 2 Project has been promoting aquaculture as part of the initiative to increased production and productivity of farmed fish in irrigation schemes taking into consideration of developed/availed water resources within the schemes and in the catchment areas. Intervention in the previous project increased the productivity from 0.07 kgs per M³ to 1.5 kgs per M³ representing 95% increase. There are an estimated 300 farmers in the planned irrigation schemes catchment areas (although a profile will be done to establish actual status). However, their contribution is still low and requires continuous skilling to support the farmers increase the fish production and productivity. FIEFOC 3 will work to promote good farming and value addition practices within the irrigation schemes and their associated district in the catchment areas.

Under the Agribusiness Development Component (ADC), beekeeping, sometimes called apiculture, is one of the key activities highlighted for farmer household income enhancement. Apiculture has been practiced in all the local communities in Uganda, including the 19 districts in the proposed project area. However, concrete information on the exact number of bee farmers and their beehives, honey production and productivity; and other apiculture value chain actors (input dealers, processors, traders) in the area; is scanty. Apparently, over 1,000 farmers with an average of at least 4 beehive colonies are estimated to be practicing beekeeping in the project area at various levels of technology; producing about 32,000kgs (32MT) of honey per year. There are 2 honey harvesting seasons in the area per year, with each hive producing an average of 4kgs per season. With the project intervention, honey production and productivity is expected to increase from 4kgs/hive/season to at least 10kgs/hive/season.

One of Uganda's 14 strategic commodities is horticulture, specifically fruit and vegetables (MAAIF, 2016). According to recent statistics (FAOSTAT, 2018), Uganda is currently the second-largest producer of fresh fruits and vegetables in sub-Saharan Africa, behind Nigeria, with an annual production of roughly 5.3 million tons valued at \$35 million. There are 900,000ha of fruits and 250,000ha of vegetables (FAOSTAT, 2017). But since fruits and vegetables were imported for US\$11.01 million in 2020, the production is not sustainable (UN, 2020). There is a pressing need to boost production even in the absence of reliable statistics on the sector in the nation. Many regions of Uganda, including the targeted catchment areas of Sipi, Namalu, and Unyama, have soils and climates that are conducive to the cultivation of a variety of horticultural crops. The following are some of the priority horticulture crops grown in the targeted catchment: oranges, mangoes, avocados, passion fruits, cabbage, onions, and watermelon; Namalu catchment (Napak Katakwi, Nakapiripirirt) – oranges; and Unyama catchment (Amuru, Adjumani, and Nwoya) – oranges, mangoes, lemons, tomatoes, cabbages, onions, and watermelon). Given that water is available all year round in the nation, horticulture is one industry that creates more jobs per hectare than staple crops (GHI, 2006). For many African farmers, particularly women, the sector offers more profitable markets and agribusiness opportunities (World Bank, 2004), greatly improving employment, income, and livelihoods - an essential means of escaping poverty in Africa. The implementation of MWE's programs and MAAIF/NARO's assistance in enhancing farmer capacity will enable year-round fruit and vegetable production, boosting national output and GDP.

Rice is the most widely consumed and staple food crop in the world, feeding more than 3.3 billion people (Ali et al., 2021; Mohidem et al., 2022). It is urgently necessary to supply food for the

world's expanding population, which is predicted to reach 9.8 billion people by 2050, despite the growing difficulties brought on by climate change. Since rice contains 27% more calories than any other crop, it is by far the most important food crop for the poor in low- and middle-income countries (Dawe et al., 2010; Yusri et al., 2022). Although production decreased from 237 MT in 2014 to 190 MT in 2018, the area under rice production in Uganda increased from 60,000 ha in 2004 to over 220,000 ha in 2020 (Kagorora *et al.*, 2021; UBOS, 2018). Compared to expected yields of more than 4 tons/ha for paddy rice and 4-6 tons/ha for upland rice, rice farmers in Uganda receive yields ranging from 1.4 to 2.5 MT/ha (Barungi and Odokonyero, 2016; Barungi, 2017). The demand for rice in Uganda has increased at a rate of 3.4% per year over the last ten years. The demand for milled rice is expected to reach 383,000 MT and 230,000 MT, respectively, this year, representing increases of 5.8% and 10.3% for milled rice and paddy rice, respectively (KilimoTrust, 2018). In addition, the need for rice seed has been increasing; according to estimates, there is a 2000 MT demand for foundation seed and a 20,000 MT demand for certified seed (MAAIF, 2012). The current population of over 40 million requires more rice to be produced, so more land must be used for this purpose. MAAIF/ NARO released new high yielding and well adapted varieties namely Arize Gold 644, and Chiga that have a yield potential ranging from 4.9-6.5 tons/ha, mature within 95-135 days with a good aromatic taste, texture that extends and soft on cooking and non-pasty preferred by majority of women. These and other will be promoted within the targetted schemes to be constructed alongside with training on good agronomy practices.

3.0 Purpose of the assignment

The purpose of this assignment is to assess and profile the agribusiness needs and activities of the farming communities in the three irrigation schemes which will define the basis and extent of the project interventions for successful implementations. The Agribusiness needs assessment is intended to identify, document and analyze the different value chain actors in the proposed enterprises of rice, horticulture, apiculture and aquaculture and others that will be found viable and preferred by the communities in the catchment areas and the environment within which they operate in order to establish the strength, weaknesses, opportunities and threats and to come up with appropriate recommendations.

4.0: Assignment task

- i. To document the current status of apiculture, rice, horticulture and aquaculture value chain investments in Uganda.
- ii. To identify and map out existing and future agribusiness training needs along the enterprise value chains for enhanced youth and women employment.
- iii. Identify challenges along the entire apiculture, rice, horticulture and aquaculture value chains that need to be addressed to attract women and youth agribusiness participation.
- iv. Identify and recommend different areas/opportunities within rice, apiculture, horticulture and aquaculture value chains that need urgent investments that promote women and youth inclusiveness.
- v. Identify and recommend different kinds of innovative investment approaches that are needed to create women and youth employment opportunities in rice, aquaculture and apiculture value chains.

5.0 Scope of Work

The assignment involves undertaking a detailed review of the current status of agribusiness opportunities along the apiculture rice, horticulture and aquaculture value chains, i) desk reviews of all relevant documents obtainable from government ministries, authorities, local governments, producer organizations, processors and traders/associations; ii) key informant interviews with

identified market chain actors and enablers; iii) stakeholders' consultations; iv) analysis of the collected data; v) Report preparation to generate recommendations against study objectives that will inform the project on the required key agribusiness interventions for rice, apiculture, horticulture and aquaculture enterprise value chains necessary for youth/women job opportunities. In detail, the assignment will involve structuring the needs assessment survey as follows.

5.1 Current status of rice, apiculture, horticulture and aquaculture value chains

- i. Establish the current apiculture, rice, horticulture and aquaculture production resources endowment, production systems, productivity and production, common fish species and their consumption preferences, honey and fish supply and demand, season and annual production trends, perceptions, contribution of apiculture and aquaculture towards total household incomes.
- ii. Identify value chain actors (input dealers, producers, processors and traders), their roles/functions, value addition technologies and marketing channels and strategies being employed and actors' technical competences/knowledge in apiculture, rice, horticulture and aquaculture value chains.
- iii. Quantify and document product utilization (Rice, horticulture, fish and honey) of produced, processed and sold products in (raw form or processed), consumed and those lost per production cycle and type/size of production facility (rice/horticulture acreage, fish pond, and bee hive) and respective product prices based on the product form.
- iv. Establish the aquaculture, rice, horticulture and apiculture value chain business development providers such as financial institutions, production and value technologies' suppliers, transporters (fish), brokers, seed multipliers (fingerings for fish), feed suppliers, etc.
- v. Establish chain enablers and their responsibilities. These include among others as research institutions, farmer institutions/organizations, processors and traders' association, NGOs (both local and international), local governments etc.
- vi. Assess the attractiveness of apiculture, rice, horticulture and aquaculture enterprises to youth/women entrepreneurs in comparison to other alternative enterprises in the project target areas (competitiveness-growth potential, high market demand, proximate to markets, potential for value addition, low production cost and unique products, pro-poor-number of households employed, potential for labour intensive technologies, low risks, promotion of equity, low barriers to entry for poor and employment creation, food security-availability and access to food, lower food prices and nutrition and health, cross cutting issues-HIV mitigation, gender/youth inclusive/employment opportunities and environment compatibility).
- vii. Determine economic performance (gross margin analysis) of the aquaculture, rice, horticulture and apiculture value at production, post harvesting handling, processing and marketing level. Indicators such as unit production, value addition and marketing cost, return on labour and value-added share based on product form (raw vs processed), production technology, species for aquaculture and horticulture; and marketing channels should be computed/identified.
- viii. Establish the current macro structure (PESTLE analysis) of aquaculture, rice, horticulture and apiculture value chains.
 - ix. Identify the strengths, weaknesses, opportunities and threats (SWOT analysis) of four (04) value chains.

- x. Identify the existing farmer organisations, institutions/Non-governmental organisations, infrastructure, and the market linkages involved in apiculture, rice, horticulture and aquaculture value chains
- xi. Stock taking the community farming systems e.g. commercial enterprises, subsistence, Agric. Land holding size, location and the scale of operations (i.e. level of value addition-raw, semi processed)
- xii. To document the existing input distribution systems in the water shed areas (type, source, availability and cost of agricultural inputs required)

5.2 Challenges in rice culture, apiculture, horticulture and aquaculture that need to be addressed for use by women and youth to competitively participate

Identify challenges along the entire apiculture, rice, horticulture and aquaculture value chains that need to be addressed to move forward. Challenges relating to development of apiculture, rice, horticulture and aquaculture value chains that are tailored toward promotion of especially the youth and women agribusiness skills development, enhanced employment opportunities and commodity productivity in the project area. These challenges could inform investment opportunities along these entire chains.

5.3 Potential agribusiness needs for youth/women:

Identify training and investment gaps along the entire four value chains and innovatively classify them to clearly reveal the huge potentials that exist for aquaculture, horticulture, rice and apiculture to be fully exploited by farmers especially the women and youth within the selected project implementation areas. Potential in terms of the current and future agricultural technologies for production, post-harvest handling, value addition and marketing, human resource development, agribusiness skills development, business development service providers (Finance, technologies' suppliers and skills consultants) etc. This will act as the basis for the Project to empower the women and youth or in exploring options and areas of investment.

5.4 Areas of Investment for youth/women in agribusiness

Identify and recommend different youth or women agribusiness investment-oriented areas within the apiculture, rice, horticulture and aquaculture value chains that need urgent attention in terms of skills and business development. Some of the areas to consider are:

- SME development opportunities for youth and women along these value chains,
- Support needs for youth agribusiness skills development, institutional capacity building (agri-youth/women groups),
- Supporting and empowering farmers (especially youth and women) in production, post-harvest handling and value addition inputs and technologies accessibility,
- Agri-finance and market accessibility through youth/women agribased groups/farmer institutions, youth agribusiness training partnerships,
- Building high quality functional training resources (training materials & business training centres)
- Capacity building of key chain actors and enablers, MoWE and MAAIF, district local governments in the target districts on the use of modern aquaculture, rice, horticulture and apiculture production, post-harvest handling and value addition technologies as well as project sustainability.

5.5 Investment options for youth and women in agribusiness:

Identify and recommend different kinds of innovative investments approaches (with specific examples of what worked in the past under different sectors while targeting agribusiness youth

and women employment) that are needed to create youth and women employment opportunities through rice, apiculture, horticulture and aquaculture value chains based on sustainable models instead of government and donor dependence.

6.0 Methodology

Assessment will utilize both primary and secondary data collection techniques including desk reviews. Use of data questionnaires, field observations, interview guides for discussion groups and key informants as well as stakeholder's validation workshop are encouraged. The study encourages the consultant to utilize participatory research methods. The field research methods are likely to include a mix of the following, excluding household interviews due to the nature of information required.

- i. Field observations
- ii. Focus group discussions
- iii. Key informant interviews
- iv. Stakeholders' validation workshop.

The data collected will be synthesized by the hired firm/consultant and presented along with raw data and a preliminary analysis. This will be used to inform qualitative evaluation, which will include practical recommendations for the subsequent development for women and youth agribusiness in aquaculture, horticulture and apiculture value chains.

7.0 Expected output

- i. Inception report**
The consultant/s will produce an inception report within 20 working days of commencing the survey detailing proposed work plan and methodology.
- ii. Raw data**
Covering transcripts of interview and records of observations in English and in electronic form.
- iii. Interim report**
The interim report will be produced in English at the field data collection and will include the data collected and provisional research findings.
- iv. Final report**

Final report will be produced in English and will document the current status of agribusiness investment opportunities along aquaculture, rice, horticulture and apiculture value chains that are pro women and youth employment creation as well implementation strategies for identified opportunities. The report will be comprised of executive summary, background of the study, problem statement, research questions, significance of the study, literature review, methodology, findings, summary and recommendations for accelerated creation of women and youth employment opportunities, and agribusiness skills development in aquaculture, rice, horticulture and apiculture value chains. The final report will be presented at a stakeholder workshop facilitated by the consultant. Other appendices will include final questionnaires/checklist used, data tables for all variables, survey timeline used and outside references used to complete the final reports.

8.0 Inputs

The Consultant will mobilize a coherent, dynamic and organized professional team of experts from reputable and eligible firms with demonstrable experience in similar assignments to undertake this Consultancy assignment. The Consultant shall provide the qualifications and experience of each specialist to be assigned for the activities in the scope of services. For each specialist proposed, a

curriculum vitae specifically endorsed by the corresponding staff and person with powers of attorney shall be provided setting out the relevant experience and employment record.

Table 1: The Consultant's team shall include the following key personnel

S/N	Position	Number required	Qualification and Experience
1	Project Manager/Team Leader	1	Team Leader Must have a minimum of Master's degree in Agricultural economics/ Economic policy/Agribusiness, Aquaculture /entomology Or any other related field with at least 13 years of relevant experience in similar assignments.
2	Horticulture Specialist	1	Bachelors level of science in horticulture or related field and at least 10 years of relevant experience in similar or related assignment. An MSC/PhD is an added advantage
3	Statistician	1	Bachelors level of science in statistics or related field and at least 10 years of relevant experience in similar or related assignments. An MSC/PhD is an added advantage
4	Entomologist	1	Bachelors level of science in Entomology (with a bias in apiculture) or related field and at least 10 years of relevant experience in similar or related assignments. An MSC/PhD is an added advantage
5	Aquaculture Specialist	1	Bachelors level of science in aquaculture or related field and at least 10 years of relevant experience in similar or related assignments. An MSC/PhD is an added advantage
6	Agribusiness specialist	1	Bachelors level of science in agribusiness or related field and at least 10 years of relevant experience in similar or related assignments. Knowledge of Value chain analysis and development is important. An MSC/PhD is an added advantage

Table 2: Key Personnel and their Required Main Responsibilities

S/N	Position	Main Responsibilities
1	Project Manager/Team Leader	Team leader guides and provides direction to the team in collecting and synthesising of

		data, and ensure desk reviews are done to support the primary data. Team leader will ensure execution, presentation and submission of deliverables and reports of the assignment
2	Horticulture Specialist	Ensure horticulture tools for data collection are well formulated; data is perfectly collected and managed; supports statistician in proper analysis, interpretation of collected data and making sound inferences in relation to the required deliverables. Support the team in literature search and discussions so as to make good and useful arguments in inferences and recommendations
3	Statistician	To support the team in collect and synthesise qualitative and quantitative data, and to deliver preliminary analysis of data as evidenced in previous data sets and project report
4	Entomologist	Ensure apiculture tools for data collection are well formulated; data is perfectly collected and managed; supports statistician in proper analysis, interpretation of collected data and making sound inferences in relation to the required deliverables. Support the team in literature search and discussions so as to make good and useful arguments in inferences and recommendations
5	Aquaculture Specialist	Ensure aquaculture tools for data collection are well formulated; data is perfectly collected and managed; supports statistician in proper analysis, interpretation of collected data and making sound inferences in relation to the required deliverables. Support the team in literature search and discussions so as to make good and useful arguments in inferences and recommendations
6	Agribusiness specialist	Ensure Agribusiness tools (for value chains in aquaculture, rice, horticulture and apiary) for data collection are well formulated; data is perfectly collected and managed; supports statistician in proper analysis, interpretation of collected data and making sound inferences in relation to the required deliverables. Support the team in literature search and discussions so as to make good and useful

		arguments in inferences and recommendations
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8.1 Required expertise by the Firm

- a) Be a recognized independent consultant or consultant firm in a consortium legally registered/ recognized to conduct consultancy activities in Uganda;
- b) Demonstrated ability to collect and synthesise qualitative and quantitative data, and to deliver preliminary analysis of data as evidenced in previous data sets and project reports.
- c) At least three (3No.) related assignments handled by the firm/organization in conducting agricultural value chain empowerment and evaluation activities as well as value chain analysis (production, value addition, marketing, consumer preference and investment studies) for the four commodity value chains (Rice, Aquaculture, horticulture and apiculture)
- d) Sufficient knowledge and understanding of the apiculture, aquaculture, rice and horticulture value chain development challenges is a must.

8.2 Additional information on the Eligibility of applicants:

In order to be eligible for the contract the applicant must:

- a) Be a recognized independent consultancy firm or consultant firm in a consortium;
- b) Have proven experience in conducting agricultural value chain analysis, empowerment and evaluation related studies or surveys.
- c) Prior experience in working with agricultural research institutions/organization with a particular focus on apiculture, aquaculture, rice and horticulture commodities will be an added advantage.
- d) Previous experience in assessing agricultural development projects financed by ADB, World Bank or IsDB in Africa is and added advantage.
- e) Having at least three surveys conducted particularly in agricultural value chain women/youth in agribusiness studies is a plus.

9.0: Duration of the assignment

S/N	Activity Description	Duration (Weeks)
1	Inception activity report detailing how the Agribusiness Needs Assessment survey will be conducted (detailing proposed work plan, methodology and other implementation aspects). This will be presented to the Agribusiness technical team under the Project.	21 days after signing the contract (3 weeks)
2	Development of the needs assessment tools for , data collection, data entry, data cleaning and analysis, report writing; provisional research findings will be presented in an interim report to the agribusiness teams/project team	Thirteen weeks (13) after contract signing
3	Preparation of the final report; stakeholder's validation workshop, incorporate all the comments from agribusiness component team/project team and prepare the final report for submission and approval	Sixteen weeks (16) after signing the contract
	Total Duration of Assignment	16 weeks)

10.0 Reports to be submitted

S/N	Report	Submission period
1	Inception report detailing the Agribusiness Needs Assessment survey will be conducted (detailing proposed work plan, methodology and other implementation aspects). This will be presented the Agribusiness technical team.	After three weeks (21 days) of contract signing
2	The interim report will be produced at the field data collection and will include the data collected and provisional research findings.	After Ten weeks (10) from the date of completion of the inception report.
3	A final Agribusiness Needs Assessment Survey report will be produced and will document the current status of agribusiness investment opportunities along four value chains (rice, aquaculture, horticulture and apiculture) that are pro women/youth employment creation as well as implementation strategies for identified opportunities. The report will be comprised of executive summary, background of the study, problem statement, research questions, significance of the study, literature review, methodology, findings, summary and recommendations for accelerated creation of youth employment opportunities, women/youth agribusiness skills development in the four value chains. The final report will be presented at stakeholder workshop facilitated by the consultant. Other appendices will include final questionnaires/checklist used, data tables for all variables, survey timeline used and outside references used to complete the final	Sixteen weeks (16) after signing the contract

	reports. In addition, a soft copy and Five hard cover copies of the survey final report.	

11: Payment Terms

The Consultant will invoice the Executing Agency for conducting an assignment on agribusiness needs assessment survey for aquaculture, crop intensification, and apiculture in Uganda based on the milestones/deliverables in the work plan as agreed in the contract as below. However, the final milestones to be achieved will be reached after the presentation of the Final report.

Activity timeline	Deliverables	Amount paid (%)
Twenty-one days (21) after signing the contract (3 weeks)	Inception report	20%
Thirteen weeks (13) after contract signing	The interim report	50%
Sixteen weeks (16) after signing the contract	A final Agribusiness Needs Assessment Survey report consultant. Include other relevant appendices	30%