REPUBLIC OF KENYA

MINISTRY OF WATER AND IRRIGATION

STATE DEPARTMENT OF NATIONAL WATER SERVICES

KENYA WATER SECURITY AND CLIMATE RESILIENCE PROJECT

TERMS OF REFERENCE

CONSULTING SERVICES TO CONDUCT BASELINE SURVEY FOR IMPACT EVALUATION

FOR

LOWER NZOIA IRRIGATION PROJECT – PHASE 1

OCTOBER, 2016

1.0 BACKGROUND INFORMATION:

Lower Nzoia Irrigation Development Project (LNIDP)

The Government of Kenya has received credit financing from the International Development Association (WB-IDA) to implement projects under the Kenya Water Security and Climate Resilience Project (KWSCRP). One of the investments identified under the KWSCRP is the Lower Nzoia Irrigation Development Project (LNIDP), which is located in Western Kenya and covers the Southern and Middle Kakamega, most parts of Siaya and the Southern part of Busia Sub-County.

The LNIDP area extends on both banks of the River Nzoia from approximately 4 km upstream of the Old Nzoia Bridge, on the C90 road, nearly to the shores of Lake Victoria. The area proposed for irrigation development includes the floodplain of the Nzoia River and areas on both the left bank (Phase I) and the right bank (Phase II). In total, LNIDP covers proposed net irrigation area of about 7,697 Ha. Phase I is located in 3 sub-counties (Ugunja, Siaya and Bunyala) and has a gross command area of about 6,469 Ha with a net-targeted irrigation area of 4,075 Ha comprising of 14 blocks. The Phase II project covers the Ugenya and Bunyala sub-counties, and has a gross area of about 4,958 Ha and a net-targeted irrigation area of 3,622 Ha comprising 10 blocks.

A total of 2100 farmers, that include smallholder farmers, is expected to be supported in the LNIDP scheme. The irrigation development involves three interventions: construction of irrigation and drainage infrastructure, support to agricultural production and establishment of market linkages through a value chain approach, and support to the efficient operation and maintenance of the infrastructure. These interventions, once successfully implemented, are expected to lead to the following expected outcomes: improved farmer incomes, reduced unemployment, improved food and water security and increased foreign reserves, but will be formally measured through an impact evaluation.

Within the LNIDP, there are two existing irrigation schemes namely Bunyala Irrigation Scheme on the south bank (Phase I area), and Rwambwa-Mudembi Irrigation Scheme on the north bank (Phase II area). The National Irrigation Board supports both existing schemes in terms of operation and maintenance services. The cooperative society of existing schemes' farmers is responsible for the production and marketing of crops. Operation and maintenance

of tertiary and on-farm irrigation and drainage infrastructure is the responsibility of the Irrigation Water Users Association for each of the two schemes. Both schemes are fed with water pumped from the Nzoia River.

Outside these irrigated areas, the farmers in the project area mainly grow food crops under rain-fed conditions. There is a subsistence rain-fed cropping pattern dominated by maize, intercropped with beans, sorghum, cassava and sweet potatoes and small areas of pulses and vegetables, that do not do well due to the unreliable and inadequate rainfall combined with poor agricultural practices. Another serious problem is the periodic flooding from hills to the north on the right bank, and the breaching of the flood protection defenses on the Nzoia River which has affected both sides of the river.

LNIDP Phase 1 will be financed under the first investment operation in the series, KWSCRP. It is a flagship project of the Kenya Agricultural Sector Development Strategy (ASDS) and of Kenya Vision 2030 and is expected to contribute to food security, economic growth and enhanced climate resilience for farmers. It is the first new-generation large-scale public scheme to be developed by the National Irrigation Board (NIB) in the country. The scheme would get its water from Nzoia River, which flows into Lake Victoria and will irrigate 4,075 hectares, of which about 50% would be devoted to high value crops (fruit, vegetables) and the other 50% to rice in rotation with soybeans, cereals and other legumes. The success of LNIDP relies on the effective transition from current rain-fed subsistence agriculture to commercial farming based on horticulture, and on the uptake of efficient irrigation management, operation and maintenance processes that will ensure scheme functionality and sustainability.

2.0 IMPACT EVALUATION FOR THE LOWER NZOIA IRRIGATION DEVELOPMENT PROJECT

2.1 Goals and Objectives

As part of the KWSCRP an IE will be undertaken in order to determine the net contribution of the project and its interventions. A rigorous IE serves to establish the causal linkages between a project or intervention and a set of outcomes of interest. In order to estimate the causal relationship between the project (treatment) and the outcomes of interest, a counterfactual is required—in other words, a comparison group that shows what would have happened to the target group in the absence of the intervention.

Without that counterfactual, specific outcomes of interest can still be tracked among those who receive the intervention (treated group) through conventional monitoring and evaluation (M&E) tools. Therefore, IE and M&E are complementary processes for results monitoring and evaluation.

The purpose of this Request for Proposals is to recruit a firm/consortium to develop and implement baseline household, farm plot and market surveys. These surveys will produce baseline data designed to evaluate the impacts of a set of interventions as part of the KWSCRP. The impact evaluation, which this baseline survey will support, focuses on LNIDP and has two objectives:

(1) To explore the impacts of an irrigation scheme being developed on; crop choices, yields, employment, farm productivity, income and food security. In this case, the focus is to compare LNIDP Phase I (Where investment is expected) to Phase II (Where investment is not expected for a number of years).
(2) To use the existing Bunyala Irrigation Scheme, within the proposed new and larger LNIDP to test the importance of credit and financial literacy/planning constraints on getting returns from the large infrastructure investments. The activities outlined in the scope of work will provide a baseline data necessary to implement the proposed impact evaluation.

More specifically, The IE will address the following questions:

i) What is the impact of irrigation infrastructure on crop choices, yields, labor, food and water security, farm income and foreign exchange earnings?

ii) What combination of microcredit and training is most effective in improving the returns to irrigation?
iii) Which institutional setup is most effective and efficient for robust irrigation development outcomes?

2.2 Quantitative data collection

As part of this IE, farmer surveys will be conducted on all farmers that have plots within the Bunyala scheme, as well as a sample of farmers in Phase I and II of the broader Nzoia scheme. Quantitative farmer and household level surveys will be used to capture all core primary and secondary outcomes presented in Table 1 in Annex. A full baseline will be conducted in 2016/7 in Bunyala and LNIDP. This will act as the only baseline for Bunyala, but the first of 2 baseline surveys that will be shorter, targeted surveys on core indicators for the broader Nzioa scheme to help ensure parallel trends between treatment and control groups for the first, quasi-experimental question on the overall impact of irrigation.

The second baseline will take place in 2018, which will also act as the first follow up survey in Bunyala (where the credit and training interventions will already have taken place). Altogether we plan to have 3 farmer surveys, each 2 years apart, starting in 2016. Surveys will take place at the same time in the year to control for seasonality. On top of this, we plan to collect high frequency data on core outcomes of interest, related input, output and sales prices, proportion of harvest stored and food security given the high variability over time we may expect.

2.3 Qualitative data collection

Focus group discussions will be held with Irrigation Water Users Associations to obtain a clear understanding of the types of opportunities and challenges farmers are facing and their interest/motivation for moving from subsistence to cash-crop producers.

3.0 SCOPE OF WORK

This terms of reference are for recruitment of a survey firm/consortium, which will conduct the first round of tracking survey (baseline surveys). The survey firm will work under the direct supervision of the impact evaluation team of KWSCRP with technical assistance from the World Bank.

The selected survey firm will be expected to successfully carry out all activities of the baseline data collection process. These activities include:

1) Full listing of all farm plots and associated farmers in the Larger Lower Nzoia Irrigation Scheme Phase I and Phase II and including functioning Bunyala and Rwambwa-Mudembi Irrigation Schemes.

   The firm will be expected to conduct a census survey of all farm plots and associated farmers within the proposed scheme that will be used as the sampling frame from which to select participants for the household survey. It is expected that the coverage area will be approximately 4,075 Ha across 3 sub-counties in Phase I. The approximated coverage area will be 3,622 Ha across 3 sub-counties in Phase II. For each plot identified within the coverage area, the GPS location will be taken, and the smallholder farms identified and surveyed. The GPS location of the farms residence will also be captured if it lies within 3km from the scheme coverage area.
2) Listing of the markets for farm products and their respective prices in the region

   All local markets within the geographic area will be identified and geo-referenced. Basic descriptive information about the market will be collected. Prices will then be collected across a pre-specified set of consumption items found within each of the markets.
3) Mapping of the providers of agricultural inputs, agro-processing services and agricultural marketers in the region.

   The agricultural input and service providers and respective services offered/available to farmers in both Phase I and II areas of the Lower Nzoia Irrigation Scheme will first be identified. These services should include but not limited to the following:
   a) Extension services (e.g., m-Learning, m-Farming)
   b) Market information and interaction (e.g., trade facilitation, trade platforms, market information)
   c) Support services and systems (e.g., quality control, process management, financial services)
   d) Data collection services to inform policy-making and market intelligence.
   e) Other agricultural services

The mapping of agricultural input and service providers should detail the clusters of services provided in the surveyed project area. Some of the features expected to be employed in mapping the service providers are:

a) Geospatial applications
b) m-Learning applications
c) m-Farming applications

4) Full baseline agricultural survey of farmers and farm plots identified in the listing survey.

A full agricultural survey lasting on average 2 hours will be conducted with a sample of farmers identified from the listing activity. This will include all farmers with plots in the Bunyala Irrigation Scheme (approximately 1,400 farmers) and a sample of 2,100 farmers with plots in Phase I and II of the LNIDP.

The survey will be conducted with the household head and any other household members that are the primary farmers of the plot under question. The survey will gather data on all plots farmed or owned by the farmer (regardless of whether they lie within the scheme). The survey will include questions on, among other topics: Food security and consumption; Farm yield (by plot and crop); farm income; investment in agricultural inputs; storage and sales decisions regarding crops produced; levels of indebtedness; use of financial products; awareness of market prices; perception and use of water; crop choices; on-farm labor and health.

4.0 DELIVERABLES

The Survey Firm will be expected to successfully implement each of the data collection activity, based on the following specific deliverables:

Deliverable 1: Field Procedure Plan

The survey firm will be required to prepare a detailed field procedure plan covering all aspects of the field work to be conducted as follows: -

- Composition of a standard field survey team, comprising field manager(s), enumerators, field supervisors, etc.
- Anticipated tasks and responsibilities, qualification and expertise of each member of the survey team.
- Number of visits per household (a minimum of THREE visits per household should be planned to allow for interrupted survey, revision of incomplete/inconsistent information, and quality control in data collection).

- Detailed calendar of activities and deliverables in the period leading to and during the actual data collection.
- Information management and reporting tools for tracking progress of the survey process.
- Protocols for confirmation of the status of treatments and controls of the clusters.
- Supervision and spot-check plans to ensure adherence to data collection protocols and confirm quality of data collection/entry, including a minimum of 10 percent revisits to a random sample of the evaluation sample to confirm the validity of randomly selected questions.
- Protocols and procedures for addressing data inconsistencies and/or misreporting when identified.
- Protocols for using Open Data Kit (ODK), or any other electronic platform that will be used for recording the survey data during the interviews.
- Electronic data transmission protocols with a description of how data will be uploaded, checked centrally and transmitted to the evaluation team.
- Detailed overview of consultation processes with county officials, sub-county officials and the key informants in selected communities.

This Field Procedure Plan should be presented to the evaluation team for comments and input in order to ensure necessary revision prior to commencement of fieldwork. The survey firm must then implement the survey, adhering as closely to the plan as conditions allow. Since field conditions dictate significant changes to these plans, the survey firm's field supervisors are obliged to inform the research team via the survey firm's management through written reports and progress reports.

Deliverable 2: Research and Ethical Clearance

Complying with all rules governing ethical research in Kenya, the survey firm will be expected to prepare all materials required to submit an application for, and successfully receive ethical clearance for the survey. Any specific inputs required for the clearance, that are the responsibility of the evaluation team (e.g. draft questionnaire), will be provided upon request. The ethical clearance should be obtained prior to implementation of the baseline pilot survey.

Deliverable 3: Final Questionnaires, Training Materials and Pilot Report

(i) **Adaptation and translation of questionnaires:**

The survey firm will be provided a standard set of base questionnaires, in English. In consultation with the research team, the survey firm will adapt survey modules, including

phrasing of questions and adaptation of response codes to ensure pertinence to the study context. Once the survey firm has adapted the base English questionnaires to reflect unique needs of the project, the survey firm will translate this set of questionnaires to Kiswahili for pre-testing.

(ii) **Robust Data Capturing Template:**

All interviews will be conducted using CAPI (computer-assisted personal interviews), which will require that the final questionnaire is prepared on computer entry software of the survey firm's choice. However, the firm should be able to demonstrate flexibility and robustness of the software in integration of the following elements:

- Coding strategy in order to maintain consistently unique identifiers for farmers and individuals for matching longitudinal data.
- Conduct range and consistency checks in real time. Violations of these checks should lead to an immediate and transparent message sent to the interviewer, along with a practical method for correcting the error, or over-riding and documenting any answers that violate the range and consistency check rules.
- The program should allow valid open-ended and "other" textual responses outside of the response options provided in the questionnaire
- Variable names generated by the program should correspond clearly and logically to the question labels used in the questionnaire and produce a fully labeled Stata database as an output
- Link to a central repository for review on a regular (preferably daily) basis that can be accessed by the survey firm's management as well as the research team.
- Allow for the capture of GPS, photographs and other multimedia if necessary.

(iii) **Pre-testing questionnaire:**

With a small group of enumerators (preferably future supervisors), the questionnaire pre-testing will be conducted on a set of farmers (about 50 farmers or until the questionnaire presents no flowing or content issues) before the enumerator training. Based on the results of the pre-testing, the firm will be responsible for adapting any component of the questionnaire or electronic template that is necessary to accurately capture the intended information on the target population. The final set of questionnaires will be re-translated into English by an independent translator contracted by the survey firm.

(iv) **Recruitment of interviewer teams:**

It is a requirement that for this survey, the firm must provide i) a full-time Project Coordinator (for the duration of the contract); and ii) a full-time Field Team Manager (for the duration of data collection). Although the survey firm will determine the number of field teams in consultation with the research team, each field team should be comprised of a supervisor (senior enumerator) overseeing 6 interviewers.

(v) **Training Curriculum and Materials, Field Manuals and Implementation of Personnel Training:**

The survey firm is responsible for developing all training curriculum and materials (in English) in consultation with the evaluation team. If necessary, the training materials and field manuals will be translated into Kiswahili.

A comprehensive general training should be given to the supervisors and interviewers in order to create a team environment and to allow for substitution between roles should any team member take a leave of absence due to illness or another emergency. Because the training should also serve as a screening process for skilled interviewers, the survey firm should also recruit more interviewers for the training than will be ultimately hired for the project. The selection process should be clearly outlined before training begins and agreed upon together with the Impact Evaluation Team. The supervisors should receive supplemental training as needed.

The training should be scheduled for a minimum of 2 weeks. The survey firm and Impact Evaluation Team will need to identify whether or not all training can take place in one plenary group, or if it is better to divide the training into several sub-groups (incase the number of supervisors, interviewers, data entry clerks and other trainees is large). In this case, the survey firm will still need to standardize training across sub-groups by using the same training materials among trainers.

The Training program should include:

a) Theoretical: Training should include a review the theory of the questionnaire and each question in order to fully understand the objective of each question. Standard quantitative interviewing techniques and field protocols should also be covered.

b) Use of electronic device(s): Enough time should be given to interviewers to familiarize themselves with the electronic template and device used for interviewing and include structured

practical exercises to test enumerators technical fluency and accuracy. This should also include guidelines and practice for GPS capture.

c) Classroom practice: Training should include individual and group exercises to become familiar with the practice of asking and filling questionnaires. This part of the training may include in class demonstrations, where the questionnaire is projected and one interviewer completes the questionnaire in front of the classroom. The training may also use vignettes, where the firm designs case scenarios based on typical farmers (perhaps those found during the supervisor training or piloting) and have interviewers complete the questionnaire based on the vignette. Finally, the trainees should conduct pilot interviews on the same subject, and have the interviewers fill in a questionnaire for the interview to test consistency across the interviewers (alternative training exercises can be used in lieu of the above examples if deemed appropriate).

d) Evaluation: Following the training, interviewers and supervisors should be evaluated based on their understanding of the questionnaire and their ability to correctly record data using the same test scenarios as used in the classroom practice. The training period should conclude only once the field teams have demonstrated mastery of the designated tasks.

(vi) **Conduct a successful pilot test prior to baseline data collection:**

The survey firm shall conduct pilot test and ensure that the following indicators of success are met:

- Interviewers correctly identify compounds/farmers from a list provided, sample and interview farmers in the selected area
- Interviewers understand their roles
- Interviewers understand, and correctly follow interviewing protocols
- Data from 50 farmers from outside of the study area are successfully collected, uploaded, and checked for quality without major problems
- Field procedures, questionnaires, and templates are revised based on the pilot findings

(vii) **Prepare a pre-test, training and pilot report**

- In addition to the final survey instruments mentioned above, the survey firm shall prepare a comprehensive report that documents the pre-testing of questionnaires, the enumerators' training and the pilot study, including a summary of activities implemented, as well as any issues identified and how those were resolved.

Deliverable 4: Listing data and field report

- Provide full dataset collected from listing survey
- Dataset should have all variables and variable categories labeled, and be available in a format compatible with Stata
- A short field report describing the field implementation of the listing survey should be included. This should describe the process followed to ensure all eligible plots were listed as well as clearly define any non-response that occurred, providing specific details on the percent of non-response by each type of non-response category.

Deliverable 5: Baseline Data Implementation Report

- Collect baseline data in all of the study sample locations and monitor progress and potential field issues. The baseline survey will be lasting about 2 hours for each farmer.
- The report will include:
- Dataset containing all of the data coded from the cluster
- Supervisor's log that documents:
  - Dates of arrival and completion of the farmer survey
  - Any notable difficulties or deviations from the standard field plan
  - Record of each substitution of farmers that may have been required, including the reasons for substitution
  - Any other notable occurrences
- Report on real-time validity checks upon receipt of each farmer's data.
- Bi-Weekly reports of the numbers and IDs of each farmer household successfully completed

Deliverable 6: Final Baseline Dataset and Fieldwork Report

- Conduct cleaning of any major inconsistencies identified in the data that require return visits to farmers to confirm or revise responses
- Clear record of cases in which cleaning/data adjustment took place including the Household ID, question numbers and changes made
- Provision of both the clean and raw datasets in a Stata-readable format, including a data dictionary, and clearly labeled variables with descriptions. This should also include a summary of all of the database tables and how they can be linked by unique IDs.

- Field summary record describing: (i) timeline and overall progress; (ii) any major challenges faced that have implications on data quality or interpretation of certain questions that may differ from the training manual; (iii) any changes to the questionnaire or data collection template during fieldwork and the implications on the data.

Deliverable 7: Full dataset from survey of markets

- This dataset should include a list of all markets within a 20km radius of baseline survey coverage area
- The dataset should include the GPS location of each market together with the prices of a bundle set of approximately 60 food items.

Deliverable 8: List of agricultural providers

- Full list of the providers of agricultural inputs, agro-processing services and agricultural marketers in the region, including the organization names, contact details and a brief description of their main activities.

5.0 SUBMISSION OF REPORTS AND FINAL DATA SETS

The consultant shall provide five (5) hard copies and one (1) soft copy of each of the periodical reports, inception report, draft final report. The Consultants shall provide ten (10) copies and one (1) soft copy of the final report. The final data sets should be provided in ASCII format as well as in a common statistical package preferably in STATA. After conclusion of the study, documents, data issued or procured by the consultants for this study shall be handed over to the Project Manager/KWSCRP. Upon completion of the study and submission of final report. The consultants shall also hand over to the Project Manager/KWSCRP, hardware and software including all equipment solely procured for this study.

6.0 SURVEY FIRM CONTRACT REQUIREMENTS

To be considered for this project the survey, the firm must demonstrate capacity and capabilities in the following:

a) A legal status recognized by the Government of Kenya, enabling the organization to perform the above-mentioned tasks.

b) Demonstrated experience of organizing surveys on the scale of this project over the past ten years.
c) Strong capacity and experience in planning and organizing survey logistics, including the design and implementation of protocols to ensure high quality data;
d) Good network of experienced enumerators and supervisors.
e) Strong capacity in database design, data management, and statistics;
f) Strong knowledge in the following software: Open Data Kit, Stata, CS-Pro, Blaise
g) Demonstrated experience in organizing CAPI system surveys on the scale of this project over the past five years.
h) Capacity to store and maintain data in a manner that protects respondents' identities.
i) Ability to report to the Impact Evaluation Team effectively on progress of the work, including the submission of interim entered data and the identification of noticeable difficulties
j) Be ready to assume work as soon as possible.

7.0 QUALIFICATIONS OF SURVEY FIRM

The Consultant shall provide a team of well-qualified and experienced professionals as required and appropriate for completion of the baseline survey services. The key professionals shall personally carry out the Services as described in this TOR. Towards this end, the survey firm shall provide a detailed staffing schedule for the assignment showing when and where the key staff and other non-key staff shall be deployed. The Consultant's staffing schedule for the project shall be in accordance with his proposed and accepted assignment methodology, approach and work plan. The Consultant's accepted proposal and staffing shall form the basis of the Contract signed with the Client.

The consultant will propose a team composed of experts able to cover all tasks adequately. A suggestion for the minimum personnel requirements is given below.

1) Full Time Project Coordinator (One)

The person proposed for the role must have a Post graduate degree in economics/ finance/ business with minimum of 8-10 years of experience in handling large scale socioeconomic household surveys such as the National Sample Survey (NSS), Rural Economic Development

Survey (REDS), National Health Survey (NHS) and other similar large scale surveys and work experience. The person will be expected to lead the consultant's team during the entire exercise.

2) Full-time Field Teams Managers (One)

Degree in Economics, Statistics, or related social sciences fields and a minimum experience of five years in working with large household level surveys such as the National Sample Survey (NSS), Rural Economic Development Survey (REDS), and National Health Survey (NHS) is required. Experience of working with other surveys where data is entered concurrently with the interview process preferred.

3) Full time Data Manager (Two)

A degree in computer science or related field and experience with developing applications in existing sophisticated data entry software (such as Open Data Kit, Stata, CS-Pro, Blaise) and managing large data base construction and quality control. Data Manager will be responsible for (i) designing data entry programs, (ii) entering the data, (iii) checking data validity, (iv) providing needed data documentation, and (v) producing the basic results that can be verified by the data analysts. The number of data entry managers will be determined to allow the completion of the data entry in a maximum of 2 months from completion of field activities.

4) Field Supervisors (Four)

The preferred education requirement for field supervisors is a University Degree. Basic ability to communicate in English would be preferred though not required. Field supervisors will ensure the entire data collection effort, from planning the routes for the data collection to forming and scheduling the fieldwork teams.

5) Field Enumerators (Twenty)

The preferred education requirement for a farmer interviewer is a Kenya Certificate of Secondary Education (KCSE). As some knowledge of local dialects may be required, it may be preferable to recruit interviewers living in these areas.

If the firm does not have expertise in any of the above mentioned specializations, they are free to hire the services of specialists with above mentioned skills. Inputs in terms of man months of each of these staff should be included in the technical and financial proposals.

8.0 KNOWLEDGE TRANSFER

Throughout the assignment, the consultant will be required to involve four counterpart staff, from the MOWI, at all stages in the various areas of the assignment as and when seconded by the Client. The consultant will present a detailed counterpart participation program for the counterpart staff. Professional and support counterpart personnel to be assigned by the client to the consultant's team include: agronomists, water and irrigation engineers, economists, sociologists.

9.0 OBLIGATIONS

9.1 Obligation of Client

In order to facilitate smooth and effective undertaking of the consultancy, the client will undertake to assist in the following:

a) The Client will supply all reasonable, relevant, available data and information required and requested by the consultant for the proper execution of the services, and such assistance as shall reasonably be required by consultant in carrying out their duties under this contract. This will include, but is not necessarily restricted to, providing: LNIDP Design Report, LNIDP Environmental Social Impact Assessment reports; Dykes Design Report, Project Document (PAD); Draft Questionnaires etc

(b) Secure permission for entry into all areas as required for the proper execution of the project.

(c) Make prompt payments to the Consultant in compliance to terms agreed in the contract between the two parties.

(d) Provide contact information for relevant MWI and NIB.

9.2 Obligation of World Bank

- The World Bank team, consisting of a core research team within the World Bank together with academic partners – jointly, the Research Team - will provide technical support to the project.
- The World Bank team will review, evaluate and approve the services provided by survey firm against the Service Level Agreement on an on-going basis.

9.3 Impact Evaluation Team

To ensure effective implementation of the baseline survey, the client has constituted an impact evaluation team. The Committee will provide necessary advice and mid-course correction where necessary. The consultant will interact with the Impact Evaluation Team during: (i)

Contract Negotiation (ii) Field procedure plan (Inception report) study reporting (iii) Pre-testing of questionnaires, enumerators training and pilot study (iv) Data collection and entry (v) final report presentations (vii) Bi-Weekly reporting

10 ESTIMATED WORK PERIOD

The Consultancy shall be completed within 5 months of signing the contract. A mobilization period of 30 days shall be allowed after the date of signing the contract. The date of starting the work shall be the 30th day following the date of signing the contract. The Consultant must provide a detailed time schedule of various activities to be undertaken during the consultancy. The following is the target period fixed for submission of various reports:

a) Field procedure plan (Inception report) and obtaining of ethical clearance - Within 2 months from the date of start of work.
b) Completion of pre-testing of questionnaires, enumerators training, and pilot study and submission of report – At the end of 3rd month from the date of start of work
c) Completion of data collection and submission of fieldwork report - At the end of 7th month from the date of start of work.
d) Submission of final dataset and final fieldwork report - At the end of 9th month from the date of start of work.

The Survey Firm will be paid upon timely submission of agreed deliverables.

10.1 Payment Procedures

The survey firm will be expected to submit invoices on completion of identified milestones, which will be structured as follows: -

List of Deliverables	Percentage Payments
1) On submission of field procedure plan (Inception report) and obtaining of ethical clearance	20%

2) On completion of pre-testing of questionnaires, enumerators training, and pilot study and submission of report	20%
3) On completion of the listing survey and submission of data	20%
4) On completion of data collection and submission of fieldwork report	20%
5) On submission of final dataset and final fieldwork report	20%

The Survey Firm will be considered to have failed to comply with this contract, if based on a random and representative sample, it is determined that it is shown that 1 % or more of the surveys that are presented were filled without the Firm having visited the household. The client will use its right to conduct its own checks on 5% to 10 % of the interviewers (in addition to the proposed check-backs of the survey firm). If the survey data do not meet the client's requirements in terms of integrity of data, client reserves the right to request a repetition of the work.

11 BASELINE SURVEY BUDGET

The consultant shall provide, detailed estimates of budget including staff charges, travel, equipment, hardware, software, ground surveys, technical meetings, report preparation and other related activities.

ANNEX:

Table 1: Outcomes of interest for the impact evaluation

Outcome Type	Outcome Name	Definition
Primary	Food security	Number of meals per day; daily calorie intake; food consumption
	Household consumption level	Household expenditure on consumption in the last month

Outcome Type	Outcome Name	Definition
	Yields	Kgs of produce in last harvest period
	Farm income	Total income received through sales of farm produce in most recent season; revenue from sales, profit, and total value of production
	Percentage of production sold vs. consumed	Total value of production sold/ total produced
	Poverty level	% of I area population living below the poverty line
	Project beneficiaries	Direct project area beneficiaries disaggregated by gender

Outcome Type	Outcome Name	Definition
Secondary (Microcredit)	Rice inventories	Kgs of rice currently in storage; number of months where some rice was stored
	Storage decisions	Production levels held in storage
	Per unit rice sales price	Average, maximum and minimum sales price for rice in past year received by a given farmer
	Per unit prices of competing crops	Average, maximum and minimum sales price of competing crops in past year received by a given farmer
	Investment in agricultural inputs	Kshs spent on agricultural inputs in last season
	Consumption smoothing	Responses to recent shocks/alternative sources of income for consumption smoothing
	Level of indebtedness	Kshs currently outstanding on any loans
	Market lending Interest rate	Level of prevailing interest rates on loans in the past year
Secondary (training)	Record keeping / budgeting	Farmer keeps a budget & a record of sales & production levels
	Awareness of seasonal market prices	Farmer can recall low and high rice & competing crop prices (including months) in last year; knowledge of current prices
	Long-term planning	Farmer has a clear plan for future
	Use of financial products	Farmer has several credit lines & corresponding bank account(s) with a commercial or micro-savings banks
Secondary (irrigation)	Use of water as farm input/water productivity	Estimated amount of (non-rain) water used in last season/per crop production level per m3 of irrigation water used
	Crop productivity level	Production level per hectare/acre
	Cropping intensity	% hectares/acres cropped per hectare irrigable land, for all crops

Outcome Type	Outcome Name	Definition
	Other agricultural inputs	Amount of farm inputs (seeds, fertilizers, equipment, etc.) used in most recent seasons
	Number of planting seasons	Farmer planted in the last cropping seasons
	Crop choice	Proportion of cash crops (e.g. rice) vs. staple consumption (e.g. maize) grown in last season
	On-farm labor	Number people, man hours and wage paid for farm labor in last season
	Incidence of water-borne diseases	Malaria incidence
Secondary (institutional)	Scheme management institutional setup	Scheme institutional structure
Secondary (price indices)	inflation, exchange rate	Real inflation & exchange rates (PPP)

Project results framework

The overall KWSCR project has the following objectives and associated measures: (1) Increase availability, and productivity of irrigation water for project beneficiaries. This outcome will be measured by the following indicators: (i) area provided with irrigation and drainage services – new and improved; (ii) yields of major irrigated crops in irrigation scheme; and (iii) value of scheme agricultural products per cubic meter of water use.
(2) Enhance the institutional framework and strengthen capacity for water security and climate resilience for the country as a whole. The following indicators will measure these outcomes: (i) Water Policy adopted and Water Bill submitted to Parliament; and (ii) satisfactory ratings of key water institution performance contracts.

Within the broader program, the specific measures that will be covered (as part of the project

results framework) through this data collection exercise are described in the table below.

No.	Results indicator	Unit of measure
1	Area provided with irrigation and drainage services (new & improved)	Hectares
2	Yields of major irrigated crops in irrigation scheme	Tons/hectare
3	Direct project beneficiaries (number)	Number (percentage)
4	Value of scheme agricultural products per cubic meter of water	Kenya shillings per cubic metre
5	Cropping intensity	Percentage hectares cropped per hectare irrigable land
6	Value of scheme agricultural products marketed	Million Kenya shillings
7	Female water users provided with irrigation and drainage services	Number
8	Male water users provided with irrigation and drainage services	Number
9	Operational water users' associations created or strengthened	Number