



THE REPUBLIC OF UGANDA

MINISTRY OF WATER AND ENVIRONMENT

INTEGRATED WATER MANAGEMENT AND DEVELOPMENT PROJECT

TERMS OF REFERENCE

FOR

**LOT 1: PREPARATION OF WATER RESOURCES  
DEVELOPMENT AND MANAGEMENT PLANS FOR  
NYAMUGASANI AND KAFU CATCHMENTS IN ALBERT WATER  
MANAGEMENT ZONE**

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## **1.0 BACKGROUND**

### **1.1 Introduction**

The Government of Uganda's Ministry of Water and Environment (MWE) is implementing a series of major water policy reforms through its Directorate of Water Resources Management (DWRM). The reforms include the adoption of the principles of integrated water resources management (IWRM), a catchment-based approach to water resources management and investment planning and a participatory approach. In keeping with broader Government policy, implementation of IWRM has been de-concentrated to the zonal and catchment levels.

De-concentration of water resources management in Uganda through catchment-based management and planning was a core recommendation of the Water Resources Management Sub-Sector Reform Study in 2005. This is based in part on the principle of subsidiarity reflected in Agenda 21 which recommended that water should be managed at the lowest appropriate levels with the catchment being the desired level. This principle was also formally acknowledged in Uganda's National Water Policy (1999) as well as in several regional accords including the East African Community Development Strategy (2006-2010) and the Protocol for Sustainable Development of the Lake Victoria Basin (2003); Uganda's National Water Policy (1999) specifically encourages decentralization of those WRM functions that can best be performed at the district or community level; and The Local Government Act (1997) provides for creation of multi-district administrative instruments where clusters of districts cooperate administratively.

The concept of IWRM was in the past not well understood at the political and technical levels outside the water sector, however, in the recent past, it is beginning to get recognition as a means to ensure sustainability of water resources for the present and the future. This is being done through raising awareness among stakeholders within the country and engaging national development planning processes so that it is given the appropriate priority. Limited collaboration and coordination of various stakeholders and activities that use or impact on water resources continues to be a hindrance to sustainable enjoyment of the economic and social benefits of water use. Implementation of IWRM is therefore still an ongoing process with the de-concentration of water resources management to the lowest appropriate level. The challenge has been to ensure the active participation and involvement of all stakeholders so as to promote the benefits of IWRM and overcome the bottlenecks and conflicts.

### **1.2 Rolling-Out the IWRM De-Concentration Program**

Although water resources management is a central level function, it was realized that effective planning and management of water resources needs to be carried out at the lowest appropriate level and based on hydrological catchments or basins, rather than administrative boundaries. It was recommended that four water management zones be established based on the hydrological setup of Uganda, and accordingly, as of now the country is divided into four WMZs namely Victoria, Albert, Kyoga and Upper Nile as shown in the figure to the right, and within each zone the respective catchments have been delineated. At the same time DWRM has carried out a National Water Resources Assessment and National Water Resources Strategy and Action Plan. These have provided a national level policy framework for work at the WMZ and catchment levels.

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A framework for Catchment-based Water Resources Management (CbWRM) was also developed in 2010 to guide establishment of Catchment Management Structures and preparation of Catchment Management Plans. As part of implementation of CbWRM approaches, the respective catchments are supposed to have Catchment Management Plans (CMPs) developed. A CMP contains priority investment and management measures needed to be implemented to protect and restore the catchments while improving people's livelihoods. Several CMPs have been developed using the Catchment Management Planning Guidelines that were developed by the Ministry of Water and Environment in 2013. Some of the catchments whose plans have been developed so far include; Awoja, Victoria Nile -Lumbuye, Mpologoma, Semliki, Rwizi, Aswa, Albert Nile, Ruhenzamyenda, Lokok, Lokere and Mpanga, and the Sub Catchment Management Plans Middle Malaba, Lower Malaba and Lwakhakha. Implementation of some interventions is already ongoing in 10 catchments namely Rwizi, Mpanga, Kiha, Semliki, Aswa, Awoja, Ruhenzamyenda, Katonga, Lokok, Lokere and Mpologoma.

The implementation of CbWRM is based on a partnership approach where the Directorate of Water Resources Management (DWRM) through the WMZs engages with other relevant stakeholders within the catchment to identify the issues, propose solutions and build on ongoing and planned WRM activities. This is done through undertaking detailed stakeholder driven situation analysis, stakeholder analysis, water resources assessment, strategic social and environmental assessment, options-scenario analysis and preparation of catchment management plans. During this process, various CMOs governance structures (i.e. Stakeholder Forum, Catchment Management Committee, and CMO Secretariat) are formed to guide the process of development and implementation of CMPs.

To this end, the Government of Uganda through the MWE with support from the World Bank (WB) has planned to implement an **Integrated Water Management and Development Project (IWMDP)** within which Consultancy Services to prepare Water Resources Development and Management Plans for Nyamugasani and Kafu Catchments in Albert Water Management Zone are sought. The MWE therefore is seeking reputable organizations/firms to provide these consultancy services for preparation of Water Resources Development and Management Plans for Nyamugasani and Kafu Catchments in Albert Water Management Zone.

### **1.3 Integrated Water Management and Development Project (IWMDP)**

The Government of Uganda and the World Bank have prepared an investment project with the following objectives;

- i. Improving access to water supply and sanitation services in urban towns, small towns and rural areas including refugee hosting communities in the Northern part of Uganda;
- ii. Improving water resources management; and
- iii. Institutional strengthening to ensure improved service delivery and sustainable water resources management in Uganda

The project will promote the implementation of IWRM and CBWRM through the preparation of Catchment Management Plans which will support investment in water

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supply and sanitation in NWSC cities, DWD small & rural towns, refugee host communities and investment in priority project proposals that emerge from the catchment planning process. The IWMDP will also support the preparation of a Water Resources Management Strategy and Action Plan for Albert Water Management Zone, implementation of priority investments in several catchment management plans, implementation of the Water Information System (WIS) so as to have an operational WIS in all the 4 WMZ and at National level, improve the Water Resources monitoring through the establishment of 17 Monitoring Stations and assessment and management of the use of groundwater by quantifying the available ground water and assessing its sustainability for development in various parts of the Country.

The lack of sustainability in water resources management and development for a variety of reasons has been seen in the past as one of the main issues in the Ministry of Water and Environment. The Government believes that its new approach to participatory IWRM will make a significant impact on these issues. Therefore, in order to initiate the water resources management and development investments under the IWMDP project as early as possible in line with Government's priority, Catchment Management Plans will be prepared in four (04) catchments; (02) catchments in the Kyoga WMZ and two (02) in the Albert WMZ.

## **2.0 PURPOSE OF THIS CONSULTANCY**

The purpose of this consultancy is to assist DWRM to prepare two (02) catchment management plans for two catchments in the Albert WMZ (Nyamugasani and Kafu). The plans would consist of two elements: first, a number of agreed investments in infrastructure and other interventions (see the table in Annex A for an indicative list of investments meant to show their range and scope); and second, various water management interventions and actions meant to help resolve conflict, conserve and protect the catchment and its natural resources, and ensure equitable access to and use of water resources. Investments should be prepared to pre-feasibility level. The consultant will also ensure that the CMPs are professionally reviewed, edited and popular versions produced ready for publication.

The DWRM has developed recently updated the Catchment Planning Guidelines to include aspects of climate change. The consultant is expected to field test the Updated Guidelines, to capture the lessons learned from experience, and to make recommendations for improvement of the Guidelines. While the primary purpose of this consultancy is to produce agreed catchment plans with prioritized and sequenced investments and management interventions prepared to prefeasibility level, the testing and further improvement of the planning process and the updating of the Guidelines based on field experience is an important secondary purpose (and constitutes a deliverable under the assignment, refer below).

This is a time bound activity and the consultant is responsible for delivering all items specified below. At the same time the consultant and the WMZ will form one team to carry out the work. Thus, a critical task of the consultant will be to maximize

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opportunities for capacity building through effective on-the-job training and other activities.

### **3.0 THE SETTING**

The Albert WMZ is delineated into about 4 major basins with accessible knowledge base including a functional MIKEBASIN simulation model and an extensive GIS data base. The GIS and model are located in DWRM who also used MIKEBASIN for the National Water Resources Assessment. Several staff in DWRM also worked on the JICA study.

The DWRM has updated its catchment management planning guidelines to include aspects of climate change. The consultant is expected to use these guidelines as a guide to developing the CMPs and capture the lessons learned from using the updated guidelines. While the main purpose of this consultancy is clearly to produce agreed catchment plans with prioritized investments prepared to prefeasibility level, the testing and further improvement of the planning process and the guidelines is also an important secondary purpose.

### **4.0 SCOPE OF SERVICES**

In preparing their proposals, the Tenderers are expressly required to develop their own approach and methodology. The description of the scope of services hereafter outlines the tasks, sub-tasks and working packages to be performed by the Consultant. These shall be adapted and further detailed by the Tenderers and presented as a detailed task description in a concise list of services.

The Consultant is required to cooperate and liaise closely with other actors/programmes active in the same sector (Directorate of Water Development, Directorate of Environment Affairs, Nile Basin Initiative, NGOs like UWASNET, IUCN, WWF, respective Local Governments, Private Developers including hydropower developers, and Lake Victoria Basin Commission among others).

#### **4.1 Task 1: Inception**

The initial studies and investigations will be aimed at collecting information which will form the study basis. The results of the preparatory investigations shall partly be presented in the Inception Report, forming a basis for detailed reports. The services under this Task shall include but not be restricted to the following; Critical review of available data (demographic data, water consumption, wastewater generation pattern, solid waste production, rainfall data, forecast of future developments), computer models, GIS information, available documentation (prior studies and reports) that relate to the Albert Water Management Zone.

The inception report will demonstrate a clear and complete understanding of the objectives of the assignment, the scope and tasks, and the methodological approach to be followed; provide a review of the current situation, identify gaps / needs and possible improvements; describe key tasks, proposed methodology, activity schedule, deployment of consultant staff, reporting and review procedures and schedule, and deliverables, amongst others. Clarity and agreement at the Inception Phase is critical to paving the way for effectively and productively advancing the work of the assignment. Hence, considerable attention will be given to the successful completion of this phase.

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*Key Deliverable for Task 1 is the Inception Report.*

#### **4.2 Task 2: Stakeholder identification, mobilization, and consultation**

The consultant will carry out a stakeholder identification and analysis and, in collaboration with the WMZ team, establish and facilitate the participation of the Catchment Management Organizations (CMOs). The CMO comprises the executive Catchment Management Committee (CMC), the Catchment Technical Committee (CTC), and the Catchment Stakeholder Forum (CSF). The CTC is the technical arm of the CMO and includes membership from the WMZ team and from staff of relevant departments at District level concerned with implementation of the catchment plan. The CMC steers the overall catchment planning process and approves the final agreed plan. The CMC includes representative of stakeholder groups with a direct interest in catchment programs and activities including District officials. The CSF provides a forum for a broad spectrum of catchment stakeholders from civil society as well as statutory bodies, NGOs and other concerned organizations. The consultant will facilitate regular meetings (at least three) for each of the CMO as the planning process proceeds, conduct a capacity needs assessment and later provide training for CMO members, and provide information that enables the CMO to reach a conclusion and decision on the substantive content of the plan.

*Key Deliverable for Task 2 is a draft Stakeholder Report, to be updated throughout the duration of the consultancy.*

#### **4.3 Task 3: Water Resource Assessment**

The consultant will conduct a Catchment situation analysis and water resource assessment within the 2 catchments in Albert Water Management Zone (Nyamugasani and Kafu Catchments). In particular, the consultant will:

- i. *Undertake a Catchment Situational analysis;* based on the National Water Assessment, as well as other secondary sources, the consultant will undertake at least one a field reconnaissance of the catchment with the WMZ team to observe the status of the catchments and their water resources and to informally meet stakeholders. Based on the field reconnaissance and the knowledge base compiled from the JICA study and other sources, the consultant will prepare catchment situation and diagnostic analyses for the two catchments encompassing the infrastructure, economic, social, environmental, and institutional and policy features as they might pertain to water use and development in the catchments; identify potential development opportunities, including those that have been identified and studied by the various concerned sectors (energy, agriculture, water for production, navigation, etc.); assess water availability, drought, flood risks and characteristics; and assess the potential vulnerability of the catchment to future changes in climate variability and change. All this will be done using different climate change scenarios.

In carrying out this task the consultant will assist the WMZ staff and other stakeholders to understand the scope of the knowledge base needed for integrated water management and planning, how to compile and organize the data for future use, and how to use various analytical tools, including e.g., MIKE HYDRO, WEAP and others.

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- ii. *Analyze future water demand and development issues*; the consultant will carry out a water balance of each of the catchments using a simulation model to assess present and projected future water demand / use including proposals for water resources development and expanded water use for various purposes by stakeholders and other national agencies (as noted in Task 1). A number of models have been used in the past, including Mike Hydro and WEAP. It is consultant's responsibility to assess the adequacy of these models and to determine the appropriate one for use, in agreement with MWE. To the extent that issues and problems identified and highlighted by stakeholders and the planning team are having or may in the future have an impact on the water balance and the sustainability of water use they should be incorporated into the simulation and water balance analysis. The water balance study will present the results of: (i) a detailed analysis of water demands / use under different climate scenarios; (ii) a detailed hydrological analysis; and (iii) results of simulation and water balance analysis. The study should identify remaining gaps/weaknesses and make recommendations for future work to refine the modeling framework. The time period for the study is up to the year 2040.

For the purposes of capacity building through training, the consultant's modeling specialist(s) will work closely with those from the WMZ team and provide them with the necessary hands on training while this task is undertaken.

*Key Deliverable for Task 3 is the Water Resource Assessment Report comprising of Catchment Situational analysis and the Water Balance Study and simulation model.*

#### **4.4 Task 4: Strategic Social and Environmental Assessment**

The consultant will carry out Strategic Social and Environmental Assessment (SSEA) of the catchments to identify major social and environmental issues that must be taken into account in the planning process and that could affect the plans' outcome. The aim is to ensure that these issues are integrated into the planning process at an early stage. The SSEA would focus on identifying the issues and conditions in the catchments related to water and natural resources that are likely to be a major influence, and that might represent important risks. It might for example focus on protected or ecologically sensitive areas, areas with major degradation, vulnerable groups, or livelihoods at risk.

The SSEA should be oriented towards the development of an instrument / tool that can support and form part of the planning process. The SSEA (data, maps, charts, tables, text) should help to formulate and evaluate alternative water management and development options – at various spatial scales (catchment, sub-catchment, district, group of districts, etc.) – specifically for avoiding or mitigating adverse impacts on important environmental assets / services and society (including cumulative impacts), for reducing or avoiding social conflict, exclusion, inequality, and for enhancing environmental and social benefits.

For the purposes of capacity building through training, the consultant's social and environmental specialists will work closely with those from the WMZ team throughout the process of preparing the SSEA.

*Key Deliverable for Task 4 is the Strategic Social and Environmental Assessment Report.*

#### **4.5 Task 5: Catchment Management Plans**

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- i. *Evaluate options for water resource development and management and formulate alternative plans;* the consultant will, in close consultation with stakeholders, compile the possible sets of options (i.e. scenarios) for investment or management actions to address issues and problems highlighted and to tap into opportunities. The consultant will determine the costs of each set of options and variations or alternatives as appropriate, and estimate the economic, social and environmental benefits. Comparison of alternative sets of options and plans will be undertaken using a multi-criteria approach, incorporating economic, social, environmental, and institutional factors, in addition to others. The criteria to be used will be discussed with DWRM and finalized in consultation with the stakeholders / CMC. It is critically important that stakeholders are part of the process not only for identifying criteria (and the planning objectives that lead to them), but also for evaluating options. This is required in order to reach broad-based agreement on the final plan.

*Key deliverable for this task is a Report on Evaluation of Options that will present the scenarios, and the evaluation and ranking of options, including the methodology employed.*

- ii. *Develop the Catchment Management Plans, in close consultation with all stakeholders.* The Catchment Management Plans will present prioritized and sequenced investments and management interventions (in the short, medium and long term), up to the year 2040. The catchment plans will include a review of the current institutional arrangements for the plans' implementation, identification of policy and legal gaps as well as capacity building needs, and recommendations on what actions the WMZ, the DWRM and the Ministry should take to ensure smooth and timely implementation of the plan. The Catchment Management Plans will also include a review of potential financing for the fully costed prioritized and sequenced investments, as well as a preliminary strategy for sourcing financing. This will include an exploration of the potential for local and national private sector participation in plan implementation through various types of investment, and recommendations on what actions the WMZ, DWRM and local authorities should undertake and include their specific locations in order to foster and promote private investment. The final Catchment Management Plans must be agreed with the stakeholders and the CMO, specifically.

In addition to the CMP, the consultant should develop an implementation plan (IP) either as a separate document or as an annex to the CMP. The IP is an organized tool indicating the interventions and where possible their locations, time horizon (short, mid or long term), project lead, possible partners for implementation, priority and budget for implementations

*Key Deliverables for Task 5 are: The Draft Catchment Management Plans & Implementation Plan*

*Final Catchment Management Plans and Final Implementation Plan*

#### **4.7 Task 6: Identification and preparation of costed investment and management measures in the priority micro catchment areas.**

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i. *Identification of priority investments and preparation of catchment management investments to feasibility study level*

From the prepared plans, and with further stakeholder engagement, the consultant will identify, confirm and quantify the priority micro catchment measures that have been identified and prepare them up to pre-feasibility level, ready for implementation.

Thereafter, the consultant shall prepare environmental project briefs for each sub projects in line with the NEMA regulations and the World Bank Environmental and social safeguards.

*Key Deliverable for task 6 is Report on identified and confirmed priority catchment management measures, bills of quantities and specifications and Environmental and Social project briefs*

## **5.0 ORGANIZATION OF THE ASSIGNMENT**

### **5.1 Liaison with MWE/DWRM**

The Ministry of Water and Environment through the Directorate of Water Resources Management, under the Integrated Water Management and Development Project (IWMDP) will coordinate and manage the study and will be represented by the Director, DWRM. All reports will be submitted to:

The Director, DWRM will appoint a Task Force to supervise the implementation of the project and the day to day activities shall be coordinated by a task force.

### **5.2 Staffing/Personnel**

The Consultant is required to elaborate in his technical offer on the envisaged logistical set-up and deployment of appropriate skills for the execution of the assignment. The consultant should carefully review the scope of works and propose a team of well-organized competent staff, adequately equipped with the necessary skills/facilities to execute the assignment, bearing in mind that a substantial amount of work in this assignment is field based.

The Consultant will be expected to present his staffing schedule in a manner that makes it clear as to which personnel will be involved in a specific activity. A staff organogram reflecting the envisioned activities should therefore be presented.

#### **5.2.1 Staffing Requirements**

The Consultant shall identify and front a team necessary to carry out the assignment and should describe clearly the functions of each team member. The consultant's team is however expected to provide for the following key staff/expertise.

- i) Water Resources Planning Specialist /Team leader
- ii) Institutional Specialist
- iii) GIS Specialist
- iv) Sociologist
- v) Environmental Management Specialist
- vi) Water Resource Systems Modeler

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vii) Water Resource Economist

In addition, the Consultant is at liberty to propose additional staff/competencies/short-term specialists (one should be an irrigation engineer due to the several irrigation schemes in the catchments) as deemed appropriate for the successful execution of the assignment.

### 5.2.2 Staffing Qualifications

The Consultant will form a competent team to carry out the study. The Consultant will organize all relevant inputs: finances, logistics; offices, vehicles, equipment and tools etc., as required to accomplish the assignment. The consultant is expected to field a team of professionals who shall work in an efficiently coordinated process to execute the water and environment engineering and software aspects of the assignment prescribed and implied by the foregoing scope of services.

The Consultants core team shall comprise the following specialist for undertaking the assignment with a total time input of **80 man-months**.

The key personnel shall have minimum academic qualifications and experience as stipulated below:

- i) Team leader: Water Resources Planning Specialist with a master's degree and specialization in water resource management with at least 20 years of international experience in integrated water resources planning, management and development at various levels, including sub-basins and catchment, the planning and design of water resources development projects, water resources strategy and action plan development, river basin planning, project management and technical assistance including capacity building. He/She should also have at least 5 years of experience working in East Africa;
- ii) Institutional Specialist: A master's degree in an Institutional Development field with specialization on analysis of water resources and river basins institutional frameworks with 10 years relevant experience;
- iii) GIS Specialist: A master's degree in GIS, Remote Sensing or related field. 10 years of relevant experience;
- iv) Sociologist: A master's degree in Sociology with 10 years of relevant experience in undertaking strategic social assessments, social impact assessments, etc. Knowledge of World Bank safeguards policies is desirable. The Social Development specialist should be Ugandan and must have extensive experience in stakeholder identification, mobilization and engagement in Uganda. Knowledge of the local language will be an added advantage;
- v) Environmental Management Specialist: A master's degree in Environment Engineering/Environmental Science with 10 years relevant experience in undertaking strategic environmental assessments, environmental impact assessments, etc. and in environment management planning. Knowledge of World Bank safeguards policies is desirable and 5 Years of working in Uganda will be an added advantage;
- vi) Water Resource Systems Modeler: A master's degree in Water Resources Engineering with a specialization in water system simulation modeling, including the use of

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MIKEBASIN, and 10 years of relevant experience in undertaking water system simulation modeling;

- vii) Water Resources Economist: A master's degree in Economics with specialization in water resources economics with 10 years relevant experience in conducting economic and financial analysis of water projects, as well as in the economics of investment planning, including at a river basin level.

All the experts are expected to have some experience in water resources and environment related programs. Whereas special international expertise is required, local experience in Sub-Saharan Africa is an added advantage. The Social Development Specialist should be Ugandan with extensive experience in stakeholder engagement in Uganda. All Projects illustrating the expert's specific experience for the project (water resources/environment projects) and their experience in Africa have to be clearly defined in the expert's CV (including Project name, Location, Country, Duration, Project value, experts' specific tasks, etc).

In addition, the core expert team could be supplemented by short-term specialists in other areas required for targeted input. These short-term personnel are expected to have demonstrated and appropriate international technical experience (in the range of 10-15 years). Short term personnel are also expected to provide on-job training and to lead and carry out seminars and other training activities in their areas of expertise.

### **5.2.3 Familiarization with the Assignment**

To familiarize with the services to be provided under this invitation, the prospective bidder is advised to visit the Project area. However, it should be understood, that any cost incurred in this regard shall not be a reimbursable expense to the Consultant.

## **6.0 REPORTS AND SCHEDULE OF DELIVERIES**

### **Reporting Requirements – General**

The Ministry of Water and Environment through its Directorate of Water Resources Management will coordinate and manage the study and will be represented by the Director- DWRM. All reports will be submitted to:

**The Director  
Directorate of Water Resources Management  
P.O. Box 20026,  
Kampala, Uganda**

For the attention of: Dr. Callist Tindimugaya

Commissioner, Water Resources Planning and Regulation Department

Telephone: +256772521413

Email: [callist.tindimugaya@mwe.go.ug](mailto:callist.tindimugaya@mwe.go.ug), [callist\\_tindimugaya@yahoo.co.uk](mailto:callist_tindimugaya@yahoo.co.uk)

The consultant shall hand over all data collected during the course of the assignment to the client in formats approved by the client including shape files. Reports shall be delivered to the client's address as stated above with a copy to the World Bank Task Team Leader for IWMDP.

### Reporting requirements - Specific

The Consultancy for the Preparation of two (2) Catchment water resources development and management plans in Albert Water Management Zone (Nyamugasani and Kafu Catchments) is expected to last effectively Twenty-Four (24) calendar months.

It is however the responsibility of the Consultant to establish a detailed work program within the above time frame, taking into consideration the estimated man-month requirements. This should be guided by his professional judgment of the assignment's requirements and knowledge of the local conditions and needs.

The detailed schedule for the required reporting is contained in Table below.

ITEM	REPORT/DOCUMENT TITLE	TIMING AFTER COMMENCEMENT	CONTENT	NO. OF COPIES
A.1	Inception Report	Month 2	The report shall outline the Consultant's mobilization, the work plan, strategy, methodology, a quality assurance plan and timetable for the services. The quality assurance plan shall include the following (i) A quality policy statement setting out the objectives of the plan and (ii) The personnel who will implement the plan, their responsibilities and authority.	6 hard copies and an electronic copy on a memory stick to DWRM
A.2	Draft Stakeholder Engagement Report	Month 5	This will include methodology for stakeholder identification and mobilization, results of stakeholder consultation. The final Stakeholder Engagement Report will be finalized at the end of the assignment based on experience on the ground.	6 hard copies and an electronic copy on a memory stick to DWRM
A.3	Water Resource Assessment Report	Month 7	The report shall comprise results of all technical and socio-economic investigations carried out in the five months. It will include catchment situational analysis, the water balance, and the analysis of future water demand and development issues and problems.	6 hard copies and an electronic copy on a memory stick to DWRM
A.4	Strategic Social and Environmental Assessment	Month 10	Analysis of baseline environmental and social findings, environmental and social impact scoping results with the relevant annexes.	6 hard copies and an electronic copy on a

	Report			memory stick to DWRM
A.5	Report on Evaluation of Options	Month 14	This will present water resources development and management scenarios and ranking of options, including methodology used.	6 hard copies and an electronic copy on a memory stick to DWRM
A.6	Draft Catchment Management Plans	Month 18	Two (2) Draft catchment water resources development and management plans in Albert Water Management Zone, with executive summary	6 hard copies and an electronic copy on a memory stick to DWRM
A.7	Final Stakeholder Engagement Report	Month 18	This will include methodology for stakeholder identification and mobilization, results of stakeholder consultation.	6 hard copies and an electronic copy on 4 memory sticks to DWRM
A.8	Documentary on Stakeholder Engagement and experiences during the development of the CMPs	Month 19	This will include a documentary of the experiences during the development of the CMPs, Lessons learnt and outcomes of the CBWRM process.	6 CDs, 6 memory sticks and 1 video tape to DWRM
A.9	Final Catchment Management Plans	Month 21	Two (2) final catchment water resources development and management plans in Albert Water Management Zone, with executive summary	6 hard copies and an electronic copy on 4 memory sticks to DWRM
A.10	Report on identified and confirmed priority catchment management measures in each CMP, bills of quantities and specifications and	Month 23	For each CMP, reports containing priority identified confirmed quantified and costed catchment investment and management measures to be implemented in the micro catchments. These should be areas sensitive to planned and future developments and focus should be on investment and management measures.  These investments should be prepared upto prefeasibility stage and including costed bills of quantities for	6 hard copies and an electronic copy on 4 memory sticks to DWRM

	Environmental and Social project briefs		implementation as well as environmental briefs for each sub project.	
A.8	Monthly progress reports, including documentation of lessons learned (as input to improving Catchment Management Planning Guidelines)	Monthly	A report (1-2 pg maximum) comprising of a narrative and bar charts or other graphic presentation, showing details of the Consultant's progress, changes in the assignment schedule, impediments and proposed remedies, in addition to documentation on lessons learned.	1 to DWRM and an Electronic copy (on email)
A.9	4 Workshops	Periodically	<ol style="list-style-type: none"> <li>1. At end of Inception Phase,</li> <li>2. After submission of SSEA, WRA, and Draft Stakeholder Engagement Reports and Development of vision n strategic objectives,</li> <li>3. Development Options and Scenarios for the different proposed investments</li> <li>4. After submission of draft Catchment Management Plans</li> </ol>	

The consultant is encouraged to assess the appropriateness of the suggested milestones and comment upon realistic expectations, especially with regard to the allocated time frames for the activities, and propose his own assessment and work plan as part of his proposal.

All reports have to be submitted in both soft (*MS Word, PDF*) and hard copy. The hard copies will be prepared in DIN A4 format, except for plans and drawings which should be prepared in DIN A3 format. The reports should be clearly labelled i.e. title of the study indicated, for easy identification and documentation purposes. All reports shall be prepared in English language.

Please note that the Consultant will be expected within **three (3) weeks** of submission of some reports to conduct presentations to the Client during regional workshops. **Four workshops** will be organized. The Consultant will further be required to include a provisional sum of USD 220,000 to meet costs of holding the Regional Workshops.

The first workshop will be conducted at the end of the inception phase. The second will be organized after submission of the SSEA to discuss the reports produced to that point with stakeholders and set the scene for the developing the evaluation of options (including vision, objectives and criteria). The third workshop will be organized during the development of options and scenarios for the different proposed investments and the fourth workshop will be after submission of draft catchment management plan.

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The workshops will be facilitated by the Client. At each workshop, the consultants will make Power Point presentations, provide concise background documents for discussion and prepare workshop reports to document the proceedings.

In addition to the national workshops described above, the consultant will be expected to conduct informal stakeholder engagement sessions (workshops, meetings, etc.) throughout the duration of the assignment.

The costs of holding national workshops and stakeholder consultations must be included in the consultant's proposal.

## **7.0 CAPACITY BUILDING AND TRAINING**

The Consultant shall train designated staff of the Ministry, Water Management Zones, Local Government technical staff with the aim of developing capacity and knowledge transfer. The training measures are defined (but not limited to) improving the performance of the designated technical staff installed. The training topics will be defined during consultative meetings with respective entities. For tendering purposes, the tentative number of individuals to be trained is Twenty (20).

## **8.0 DATA, SERVICES AND FACILITIES TO BE PROVIDED BY THE CLIENT**

To the extent possible, the Client will provide free of charge all existing information, data, reports and maps in her custody and will assist the Consultant in obtaining other relevant information and materials from governmental institutions and state authorities as far as possible. Key References will include but not limited to;

- i) COWI, Uganda; Operationalization of Catchment-based Water Resources Management, Draft Final Report, DWRM, MWE, September 2010
- ii) Pemconsult, Revision of the Water for Production Strategy and Investment Plan, Final Report, DWD, MWE, August 2009
- iii) Pemconsult, Unit Cost Estimating Model, ver 2, 2009
- iv) Parsons Brinkerhoff, Power Sector Investment Plan, Draft Final Report, Ministry of Energy and Mineral Development, December 2009
- v) DWRM, Strategy for the Water Resources Management Sub-sector, Draft Final Report, MWE, 2009
- vi) Pem consult, National Irrigation Master Plan (2010-2035), MEW, August, 2010
- vii) MWE, Strategic Investment Plan for Water and Sanitation, 2009
- viii) MAAIF, Development Strategy and Investment Plan (2010-2015), January 2010
- ix) DWRM, National Water Resources Assessment, draft report 2011
- x) DWRM, Capturing and documenting experiences in implementing Catchment Based Integrated Water Resources Management in Uganda, 2016
- xi) All the existing Catchment Management Plans
- xii) The revised Uganda Catchment Management Planning Guidelines, 2018

However, it is the duty of the Consultant to check availability, quality and suitability of this information. The information, data, reports etc. as mentioned above will be available for the Consultant's unlimited use during execution of the proposed services. Due provision shall be made by the consultant in his proposal in case he has to procure

additional maps, aerial photographs, meteorological, geological data, etc., necessary to carry out the assignment.

In general, the Client will facilitate the consultant to obtain staff permits, authorizations and licenses required for performance of the Consultant's services in Uganda. He will also assist the Consultant in customs clearance of all equipment, materials and personal effects to be imported (and re-exported upon completion of his assignment) for the purpose of the study.

## 9.0 REQUIREMENT FOR QUALITY PLANS

The Consultant will be required to demonstrate in their proposal, evidence of adoption of use of a Quality Assurance System (ISO 9001 or equivalent) as well as to describe how quality control will be implemented in the course of the project.

## 10.0 NATURE AND TIMING OF FUTURE/DOWNSTREAM WORK

The outputs of this consultancy will provide direct input into downstream work which involves formation of Catchment Management Organizations, Catchment Management Plans, infrastructural development for water resources management, and mobilization of resources for water related sub projects in the Albert Water Management Zone.

### ANNEXURE 1

Range of Investment Options Typically Considered in Catchment Plans				
Option	Description	Representative Costs		
Valley Tanks	Small water storages used primarily for livestock, groundwater recharge, limited irrigation and fisheries	<u>Storage</u>	<u>Cost (USD\$)</u>	
		2000 m <sup>3</sup>	0.02 mil	
		10,000 m <sup>3</sup>	0.08 mil	
		50,000 m <sup>3</sup>	0.21 mil	
Earth dam & reservoir	Larger multi-purpose water storage	<u>Storage</u>	<u>Cost(USD\$)</u>	
		0.47 Mm <sup>3</sup>	0.6 mil	
		1.0 Mm <sup>3</sup>	1.05 mil	
		5.0 Mm <sup>3</sup>	2.8 mil	
		10 Mm <sup>3</sup>	4.64 mil	
Sand dams	Sediment capture and water infiltration and storage			
Sub-surface dams	Prevention of excessive sub-surface outflow			
Rainwater harvesting (off-farm)	Water conservation and use			
Water offtake (from river or water body) & distributary canal	Diversion and delivery of bulk irrigation water supplies by gravity			
Pump & distributary pipe/canal	Pump diversion and delivery of bulk irrigation water supplies by gravity	<u>Area (ha)</u>	<u>Water (m3/d)</u>	<u>Cost (USD\$)</u>
		52	500	0.07 mil
		312	3000	0.28 mil
		1039	10000	0.86 mil
		5195	50000	3.74 mil
Small scale irrigation (including drought	Treadle pumps (shallow groundwater) or small pumps (dug wells, water			

protection)	bodies) with low pressure pipe water distribution	
Water saving irrigation technology	Introduction of drip (especially for orchard crops) and sprinkler irrigation on a selected basis with private sector participation	
Mini- & micro-hydropower		
Solar power for pumps refrigeration (fisheries)		
Shallow or deep boreholes (motorized pump) and piper distribution	Village and small town water supply	
Shallow or deep boreholes (handpump)	Village and small town water supply	
Shallow wells – hand dug	Village and small town water supply	
Springs Protection	Village and small town water supply	
Check dams	Small dams to stop gully erosion	
Contour bunds	Small raised bunds aligned with the contour to slow or stop surface runoff of rainfall	
Flood preparedness	Flood proofing, measures flood warning and communications, relocation of activities from flood risk zones	
Drain and waterway improvements	Reconstruction and stabilization of degraded waterways	
River bank stabilization	A combination of revetments (stone, gabions) and vegetative planting (trees, shrubs) to stabilize degrading river banks	
Afforestation & agroforestry (fodder, fruit, fuel wood)	Tree planting to reestablish forest cover, reduce soil exposure to erosion, reduce runoff rates and increase groundwater recharge	
<i>Source of Cost estimates for valley tanks, dams and pump irrigation systems: Pemconsult, Revision of Water for Production Strategy and Investment Plan (Unit Cost Estimating Model), MWE, DWD, August 2009</i>		