THE REPUBLIC OF UGANDA
MINISTRY OF WATER AND ENVIRONMENT
DIRECTORATE OF WATER RESOURCES MANAGEMENT

INTEGRATED WATER MANAGEMENT AND DEVELOPMENT PROJECT (IWMDP)

TERMS OF REFERENCE FOR LOT 2: CONSULTANCY SERVICES FOR TECHNICAL SUPERVISION OF IMPLEMENTATION OF CATCHMENT MANAGEMENT MEASURES IN ASWA II SUB-CATCHMENT

SEPTEMBER 2020

1 INTRODUCTION

Government of Uganda, with funding from the World Bank is implementing Integrated Water Management and Development Project which provides support to catchment management and restoration activities in sub-catchments of Lwakhakha (Mpologoma catchment), Lake Okolitorom and Apeduru Apapai (Awoja catchment), Kochi (Albert Nile catchment), and Aswa II (Aswa catchment). The project supports implementation of catchment management measures, including soil and water conservation, eco-system protection and restoration; livelihood improvement for the affected communities and supporting stakeholder engagement and the establishment of micro catchment structures for sustainable management of the interventions.

Implementation of the IWMDP is fully integrated within the government structure. Thus, Component 3 is implemented by the Directorate of Water Resources Management (DWRM) through its various departments and the relevant Water Management Zones (WMZs). The task teams are composed of staff from DWRM, WMZs, relevant MWE departments and agencies, and other government ministries and agencies. The services and works for implementation of project activities will be outsourced to consultants and contractors.

These Terms of Reference are for technical supervision of implementation of catchment management measures in Aswa II sub-catchment in Aswa catchment in Uppernile Water Management Zone (UNWMZ).

The Ministry intends to procure consultancy services for technical supervision of the implementation of catchment management measures in Aswa II sub-catchment. The selected consultant will carry out tasks associated with the execution of all obligations entrusted to him in accordance with the contract between the client and the consultant.

Figure 1-1: Extent of Aswa II Sub catchment (Districts that lie wholly / partially in Aswa II sub catchment)

1.1 Aswa II Sub Catchment Description

The project is located in Aswa II sub catchment. The sub catchment extends on the south-western side of the main Aswa Catchment; covering a surface area of 1,588km^2 and encompasses parts of Gulu, Omoro, Pader, Oyam, Kole and Lira districts. The sub-catchment lies within the plateau with altitude ranging from 900 to 1,100 masl.

1.1.1 Physical Environment

a) Climate

Aswa II sub-catchment registers an average annual rainfall of about 1,200mm, the highest single annual amount being slightly more than 1,420mm and the lowest being about 1,000mm. Figure 2 shows the mean monthly rainfall pattern for the Sub catchment.

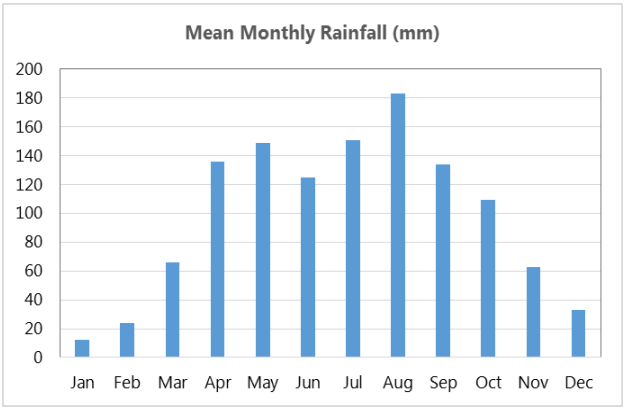

Figure 1-2: Mean monthly rainfall pattern for the Sub catchment.

Temperature analysis indicates highest values between January and March (31-33°C) and the lowest between July and August (27-29°C). This area experiences high rates of evapotranspiration, which has a resultant effect on runoff,

groundwater recharge and dry season flows, increasing drought risks.

b) Topography

The Sub-catchment lies within the plateau with altitude ranging from 900 to 1,200 masl. The sub-catchment is generally a landscape of open plains, and the relative relief is seldom more than 21 to 30 metres. The inter-fluves are broad and covered with murram, and the valleys are wide. Occasionally the plains are punctuated by rock out-crops or hills such as Te-Arie (in Aler parish, Ogur subcounty of Lira District); Walela rock in Walela parish (Aromo subcounty, Lira District) and Awere hill in Palaro parish (Odek subcounty of Omoro District).

c) Geology and Soils

Unlike many parts of Uganda, Aswa II sub catchment is entirely composed of Cainozoic rocks of Pleistocene to recent (rock formations of between 1 million to 10,000 years to recent), and only a small portion of other rocks. The latter comprise mobilized and intrusive granites found in Alito sub-county where the railway runs across it.

The attributes of the Cainozoic rocks include the presence of sediments, alluvium, black soils and moraines; particularly associated with wetlands. In general, the soils are categorized as ferruginous sandy loam. The soil has a high percentage of sandy soil and therefore it is vulnerable to erosion. Since the soil is sandy in nature, it has a low water retention capacity and a high rate of water infiltration and this implies the moisture content of the soil is generally low. The color of the soil is grayish brown in many places but gray clay with poor drainage. The poor drainage of the soils in the swampy area coupled with the high-water retention capacity makes swampy areas water logged

d) Drainage

River Aswa drainage system is the focus of Aswa II Sub-catchment. The sub-catchment is traversed by a wealth of streams that originate from Lira (Ogur, Agweng and Aromo Subcounties); Kole (Alito and Okwerodot subcounties); Oyam (Otwal and Aleka sub-counties) and Pader (Awere subcounty). The main streams that flow to River Aswa include:

- River Aleka, which originates from Oyam District (Otwal and Aleka sub-counties) and flows into River Aswa (Moroto) in Aromo subcounty;
- River Agwar also originates from Oyam District (Otwal and Aleka sub-counties) and joins River Aswa in Aromo subcounty;
- River Achake, fed by smaller streams from Lira District (Ogur and Agweng subcounties) and Kole District (Alito and Okwerodot subcounties), and joins River Agwar in Aromo subcounty before flowing into River Aswa.
- River Aromo, which marks the boundary between Aromo and Odek subcounties, flows directly into River Aswa;
- River Angole, which is fed by many streams within Awere subcounty of Pader District;
- In Omoro District, the main rivers include, among others, Odek, Agweno, Lukoto, Dawa and Chome. River Chome is fed by many streams from Lalogi and Odek subcounties, and forms the boundary between the two subcounties. It is also the boundary between Odek and Paicho subcounties.
- In Gulu District (Paicho subcounty), River Ogwari joins Chome before flowing into River Achwa. Others include Layeye, Larwodo, Labunyang and Aworang.

Associated with these rivers and streams are a number of wetlands.

Figure 1-3: Rivers and Wetlands systems in Aswa II sub catchment

1.1.2 Socio-Economic Environment

a) Population

According to the National Population and Housing Census 2014 (UBOS, 2014), Aswa II has a total population of 113,093 people. These are structured in 21,212 households. The average size of the household is 5 people, which is slightly higher than the national average of 4.7 (UBOS, 2017)[1]. Given that the area of the Sub-catchment is about 1588Km^2, the population density is therefore 71 persons per Km^2 which is high in compared to the average density of the entire Aswa catchment which 66 persons per Km^2. The proposed interventions will reduce the land available for agriculture for the communities. However, the restored land will be more productive than before due to the interventions, hence leading to increased yields. In addition, the affected communities are practicing agriculture in the buffer zones of rivers and wetlands because they are looking for a source of income and food for their families. Within this project, the affected communities will be supported to start alternative income generating activities which will ensure sustainable ecosystem management, not require much land and be of great financial benefit to them.

b) Main economic activities

The main economic activity within the sub-catchment is agriculture. Over 90% of the population depends on subsistence agriculture. The crops grown include cotton, sunflower, simsim, cassava, millet, sorghum, potatoes, soy bean, pigeon peas, etc. Crop production is largely rain fed. Profitability from cultivation in the basin is low with high risks of exposure to floods and drought and loss of yields. Grazing and pastoralism are practiced under the same conditions of agriculture and they are therefore completely depending on rain water for water points and grassland availability.

A sunflower garden near Acaling swamp (36 N 464457 284959)

A horticulture garden on the immediate banks of Owacha stream (36 N 478113 291411)

Charcoal burning adjacent to Angole stream (36 N 484471 296268)

Eucalyptus woodlot near Barwot swamp (36 N 479308 271561)

Figure 1-4: Different economic activities in the Aswa II sub catchment

1.1.3 Biological Environment

a) Vegetation

[1] UBOS (2017) The Uganda National Household Survey 2016/17.

The Aswa II sub catchment lies in areas described by Langdale-Brown et al. (1964) as dry Butryospermum parkland dominated by Combretum molle, Combretum collinum, Terminalia glaucescens, Viteralia paradoxa and Acacia hockii with tall grasses and Cyperus papyrus wetlands. These areas are dominated by the following grasses: Hyparrhenia filipendula, Hyperthelia dissoluta and Brachiaria brizantha among which the tree cover varies from 5% to 40%. The ground vegetation is dominated by Brachiaria brizantha, Hyperthelia dissoluta, Chloris gayana, Sporobolus africana, Setaria sphacelata, Pennisetum polystachion, Cyperus distans and Brachiaria decumbens. The characteristic wooded grassland communities consist of mainly Lonchocarpus laxiflorus, Acacia hockii, Balanites aegyptiaca, Combretum collinum, Hymenocardia acida, and Piliostigma thonningii. Other common species include Combretum binderanum, Terminalia glauscecens, Hoslundia opposita, Maytenus senegalensis, Securidaca longipedunculata and Ximenia americana and Vitellaria paradoxa.

According to the IUCN Status, most of the species have been classified as Least Concern (LC) while a few have not been evaluated.

The natural vegetation has increasingly been degraded through factors such as charcoal burning and agricultural expansion. During the twenty years of insurgency in Northern Uganda, the areas around the Internally Displaced Camps (IDPs) experienced deforestation and forest degradation. Because of the high concentration of the populations, such areas experienced high losses of woodlands due to extraction of building materials, fuelwood (both for domestic and commercial purposes, and agriculture and agricultural activities. The effect is still felt, especially in most parts of Lira District, which was relatively safer during the insurgency. Currently there are only a few patches of woodland forests left mainly in parts of Pader, Omoro and Gulu Districts (Paicho subcounty), and along River Aswa. Some natural trees can still be seen scattered within the farmlands. The return of communities to their land (around 2006-2007) increased the loss of forest cover as they opened up land for agriculture. There have been some efforts of tree planting under agroforestry system for species like Grevillea, Gmelina, fruit trees (mangoes, citrus, jack fruit) and woodlots of pine and eucalyptus.

b) Large mammals

The Aswa II sub-catchment has a rich fauna diversity. However, it has been reduced over the past years as a result of increased human activity like hunting, Tsetse fly control and habitat destruction through cultivation, grazing and settlement. The most common mammals in the area are as indicated in Table 4-1 below.

Table 1-1: Common mammal in Aswa II sub-catchment

English name	Scientific name	IUCN Status
Vervet Monkey	*Chlorocebus pygerythrus*	Least Concern
Olive Baboon	*Papio Anubis*	Least Concern
Guereza (Black & White) Colobus	*Colobus guereza*	Least Concern
Aardvark (Ant Bear)	*Orycteropus afer*	Least Concern
Red River Hog	*Potamochoerus porcus*	Least Concern
Bushbuck	*Tragelaphus scriptus*	Least Concern
Common (Bush) Duiker	*Sylvicapra grimmia*	Least Concern
Oribi	*Ourebia ourebi*	Least Concern

c) Birds

According to previous studies, 84 species of birds have previously been recorded in the project area comprising 30 species along major roads, 46 species in fallow areas, and 31 species in along streams. Species with a preference for some level of forest cover dominated the records and in addition a few water birds. Seven species of conservation concern (Brown Snake Eagle, Spot-flanked Barbet, White-headed Saw-wing, Grey-capped Warbler, Papyrus Gonolek, Golden-backed Weaver and Cardinal Quelea) were recorded in the study area. Of these the Papyrus Gonolek (*Laniarius mufumbiri*) is categorized as near threatened according to IUCN 2013. The common birds are indicated in Table 4-2 below.

Table 1-2: Common birds in Aswa II sub-catchment

Species	*Status*	*Habit*	*Regional*	*IUCN Status*
Brown Snake Eagle *Circaetus cinereus*	R(B)		R-NT	least Concern
Spot-flanked arbet Tricholaema lacrymosa	RB		R-RR	least Concern
White-headed Saw-wing Psalidoprocne albiceps	RB, AfM/NB	f	R-RR	least Concern

Grey-capped Warbler Eminia lepida	RB	fW	R-RR	least Concern
Papyrus Gonolek Laniarius mufumbiri	R(B)	W	R-NT/RR	Near Threatened
Golden-backed Weaver Ploceus jacksoni	RB	W	R-RR	least Concern
Cardinal Quelea Quelea cardinalis	RB		R-RR	least Concern

- Status: habitat and threat category are based on Wilson (1994) and Carswell et al (2005); RB – resident breeder, R (B) – resident, breeding not proved (but likely), AfM/B – intra-African migrant, breeding, NB – not breeding
- Habitat: - W – always resident in or near water, w – often resident or observed in or near water, F – Forest resident, f – resident in and near forests
- Regional threat status (based on Carswell et al 2005) R-NT – regionally near-threatened
- R-RR- species of regional responsibility

d) Reptiles

The sub-catchment is located in an area which experiences hot temperatures, generally above 25°C during most times of the year. This favours the thriving of reptiles since these generally depend on the surrounding environment for temperature regulation. The most common reptiles here are shown in Table 4-3 below.

Table 1-3: Common reptiles in Aswa II sub-catchment

Species	Common Name	Conservation Status
Agama agama	Orange-headed agama	Not evaluated-IUCN
Bitis gabonica	Gaboon viper	Not evaluated-IUCN
Bitis nasicornis	Rhinoceros viper	Not evaluated-IUCN
Chamaeleo gracilis	Slender Chameleon	Least Concern (LC)
Crocodylus niloticus	Nile crocodile	Least Concern (LC)
Dendroaspus jamesoni kaimosae	Western forest green mamba	Not evaluated-IUCN
Geochelone pqrdqlis	Leopard tortoise	Not evaluated-IUCN
Hemidactylus brooki	Brook's House gecko	Least Concern (LC)
Kinixys belliana	Bell's hinged tortoise	Not evaluated-IUCN
Leptotyphlops scutifrons	Peter's worm snake	Not evaluated-IUCN
Naja melanoleuca	Forest/water cobra	Not evaluated-IUCN
Python sebae	Rock python	Not evaluated-IUCN
Thelotornis kirtlandi	Twig snake	Least Concern (LC)
Typhlops lineolatus	Lineolate blind snake	Not evaluated-IUCN
Typhlops puncatus	Spotted blind snake	Not evaluated-IUCN
Varanus niloticus	Nile monitor	Not evaluated-IUCN

e) Amphibians

The Aswa sub catchment has a large network of stream, rivers, wetlands and flood plains. Such an environment acts as a good habitat for amphibians since it favours their reproduction and all other activities including feeding. Some of the amphibians identified here are as indicated in Table 4-4 below.

Table 1-4: Common amphibians in Aswa II sub-catchment

Species	Common Name	Conservation Status (IUCN)
Afrixalus osorioi	Osorio's spiny reed frog	Least Concern (LC)
Amietia angolensis	Angola River Frog	Least Concern (LC)
Bufo vittatus		Data deficient
Hemisus marmoratus	Marbled snout burrower	Least Concern (LC)
Hoplobatrachus occipitalis	Crowned bullfrog	Least Concern (LC)
Hyperolius pusillus		Least Concern (LC)
Hyperolius viridiflavus	Common reed frog	Least Concern (LC)
Kassina senegalensis		Least Concern (LC)
Leptopelis bocagii		Least Concern (LC)
Phrynobatrachus natalensis	Natal dwarf puddle frog	Least Concern (LC)
Ptychadena porosissima		Least Concern (LC)
Xenopus victorianus	Mwanza frog	Least Concern (LC)

1.1.4 Sub-catchment Management Issues

A number of issues were identified in the sub catchment through using the methods explained in chapter 3 of this report. The issues that concern water for environment, which is of critical importance in Aswa II Sub-Catchment include:

a) River bank degradation due to cultivation of crops, uncontrolled livestock access and charcoal burning
b) Collapsed River Banks and road sides due to uncontrolled cattle
c) Wetland degradation due to agricultural expansion and cattle grazing
d) Deforestation and forest degradation
e) Poor farming practices that promote soil erosion
f) Inadequate harvesting of storm water from roadsides leading to soil erosion and silting/sedimentation of rivers and streams

These issues are further described below.

a) River bank degradation due to cultivation of crops, uncontrolled livestock access and charcoal burning

River banks in most of the sub counties are experiencing degradation mainly through cutting of the riverine forests for charcoal and clearing of the land for agriculture. In many cases, cultivation along the rivers and streams goes up to the riverbeds, and increasing the risk for soil erosion and degradation of the banks. Charcoal burning along Angole stream in Angole parish, Awere Subcounty (Pader District) is a real threat to the future of the stream. In order to conserve these water resources, the restoration of the river banks along streams and rivers was considered to be a priority measure.

Figure 1-5: Charcoal burning along Angole stream in Angole Parish of Awere subcounty deprives the stream of its natural protective buffer.

Figure 1-6: Sunflower grown into the river banks of Oder (Angolo) stream in Anyomolyec parish of Otwaal Subcounty, Oyam District

b) Collapsed River Banks and road sides due to uncontrolled cattle

In some cases, the degradation of riverbanks was due to uncontrolled access of livestock to the river or streams. The repeated trampling of the river banks causes erosion and eventually the collapse of the river banks.

Sand mining was one other human activity that contributes to the collapse of river banks. Although it is not a widely spread issue so far, the growing demand for construction materials associated with increasing urban growth centres within the sub-catchment is an indication that sand mining could be an issue of concern for the

Figure 1-7: Collapsing of river banks due to uncontrolled access of livestock to River Aswa in Angole A Village, Aromo subcounty, Lira District

near future.

c) Wetland degradation due to agricultural expansion and cattle grazing

In most of the area in the upper and middle stages of the Aswa II Sub-Catchment, wetlands have been opened up for cultivation of various crops such as rice, potatoes, bananas, maize, soy bean, horticulture, etc. The local communities have often reverted to cultivating wetlands in dry periods as the available source of water for crops. Growing of eucalyptus trees is also common. The effect of unsustainable wetland utilization is that the absorptive power of these important water cisterns has been seriously hampered, resulting in increased surface runoff that leads to flush floods. Because of the anticipated financial gains from the harvests from wetlands, the communities are increasingly leaning towards opening up more wetlands and hence interfering with the ecosystem functions of the wetlands. There is limited awareness of the impact of their activities, although they already complain about the frequent floods they experience.

Figure 1-8: Sand mining from River Chome, Binya parish, Odek Subcounty, Omoro District

Figure 1-9: Top: Cultivation of Acake wetland, Adellogo parish, Okwerodot subcounty, Oyam District. Bottom: Cultivation of wetland in Angole B Village, Otara Parish, Aromo Subcounty, Lira District

d) Deforestation and forest degradation

Aswa II sub-catchment is experiencing a lot of deforestation and forest degradation as a result of human activities such as charcoal burning, bush burning and opening up land for agricultural expansion. The impact of these human activities is clearly demonstrated by the trends in the land cover change between 1995 and 2015, transitioning from the period of relative peace in the region (up 1980's), through the insurgency (1987 – 2006) to the return of peace (2007 to date). The trends in forest cover is shown in the land cover/land use maps below (Figure 1-11).

However, the highly settled areas, including the IDPs, continued to experience loss of grass, bushland and woodlands. The pressure on the natural resources increased as the people needed more building poles, firewood, charcoal and other products both for domestic use and income generation. They also cultivate the land for crops.

The apparent decline in the area under grassland, bushland, woodland and wetlands during the period 2005 – 2015 is similarly explained by the impact of human activities during the period. By 2007, the security situation in the region had improved and most people started going back to their lands. In order to open up land for agriculture, the woodlands were cut down through rampart charcoal burning aided by organized charcoal business people mainly from Kampala. To date, more forested land is being opened up for crop production, increasing areas devoid of forest cover.

Figure 1-10: Deforestation in Omel parish, Paicho subcounty of Gulu District through agricultural expansion (Top) and tree cutting for charcoal and firewood (Bottom)

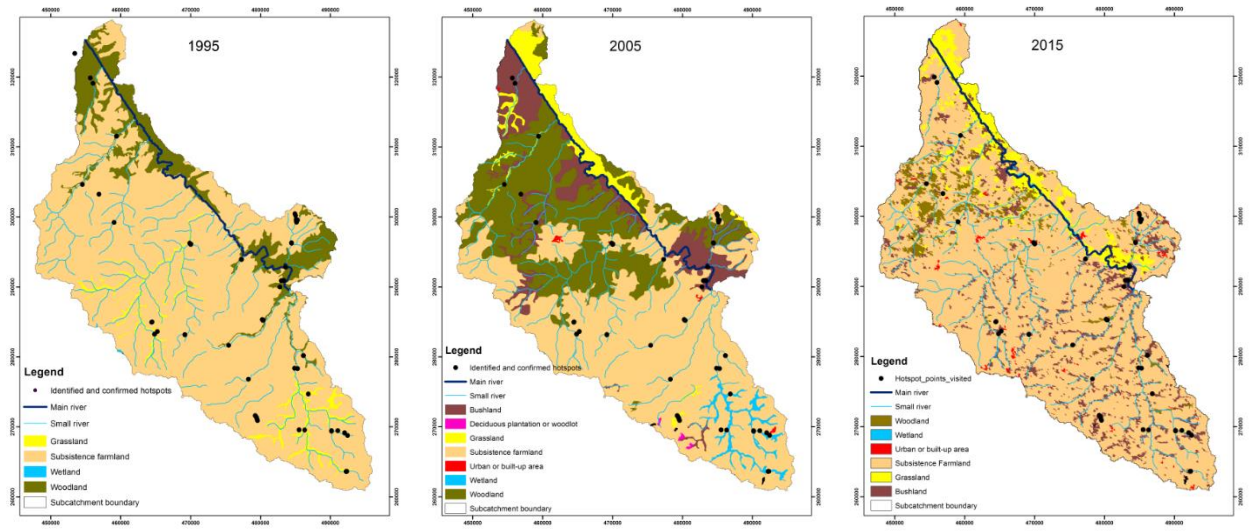

Figure 1-11: Land cover maps for 1995, 2005 and 2015

e) Poor farming practices that promote soil erosion

Soil refers to the wearing away of the top-soil by the natural physical forces of water and wind, or through forces associated with farming activities such as tillage. The top-soil, which is high in organic matter, fertility and soil life, has been carried (and continues to be carried) away into drainage channels, including streams and rivers. As a result of soil erosion this reduces productivity of the land and also contributes to the pollution of adjacent springs, streams and rivers.

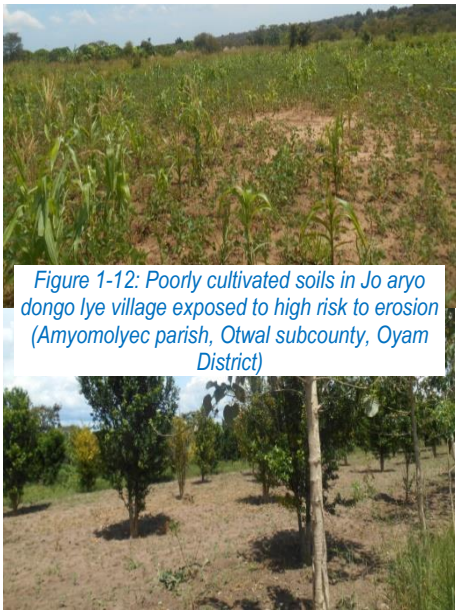

Figure 1-12: Poorly cultivated soils in Jo aryo dongo lye village exposed to high risk to erosion (Amyomolyec parish, Otwal subcounty, Oyam District)

Above, 90% of the communities in Aswa II are basically dependent on subsistence agriculture, mostly applying poor farming practices that promote soil erosion. The poor farming practices are manifested in the lack of soil and water conservation structures, over-crowding of crops, ploughing or digging along the slopes, overgrazing/overstocking; and inappropriate application pesticides. The lack of contour bands results in uncontrolled downward flow of water and increased sheet-erosion. Even where there have been efforts to practice agroforestry, there is limited knowledge about its application to reduce soil erosion. Figure 1-12 shows the cultivate land in Jo Aryo Dong lye village in Anyomolyec parish, about 500 metres away from Oder (Angolo) stream. The land is at high risk of soil erosion during the rainy seasons. Continuous removal of soil layers through erosion has progressively removed the fertile top soils, leaving behind the sandy soils. The soil is eventually washed into the wetlands, streams or rivers leading to their siltation and sedimentation, which also contribute to flooding of areas.

f) Inadequate harvesting of storm water from roadsides leading to soil erosion and silting / sedimentation of rivers and streams

A lot of storm water is released along the roads and paths, but all this is wasted off as it runs off and causes soil erosion along the roads. In some

Figure 1-13: Limited water harvesting from the runoff along roads – around Agweng tino in Odek Centre village

cases, the eroded areas have developed into gullies. The communities are not aware about the appropriate practices for harvesting such water to their gardens that are adjacent to roads and side drains.

1.2 Scope of Implementation by Contractor to be Supervised

The Non-consultancy shall include the following major activities:

1. Restoration of 280 km (140 km on each side) of the degraded stretches of the major rivers in Aswa II sub-catchment through use of catchment management measures
2. Restoration of 500 ha of the degraded wetlands in Aswa II sub-catchment through use of catchment management measures
3. Restoration of 800 ha of degraded communal and individual land through tree growing (afforestation, reforestation and agroforestry)
4. Promote and support establishment of soil and water conservation measures on 110 ha of individual farmers/public land to restore degraded hotspots and reduce/control runoff to control soil erosion and siltation
5. Integrate livelihood options in the management measures

2 OBJECTIVE OF THE CONSULTANCY

The overall objective of the Consultancy is to assist the Ministry of Water and Environment to ensure high standards of quality assurance in the implementation of catchment management measures in Aswa II sub-catchment and completion of work within stipulated time and budget limits including knowledge transfer as much as possible.

3 NATURE OF ASSIGNMENT, SCOPE OF SERVICES, TASKS AND TIME OF DELIVERY

3.1 Nature of Assignment

The assignment covers activities related to technical supervision of the implementation of catchment management and restoration activities. The consultant will administer the implementation contract and ensure that the contractual clauses with respect to both quality and quantity of work are adhered to and the works are constructed in accordance with the provisions of the implementation contract.

The consultant will ensure coordinated and accurate communication of information to the beneficiary communities and local authorities especially on technical aspects.

The consultant shall provide suitable qualified and experienced staff for contract supervision duties during implementation works. Implementation supervision will involve duties and tasks associated with the execution of all obligations entrusted to the consultant in accordance with the contract between the client and the contractor.

There shall be an inception period of not exceeding 4 weeks during which the consultant shall mobilise staff, be introduced to project area, familiarize with the project documentation including the implementation contract and advise the client on any likely positive or negative aspects that may influence the contract implementation and remedies where applicable.

3.2 Scope of Services and Tasks

Implementation supervision will encompass all activities related to the project. Implementation supervision activities will cover three distinct phases:

i. Pre-implementation and mobilization phase and
ii. Implementation phase

3.2.1 Pre-Implementation and Mobilization Phase

During the pre-implementation and mobilisation phase, the consultant's task shall include, but not be limited to the following:

1. Review the contractor's work programme and method statements while highlighting areas that may pose a risk to timely and in-budget project completion.
2. Review contractor's deployment of staffing and equipment vis a vis those indicated in the bid.
3. Review and make recommendations to the contractor's procurement schedule.
4. Ensure that materials are checked at site to verify that they are of the required quality and specifications. If not, the materials should be rejected at site.
5. Establish sub-catchment and micro catchment structures and set up associated committees for coordinated planning and implementation of the Catchment Management measures in Aswa II.
6. Undertake a baseline situational assessment of the degraded hotspots so as determine and measure forest, grassland, and wetland coverage and condition using standardized methodologies as a proxy for ecosystem service provisioning related to specific catchment management measures
7. Develop an effective, sustainable and interactive monitoring and evaluation (M&E) system for tracking catchment management measures against baseline indicators
8. Ensure that the contractor meets environmental, health and safety standards. The contractor shall comply with the Uganda national regulations and World Bank safeguard policies as outlined in the Environmental and Social Management Framework (ESMF) of the project. Investments to be implemented are subjected to environmental and social screening following the OP 4.01 requirements and informed by the GoU requirements. The environmental and social screening will identify the environmental category and level of assessment needed and the type of instruments to be prepared (Full/simplified ESIA/ESMP). The consultant shall ensure the proper implementation of the developed ESMP.

3.2.2 Implementation Phase

The consultant shall represent the client on site and supervise the entire implementation of catchment management measures. During the entire implementation process, the consultant shall work in close cooperation with MWE's project team and specifically the DWRM team in UNWMZ on assignment activities. The Consultant will be introduced to the DWRM teams in UNWMZ. During the implementation period, the consultant's tasks shall include, but not be limited to the following:

1. Approve/suggest modifications in the contractor's work programme, method statements, materials sources etc.
2. Supervise the contractor's work progress versus the planned project time schedule and ensure that delays are being kept to a minimum and, that the contractor at their cost takes measures to make up for time lost and pull the project back to planned schedule. In addition, the consultant is required to keep a monthly updated work program in liaison with contractor.
3. Timely issue to the contractor of all the necessary correspondences related to information, instructions, clarifications and suggestions so as to ensure consistency in quality, positive progress and planned costs.
4. Inspect, determine and approve the part of works before, during and after construction of part and, or whole of the works to ensure all time compliance with the specifications and standards.
5. Supervise the contractor's implementation activities, ensuring that all implementation is undertaken as designed, or in accordance with client-approved variations to the original design, and that all quality standards are met.
6. If necessary, approve any amendments to designs and/or specifications from the contractor in consultations with the client.
7. Inspect and certify all completed activities. Certify payment certificates for payments of completed activities or parts thereof. Ad-measure and certify all quantities invoiced by the contractor. Prepare the contractor's payment statement including final certificate in accordance with General Conditions of Contract and Conditions of Particular application.
8. Periodically review the status of the contractor's real versus required staffing, equipment, insurance and recommend appropriate actions to the client.

9. State all methods and procedures that are intended to ensure robust quality control, execute all procedures accordingly, and report on all quality control undertakings and their results to the client.
10. In addition to continuous implementation supervision, schedule and organize weekly formal visitation, inspections and meetings with the Contractor's representative and agree with the Contractor on progress made within the given period.
11. Hold monthly site meetings with the contractor and client to review progress of implementation of project activities.
12. Develop and maintain a project progress reporting format that is both, concise and in accordance with the client's and the World Bank's requirements.
13. Report monthly progress to the client, and immediately report any issues identified that could impact on the project completion schedule.
14. Review and recommend action on any claims presented by the contractor during the course of the contract and prepare variation orders, if required, for approval by the Client. In the case of any work or event for which the Contractor may claim additional time or payment, record the relevant facts before any question of principle/approval has to be decided by the Supervisor.
15. Guide the Contractor on compiling guidelines for community maintenance works and shall forward 3 copies of the guidelines to the Client as shall be provided for in the implementation Contract. In liaison with the client, make necessary preparations for post implementation management arrangements ahead of completion. Such shall include participation and guidance of stakeholders in identifying the best management strategy and all associated preparatory activities towards adoption of the preferred strategy.
16. Commission and approve completed measures and facilitate hand over to client.
17. Supervise production of final as built drawings produced by the contractor for the interventions.
18. Recommend final acceptance of the works to the Client upon satisfactory completion of the specified maintenance period.

3.2.3 Document Best Practices and Lessons Learnt

Support is need for documentation of all processes and share lessons learnt for probable scaling out catchment management measures. The consultant shall document of all project processes and share lessons learnt through;

i. Production of project brief, pull up banners, and posters
ii. Production of intervention-specific video documentaries
iii. Production of lessons learnt booklets for knowledge dissemination
iv. Organizing and holding radio talk shows to create awareness to public on the ongoing activities
v. Dissemination workshop on lessons learned and good practices documented for upscaling

3.3 Expected Time of Delivery

The estimated service delivery period is 24 calendar months tallying with the duration of the Implementation of the interventions by the contractor. The consultancy scheduling is as follows;

i. 3.0 months for Pre-implementation and mobilization phase: including 1 month for inception, and undertaking activities described in section 3.2.1
ii. 21 months for actual Implementation supervision (Implementation phase)
iii. Monthly progress reporting

It is the responsibility of the consultant to establish a detailed work program within the above time estimates. The estimated staff time inputs should be provided in accordance with the consultant's professional judgment and knowledge of the local conditions and needs.

4 ORGANIZATION OF THE ASSIGNMENT

4.1 Contractual Arrangements

A time- based contract shall be used for the consultancy services. The consultant shall show the costs of the proposed services accordingly.

4.2 Staffing Requirements and Staff Qualifications

4.2.1 Staffing Requirements

Within the technical proposal, the consultant shall elaborate on the envisaged logistical setup and deployment of appropriate skills for the execution of the assignment. The consultant shall present the staffing schedule in a manner that clearly shows the stage and duration where each of the proposed team members is planned to be involved in the project. An organogram reflecting the responsibilities of each staff member and line management setup of the proposed team shall be part of the proposal.

The Consultant is however expected to provide a team, composed of the following key staff.

i. 1No. Water/Environmental Management expert (Team Leader)
ii. 1No. Community Development Specialist
iii. 1No. Soil and Water Conservation Specialist
iv. 1No. Forestry/Tree Planting Specialist
v. 1No. Civil Engineer

In order to enhance the skills and experience, it is recommended that the consultant integrates local expertise into the project execution team. The consultant is free to propose additional skills as may be deemed necessary.

The above proposed staff bear different expertise and shall be expected on site for the duration of the specific interventions for which their expertise is required to ensure the works are done as per specifications and the logs are filled duly.

4.2.2 Staffing Qualifications

a) Key Experts

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

i *1No. Water/Environmental Management expert (team Leader):* A master's degree in Water or Environmental Engineering / Management / Science or related field with 8 years of general experience, 5 years of Specific experience in undertaking water related environmental assessments and in environment management planning. Experience in use of Geographical Information System tools will be an advantage.
    i. He/She will be the Consultants' representative (and should be empowered to take decisions on behalf of the Consultants) and will coordinate the Services. He will be available during the implementation of activities when key decisions are expected to be taken or issues to be resolved.
    ii. The Team leader should be competent in planning, designing, contractual management, resolving problems, quality maintenance, budgeting and financial control, progress monitoring, communication skills and documentation.

i. *1No. Community Development Expert:* The Social Development Specialist shall hold a degree in social sciences, social works & administration, development studies or community psychology.
    i. A minimum experience of 10 years, 5 of which should be in similar activities.
    ii. He/She must have demonstrated experience in community mobilization and management in relations to development projects of a similar nature.

iii. The expert should have experience in undertaking impact, social and gender analysis.
iv. He/She should be knowledgeable in preparing appropriate awareness programs.
v. The specialist shall ensure communities are fully mobilized and sensitized during the project implementation process.

ii. *1No. Soil and Water Conservation Specialist:* The Soil and Water Conservation Expert should have a minimum Bachelor's degree in natural resources/water resources management, Agriculture, or related field.
   i. A minimum experience of 10 years, 5 of which should be in similar activities.
   ii. He/She must have demonstrated experience in preparation and implementation of soil and water conservation measures
   iii. He/She must have demonstrated experience in community involvement and training farmers in catchment restoration measures will be needed.

iii. *1No. Forestry/Tree Planting Specialist:* The Forestry Specialist will have a minimum of Bachelor's degree in Forestry, Forest Ecology or a closely related discipline.
   i. A minimum experience of 10 years, 5 of which should be in similar activities.
   ii. He/She must have demonstrated experience in preparation and implementation of catchment restoration measures
   iii. He/She must have experience in training farmers in tree planting and agroforestry at community level will be needed

iv. *1No. Civil Engineer:* The Engineer should have a basic degree in civil engineering
   i. A minimum 5 years of professional experience, 3 of which shall be in similar activities.
   ii. He/she should have significant experience in design and construction supervision of basic water-related engineering infrastructure such as open-flow drainage systems and check dams/ gully plugs.
   iii. He/She must have basic engineering survey experience (topographic survey, mapping, & map digitization).
   iv. He/She must have basic experience in undertaking geotechnical assessments
   v. He/She must be computer literate and proficient in at least Excel and Auto Land Map (GIS capability) or other relevant survey application.

Key Staff must obtain a score of at least 75% upon Evaluation. Key Staff who obtain a score of less than 75% shall be replaced if the Consultancy firm progresses to negotiation stage.

b) Mandatory Non-key experts

CVs of Mandatory Non-Key staff must be submitted along with the Proposals and the staff meet the following minimum requirements.

GIS Expert: Must have a degree or postgraduate qualification in geographical information systems (GIS), geography or computer sciences with 5 years of relevant experience in building and maintaining GIS databases and using desktop GIS software to analyze the spatial and non-spatial data and information and create relevant thematic maps and graphs.

Mandatory non-Key staff who are established not to meet fully the minimum requirements shall be replaced if Consultant proceeds to contracting stage.

All the experts shall have some experience in water resources and environment related programs. The Community Development Specialist should possess 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 East 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 experts in other areas required for targeted input. These short-term personnel are expected to have demonstrated and appropriate 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.

4.2.3 Firm Qualification

The consultant/firm shall demonstrate their capability and experience in undertaking similar assignments of the similar nature and overall magnitude over the last 5 years.

5 REPORTING AND MEETING REQUIREMENTS

5.1 Schedule of Reporting and Submissions

The consultant is required to submit the following reports to the client in English. All reports should be submitted as required below.

No.	Reports/Deliverable	Description	Timing	No. of Copies
1.	Inception report	This report should include state of mobilization, findings from review of project documentation, proposals for improvement of project implementation and revised programme among others.	One month after commencement of the assignment	4 copies plus a soft copy
2.	Sub-catchment and micro catchment structure formation report	Report summarizing the processes followed and the composition of the structures and their operational arrangements.	2 months after commencement of the assignment	4 copies plus a soft copy
3.	Baseline situational assessment of the degraded hotspots Report	Report detailing the forest, grassland, and wetland coverage and condition using standardized methodologies as a proxy for ecosystem service provisioning related to specific catchment management measures.	3 months after commencement of the assignment	4 copies plus a soft copy
4.	An effective, sustainable and interactive monitoring and evaluation (M&E) system for tracking catchment management measures against baseline indicators.	An effective, sustainable and interactive monitoring and evaluation (M&E) system for tracking catchment management measures against baseline indicators.	Within 3 months after commencement of the assignment	N/A
5.	Monthly progress reports	Report summarizing physical and financial progress to date, compared to programme and budget among others. They shall be submitted	within 7 days of the end of the period covered.	4 copies plus a soft copy
6.	Project completion report	The substantial completion report shall state the project scope, principal activities by the consultant and the contractor (including deployment of resources during project implementation), the contractor's performance, all project relevant observations of the consultant, major	24 months after commencement of the assignment	4 copies plus a soft copy

		issues that were encountered during project implementation and how these were solved, the project schedule citing all delays if any, and financial information.		
7.	Variation Orders and Claims reports	In case the Contractor submit claims for extension of time and/or increased costs, the Consultant shall submit valuation reports to the Client for each claim.	as soon as practically possible but not exceeding 7days after receipt by the Consultant.	4 Copies and soft copy (where possible)
8.	As built drawings.	Preparation of the As-built drawings for any infrastructure constructed e.g. gullies shall be largely the work of the Contractor, but the consultant shall be responsible for their final standard, accuracy and timely submission.	Within 30 days of provisional acceptance for the works contract.	4 copies plus a soft copy
9.	Guidelines for community maintenance works	The consultant shall ensure Guidelines for maintenance of the interventions by communities are prepared	Submitted to the client as soon as practically possible but not exceeding 7days after the establishment of the specific interventions.	4 copies plus a soft copy
10.	Documented Best Practices and Lessons Learnt	The reports and Video documentaries are intervention-specific and shall be prepared	Within 1 month after the completion of the implementation of a specific intervention.	4 copies plus a soft copy
11.	Training of Clients staff (Preparation of training report for client's staff attached to the project)	The completion of training report shall state the training obligations of the consultant and the contractor, as agreed with the client, the type and duration of training activities undertaken, the number of participants in each training and their professional background, training outputs and achievements, as well as recommendations for further/continued training if any.	Since on job training goes on throughout the project period, the final training report will be required at the end of the project, however, intermediate reports will be required every six months in order to monitor how the trainings are being conducted and address any upcoming issues	4 copies plus a soft copy

All reports will be submitted to:

The Director, Directorate of Water Resources Management,
1st floor, Ministry of Water and Environment Headquarters
Plot 3-7, Kabalega Crescent, Luzira

For the attention of: Dr. Callist Tindimugaya
Commissioner, Water Resources Planning and Regulation Department
1st floor, Ministry of Water and Environment Headquarters
Plot 3-7, Kabalega Crescent, Luzira
Email: callist.tindimugaya@mwe.go.ug, callist_tindimugaya@yahoo.co.uk

5.2 Meeting Arrangements

Following the submission of the inception report, the consultant will make a presentation and attend monthly implementation progress review meetings with the client during the entire project period. The review shall be for the purposes of:

1. Engaging the Ministry of Water and Environment and obtain guidance on the technical aspects of the assignment.
2. Assessing progress.
3. Providing information and data relevant for the successful accomplishment of the entire assignment.

The nature of the meetings, locations (e.g. site, MWE offices and consultant's offices) and agenda shall be agreed upon between the consultant's and the client's project managers.

For ensuring organizational and stakeholder wide appreciation and ownership of the project outputs, the consultant shall be required to organise coordination meetings/workshops for presentation of key reports after each project milestone to a representative group of stakeholders that is to be agreed upon with the client. In addition, the consultant's representative shall be available whenever stakeholder visits to the project sites are arranged. The Consultant will therefore be required to include a provisional sum of 30,000 USD to meet costs of holding the workshops and meetings. The Client will pay the Consultant based on actual and approved expenditure of the Consultant's budget (for workshops and meetings) which will have been discussed and agreed to prior to commencement of the Consultancy. The basis for payment of participants by the Consultant will be full participation for the entire duration of the workshop together with an authentic invitation letter of the participant.

6 SERVICES AND FACILITIES TO BE PROVIDED BY CLIENT

The client will provide free of charge all existing information, data, reports and maps in the custody of the client. This will include the:

i. Aswa Catchment Management Plan.
ii. Sub catchment Hotspot Identification and Mapping Report
iii. Water Resources Development and Management Strategy for the Upper Nile WMZ
iv. Contract for the implementing Contractor
v. Approved Environmental and Social Project Brief for the proposed Implementation of Priority Catchment Management Measures in Aswa II Sub-Catchment
vi. Relevant GIS maps

7 CAPACITY BUILDING AND SKILLS TRANSFER

For purposes of capacity building and skills transfer in supervision services and skills transfer and ensuring adequate direct involvement of the client in delivering the project, the client will assign 2 counterpart staff. The consultant shall as part of his financial proposal include the cost for involving the 2 staff in attending site meetings, review of as-built drawings, preparation and review of progress reports. The costing shall be in Consultancy firm's costs of providing the training. MWE shall provide the costs for the allowances and transportation costs including fuel for its Staff.

The proposal shall include the proposed methodology for the knowledge transfer throughout the assignment, the proposed training obligations of the consultant and the contractor, the type and duration of training activities to be undertaken, the optimum number of participants in each training, methodology for monitoring and evaluation of trainees, and any post training support and resources.