IUCN Eastern and Southern African Regional Office

CONSULTANCY ADVERTISEMENT

Terms of Reference for Mapping of Invasive Alien Species and Piloting their Eradication/Control in three Micro-catchments in Karamoja, Uganda

1 Background

In 2014, the Food and Agriculture Organization of the United Nations (FAO), with funding from the United Kingdom Department for International Development (DFID), contracted International Union for Conservation of Nature (IUCN)[i], and International Institute for Rural Reconstruction (IIRR), to implement components of the project titled: "*Strengthening Adaptive Capacity of Local Governments and Communities in Karamoja to Reduce Impacts of Climate Risk to Livelihoods through Strategic Planning and Response*" in the Lokok and Lokere Catchments in Karamoja, Uganda (Figures 1 and 2 respectively) in line with FAO's Strategic Objective V: "*Increase the Resilience of Livelihoods to Threats and Crises*". The project is strategically designed to directly contribute to Uganda's Catchment Management Framework and builds on past and ongoing initiatives of IUCN and IIRR in collaboration with FAO. In particular, it builds on the pilot Integrated Water Resources Management (IWRM) project work for the Lokok sub-catchment supported by European Commission on Humanitarian Aid and Civil Protection (ECHO), and capacity building initiatives on Community Managed Disaster Risk Reduction (CMDRR) and Community Based Integrated Watershed Management supported by FAO.

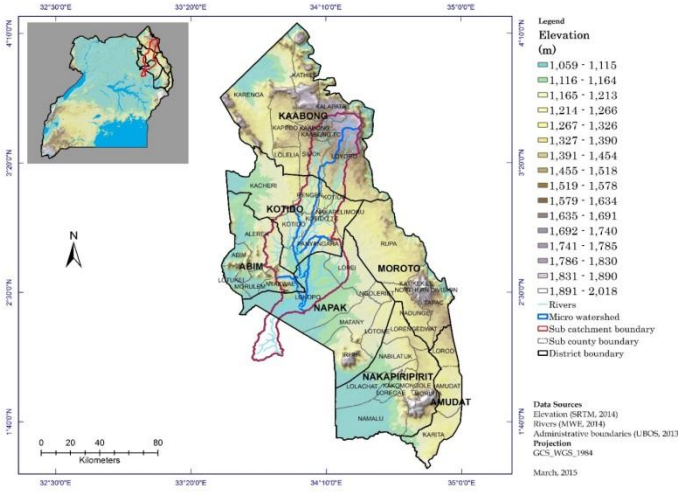

Figure 1: Lokok Catchment

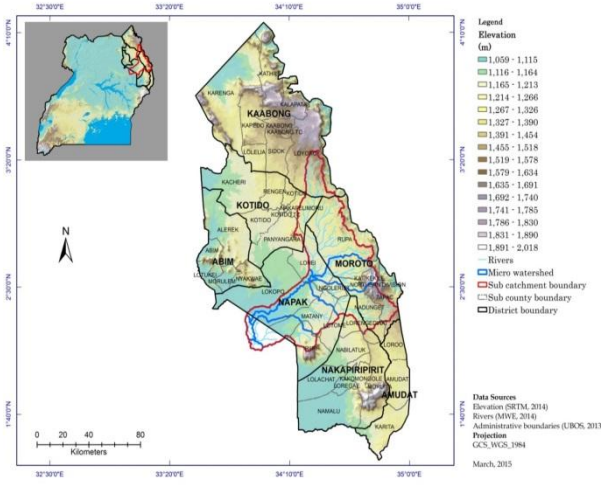

Figure 2: Lokere Catchment

One of the key outputs of this project is a report on the Watershed Assessment and Geospatial Analysis of Lokok and Lokere Catchments. This report identified key challenges in relation to sustainable water resources management in Karamoja. These include but are not limited to: highly variable and unreliable rainfall; silting of surface water resources; and low storage capacity of the

soils and reservoirs. This is majorly caused by human and non-human factors including but not limited to: poor farming methods; overgrazing around watering points and protected kraals; un-controlled bush wildfires; deforestation for charcoal burning, wood fuel, building, construction of kraals, and fences of homesteads. This is compounded by; increasing human population, poor soil texture/structure and weak natural resources management institutional structures. The result has been; soil erosion, reduced soil productivity, poor water quality and reduced surface water sources.

This situation has been worsened by the climate related shocks and risks such as; prolonged dry spells, frequent drought, flooding and flash floods which are increasing in both intensity and frequency. In many areas, the rainy season either starts early or late and generally has become shorter and heavier than in previous years. The increasing risk of droughts resulting from the changing rainfall patterns is, therefore, putting at risk the food and livelihood security of farming and pastoral communities in the Karamoja Region. The combination of these distortions have led to water deficits during planting time, and in some areas heavy rainfall is creating erosion and landslides, resulting in soil erosion and degradation of agricultural lands in the watersheds and rangelands. Consequently, this has reduced the coping ability of an already vulnerable community to socio-economic disasters and climate related shocks and risks.

Based on this background, FAO with funding from DFID made an addendum to the on-going Enhancing Resilience in Karamoja Program (ERKP), number - GCP/UGA/042/UK and launched the Integrated Water Resources Management Project in Karamoja (IWRMK). The IWRMK project proposes to enhance resilience of rural communities in Karamoja and reduce their vulnerability to water related stress factors by implementing participatory catchment-based integrated watershed and rangeland management approaches. The project will provide technical support to the strengthening of water resources and rangeland management and governance frameworks at community level. Increasing the knowledge base for informed decision making in water resources and rangeland management is also among the objectives of the addendum.

The IWRMK project is organized around the following two outcomes and four outputs namely:

A. ***Outcome 1:*** Resilience of Watershed Ecosystems Improved
   i. Output 1.1: Vulnerable micro-watershed ecosystems restored and rehabilitated;
   ii. Output 1.2: Community based rangeland management introduced, and degraded range resources rehabilitated.

B. ***Outcome 2:*** Knowledge and Institutional Capacity for Integrated Water Management Improved;
   i. Output 2.1. Water Governance Frameworks Strengthened, and
   ii. Output 2.2. Water Resources Knowledge Base Improved.

Invasive species (defined as those non-native species that threaten ecosystems, habitat or species and are key drivers of human-induced global environmental changes) have been identified as one of the impediments to the achievement of the intended goals. Invasive alien species are the second greatest agent of species endangerment and extinction after habitat destruction. Invasive species have also posed serious impacts on ecosystem functioning and ecosystem services

provisioning. IUCN in conjunction with FAO would like, therefore, to undertake the above activity as part and parcel of the IWRMK Project implementation.

2 Rationale

Invasive alien species can carry a heavy economic loss, in terms of reduced crop and livestock production, reduced native biodiversity, increased production costs and so forth. With the increasing global trade and climate change the problem of invasive alien species is becoming further complicated. The issue of invasive alien species is caused by human activities associated with global linkages, network and movement, but measures have to be taken at national and local level. Realizing the threat of biological invasion, more attention has been given on research, monitoring, control and management of invasive species in the recent years by global communities. More importantly, the Convention on Biological Diversity (CBD) calls for its signatory nations to prevent the introduction, control or eradication of those alien species that threaten ecosystems, habitats or species.

Karamoja has several alien species such as; *Prosopis spp., Cactus spp., Lantana camara and* others. Information regarding these invasive species is almost lacking. In fact, very limited information is available regarding invasive species, their distribution and effect on the native species and ecosystems. On the other hand, there is a lack of national strategy document for the scientific management and control of invasive species. However, globally much more attention is being provided to control spread of invasive species.

The article 8/h of the CBD stipulates: "Each contracting Party shall, as far as possible and as appropriate: Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats, or species". The Aichi target made under the CBD also states that "By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated and measures are in place to manage pathways to prevent their introduction and establishment." To implement this obligation, Uganda as a Contracting Party of CBD needs to set up a national strategy on IAS, develop legislation as to prevent the introduction of new IAPS and the spread of the already present IAS, carry out risk analysis and rapid assessment to identify degree of extent of spread of the IAS.

In light of this, DFID funded ***Integrated Water Resources Management Project in Karamoja*** (IWRMK) through FAO and IUCN as the Implementing Partners (IP) is seeking consultancy support to map the degree of spread of IAS across Lokok and Lokere Catchments in Karamoja Rangeland Landscape with particular reference to the 3 Micro-catchments of Loyoro, Panyangara and Omaniman and pilot implementation measures for the eradication and/or control of the identified and mapped IAS.

3 Project Sites

This project is being implemented in both Lokok and Lokere Catchments in Kyoga Water Management Zone (Figures 1 and 2 above). The Lokok Sub catchment is located in the districts of Napak (23% of the catchment), Kotido (34%), Abim (9%), and Kaabong (25%) within the Kyoga Water Management Zone (KWMZ). It covers a total area of 5,491.2 km^2 and is characterized by highlands like Mt. Moroto, Mt. Napak, Mt. Timu and Mt. Morungole, from which the catchments streams originate, to drain their waters into the plains in Napak district, and subsequently into the wide wetlands complex around Lake Bisina in Teso. The Lokere Catchment is located in the districts of

Napak (23.1% of the catchment), Kotido (4.8%), Nakapiripirit (2.7%), Moroto (54.1%) and Kaabong (6.7%) (Figure 1). The Lokere Catchment lies within the Kyoga Water Management Zone (KWMZ) and covers a total area of 6,664km^2, and it is characterized by highlands like Mt. Moroto and Mt. Napak from which, the catchment's streams originate, to drain their waters into the plains in Napak district, and subsequently into the wide wetlands complex around Lake Bisina in Teso. The Lokere River is the largest seasonal river defining the catchment. Currently, the catchment provides water to almost 237,223 peoples in Karamoja (UBOS, 2014). Specifically, the project will be inplemented in three (3) micro cachments of: Loyoro, Panyagara and Omaniman.

<u>Loyoro micro-catchment</u>

Loyoro micro-catchment (123,402.07 Ha) straddles the sub-counties of Sidok and Loyoro in Kaabong District and Rengen, Kotido, Nakapelimoru and Panyangara in Kotido District (Figure 3). The biggest area of the micro-catchment is contributed by Loyoro and Panyangara. The total population of the micro-catchment is estimated at 45,376 inhabitants.

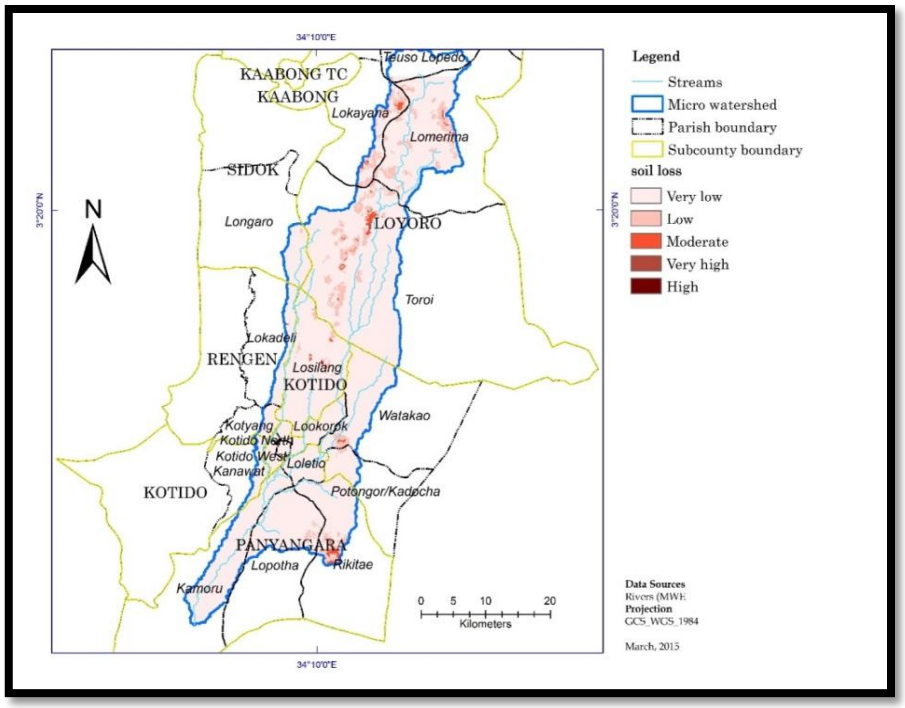

Figure 3: Loyoro micro-catchment

<u>Panyangara micro-catchment</u>

This micro-catchment covers Lokopo and Lopei Sub-counties in Napak District and Panyangara sub-county in Kotido District, with Lokopo being the biggest land contributor (Figure 4). The total population of the micro-catchment is estimated at 36,334 people.

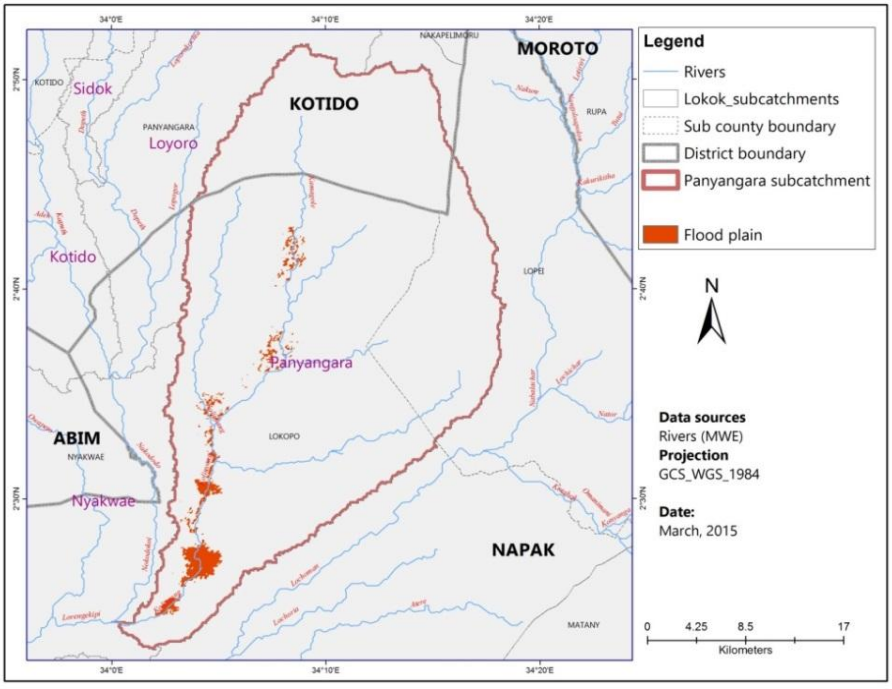

Figure 4: Panyangara micro-catchment

Omaniman Micro-catchment

This micro-catchment covers Lorengedwat Sub-county in Nakapiripirit District, Tapac, Nadunget and Katikekile Sub-counties in Moroto District and, Lotome, Lopei, Lokopo and Ngolereit Sub-counties in Napak District (Figure 5).

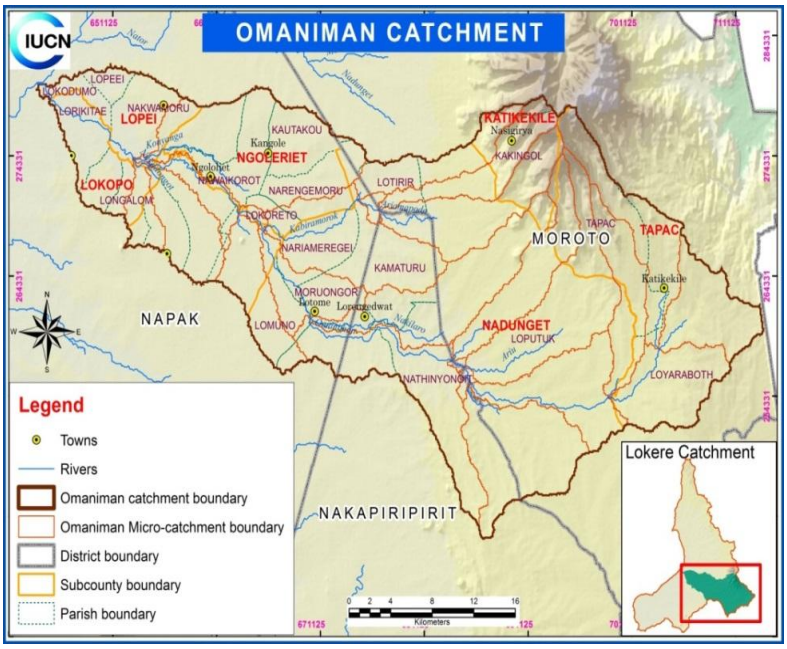

Figure 5: Omaniman micro-catchment

4 Objectives

The overall goal of this assignment is to identify invasive alien plant species (AIPS), map and assess their degree (extent) of spread of across the Lokok and Lokere Catchments with particular reference to the 3 Micro-catchments of Loyoro, Panyangara and Omaniman in order to provide important information and data that while help in formulating national and local strategy for invasive alien species management, and to plot the eradication and/control of the identified and mapped AIPS within the context of the strategy developed.

The specific objectives of the task are to:

A. Identify invasive alien plant species across the Lokok and Lokere Catchments with particular reference to the 3 Micro-catchments of Loyoro, Panyangara and Omaniman in Karamoja;

B. Map the extend of spread of the identified IAS;

C. Prioritize the IAS on the basis of their degree of spread and coverage;

D. Identify major anthropogenic factors responsible for the spread of the identified IAPS;

E. Review current status and distribution of the identified IAS in the target areas using published and unpublished literatures, reports and documents;

F. Develop comprehensive 10 year strategy and plan of action to control and manage IAPS in Lokok and Lokere Catchments with particular reference to the 3 Micro-catchments of Loyoro, Panyangara and Omaniman;

G. Provide appropriate training to key stakeholders for invasive species management; and

H. Pilot implementation measures for the eradication and/or control measures of the identified IAPS based on the 10 year strategy and plan of action.

5 Tasks and scope of work

A. Desktop study for review of relevant policies, literature and other available information together with lessons from different countries on IAPS assessments, eradication/control strategy, plan preparation and implementation;

B. Field reconnaissance to determine appropriate assignment execution methodologies and logistics;

C. Development of detailed methodology and maps of the target areas. The methods should at least include but not be limited to:
   i. Development of sampling grids of sizes 5km X 5km within each micro-catchment. The total grids to be used needs to be indicated in the inception report;
   ii. In each grid (25 km2) – 5 km search walk along streams, roads and trails intercepting different land uses (forest, grazing lands, farm lands, woody shrubs, wetlands etc.) should be carried out. Along the search walk presence/absence of invasive species along with disturbance parameters (fire, grazing, logging, earth excavation, landslides, encroachment, and flood) is recorded at 500m section.
   iii. After 500m walk the enumerator stops and makes 20m radius observation plot. The enumerator records GPS (lat., long., altitude, aspect, etc.), land use type, vegetation type, four major plant species present based on coverage, list out every possible seen invasive species and their ocular estimated cover percentage within the plot.
   iv. While searching along the 500 m walk the enumerator records livestock and wildlife species encountered or their signs observed;

D. Preparation of plan of action for the consultancy with detailed timeframes of work and each activity schedules to be agreed with IUCN and FAO;

E. Extensive consultations with Ministry of Water and Environment (MoWE), Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), National Research and Academic Institutions dealing with; Agriculture, Soil Science, Livestock, Crops and Plants in Uganda. Other Government entities to be consulted include; National Forestry Authority (NFA), Uganda Wildlife Authority UWA) and National Environment Management Authority (NEMA), as well as NGOs such as IUCN, FAO and other national and international experts in this field;

F. Consultation with other relevant stakeholders including Ministry of Local Development, District Environment Officers, District Forest Officers, Protected Area Managers and District Agriculture and Community Development Offices;

G. Field data tabulation (database management) and analysis including occupancy, invasive species ranking and threats ranking;

H. Determining which invasive plant species or populations, if any, block or have potential to block attainment of the rangeland and watershed management goals and objectives;

I. Establishing management goals and objectives for each target site (watershed);

J. Determine which methods are available to control the invasive alien plant species;

K. Production of distribution maps and detailed technical report containing all the aspects above and recommendations for action;

L. Meetings and workshops at district, regional and national level to present findings and strategy to stakeholders for input and validation;

M. Training of selected community members, District staff and partners to provide participants with information on invasive plant identification, management options and best management practices to prevent or mitigate spread and establishment;

N. Developing and piloting implementation of a management plan designed to move conditions toward management goals and objectives;

O. Monitoring and assessing the impacts of management actions in terms of their effectiveness in moving conditions toward these goals and objectives;

P. Re-evaluating, modifying and starting the cycle again with a view of achieving the desired impacts; and

Q. Making final technical report with concrete IAPS sustainable management stategies and action plants.

6 Deliverables

The deliverables of this assignment are:

A. Inception report including detailed plan of action with detailed framework of activities, methodology to be applied, schedule, etc.

B. Primary datasheets including detailed information collected from the grids and plots and its soft copy.

C. Maps, GIS layers (final map and supporting root files e.g. .shp files), photographs and other relevant documents procured or produced under this contract, in digital and/or hard copy as appropriate, with related analysis, model, and diagrams.

D. Draft study reports (technical as well as financial reports) with supporting invoices.

E. Draft strategy and action plan on invasive species management for Lokok and Lokere Catchments.

F. Report on presentation to national consultation workshop of draft report and strategy.

G. Final report incorporating comments and suggestions given by stakeholders at national consultation workshop and IUCN and FAO technical teams on the draft report.

H. Final Report on the eradication/control pilot implementation phase and final financial report with supporting invoices.

Final deliverables will be provided in 2 hard copies and digital copy.

7 Duration and Time Frame

The entire work is expected to take a total of 30 billable working days for all the Experts (see Section 8 below) spread over a period of 4 (four) months from 15th August to 14th December, 2016. This period includes desk work, field work and reporting. IUCN, FAO and other partners will participate in the assessment, as well as providing logistical support to the process.

8 Team composition

The assessment, strategy development and implementation team may include:

1) Invasive Species Expert/Conservation Biologist – Botanist/Biologist (Team Leader)
2) GIS Expert
3) Field Enumerators (Local Expertise)

9 How to apply

Interested Firms/Individuals are requested to submit separate technical and financial proposals stating the assignment applied for, along with an application letter outlining knowledge, competencies, skills and past experience in undertaking the tasks mentioned above to IUCN office during office hours at the email address below. The technical proposal should give all details of the methodology/approach to be used in each task, as well as, the timing and/or scheduling for each task. The financial proposal should indicate how much the entire assignment will cost in terms of professional fees, reimbursable costs and transport costs. The letter of expression of interest should be accompanied with:

A. Samples of previous similar works;
B. Firm/Organization track record (profile); and
C. Signed and dated Curriculum Vitae of proposed assigment team.

Please send your full proposal electronically to IUCN Uganda Country Office (uco@iucn.org) by 14 August 2016

Quality and cost basis selection will be employed to evaluate and select the consulting firm. Technical proposal carries 80% marks and financial proposal carries 20% marks.

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[i] *IUCN, International Union for Conservation of Nature, helps the world find pragmatic solutions to our most pressing environment and development challenges. IUCN's work focuses on valuing and conserving nature, ensuring effective and equitable governance of its use, and deploying nature-based solutions to global challenges in climate, food and development. IUCN supports scientific research, manages field projects all over the world, and brings governments, NGOs, the UN and companies together to develop policy, laws and best practice. IUCN is the world's oldest and largest global environmental organization, with almost 1,300 government and NGO Members and more than 15,000 volunteer experts in 185 countries. IUCN's work is supported by almost 1,000 staff in 45 offices and hundreds of partners in public, NGO and private sectors around the world. IUCN's Eastern and Southern African (ESARO) region comprises 24 countries in the Horn of Africa, eastern and southern Africa and the western Indian Ocean namely: Angola, Botswana, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, Somalia, South Africa, South Sudan, Sudan, Swaziland, Rwanda, Tanzania, Uganda, Zambia and Zimbabwe.*
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