

**ENVIRONMENTAL AND SOCIAL IMPACT STATEMENT
FOR THE PROPOSED CONSTRUCTION OF
HOIMA-KINYARA 220kV TRANSMISSION LINE AND SUBSTATIONS**

HOIMA-KINYARA UPDATED ESIA REPORT



MAIN REPORT AND ANNEXES






**UGANDA ELECTRICITY
TRANSMISSION COMPANY LTD**

JUNE 2017

Environmental and Social Impact Assessment for the Proposed Hoima-Kinyara 220Kv Transmission line

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LIST OF ACRONYMS

| | |
|-------|---|
| AfDB | Africa Development Bank |
| AIDS | Acquired Immune-Deficiency Syndrome |
| BKK | Bunyoro Kitara Kingdom |
| CAO | Chief Administrative Officer |
| CBD | Convention on Biological Diversity |
| CDAP | Community Development Action Plan |
| CDO | Community Development Officer |
| CGV | Chief Government Valuer |
| CITES | Convention on International Trade in Endangered Species |
| CMS | Conservation of Migratory Species of Wild Animals |
| CR | Critical (Globally (G-CR) or Regionally (R-CR)) |
| CSEAP | Construction Social and Environmental Action Plan |
| dBA | Decibel Amperes |
| DDP | District Development Plan |
| DEO | District Environment Officer |
| DGC | Department of Gender and Culture |
| DMM | Department of Museums and Monuments |
| DSOER | District State of Environment Report |
| EA | Environmental Assessments. |
| EHS | Environment and Health Safety Policy |
| EI | Environmental Inspector |
| EIA | Environmental Impact Assessment |
| EIA | Early Iron Age |
| EMF | Electro-Magnetic Fields |
| EMMP | Environmental Mitigation and Monitoring Plan |
| EMP | Environment Management Plan |
| EN | Endangered |
| EO | Environmental Officer |
| EPC | Engineering, Procurement and Construction |
| EPF | Environmental Protection Police Force |
| ERA | Electricity Regulatory Authority |
| ERP | Emergency Response Plan |
| ESDP | Electricity Sector Development Project |
| ESIA | Environmental and Social Impact Assessments |
| GIIP | Good International Industry Practice |
| GoU | Government of Uganda |
| HAZID | Hazard Identification |
| HMMP | Hazardous Material Management Plan |
| HS&E | Health, Safety and Environment |
| HSMP | Health and Safety Management Plan |
| IPP | Independent Power Producer |
| IUCN | International Union for the Conservation of Nature |
| Km | Kilometres |
| KPI | Key Performance Indicator |

| | |
|--------|---|
| kV | Kilo Volt |
| LC | Local Council |
| LFMP | Labour Force Management Plan |
| LG | Local Government |
| LIA | Later Iron Age |
| MIA | Middle Iron Age |
| MoEMD | Ministry of Energy and Mineral Development |
| MGLSD | Ministry of Gender, Labour and Social Development |
| MoLHUD | Ministry of Lands, Housing and Urban Development formerly Ministry Land and Physical Planning |
| MoWE | Ministry of Water and Environment |
| MoWT | Ministry of Works and Transport |
| MSDS | Material Safety Data Sheets |
| NEA | National Environment Act |
| NEMA | National Environment Management Authority |
| NFA | National Forestry Authority |
| NRDMP | National Roads Development and Maintenance Plan |
| NT | Near-Threatened |
| NWSC | National Water and Sewerage Corporation |
| O&M | Operation and Maintenance |
| OD | Operational Directive |
| OP | World Bank Operation Policy |
| OSH | Occupational Safety and Health |
| PAH | Project Affected House Hold |
| PCRM | Physical Cultural Resource Management Plan |
| PPE | Personal Protective Equipment |
| PSCP | Pollutant Spill Contingency Plan |
| RA | Risk Assessment |
| RE | Resident Engineer |
| SDC | Site Disciplinary Committee |
| SEA | Social and Environment Assessment |
| SEAP | Social and Environment Action Plan |
| SEM | Site Environmental Manager |
| SI | Safety Inspector |
| SO | Safety Officer |
| SOW | Scope of Work |
| SSM | Site Safety Manager |
| TMP | Traffic Management Plan |
| UETCL | Uganda Electricity Transmission Company Limited |
| UWA | Uganda Wildlife Authority |
| WBG | World Bank Group |
| WMP | Waste Management Plan |

MEASURES AND UNITS

| | |
|-------|--|
| A | Ampere (a unit of current) |
| d(BA) | Decibel |
| g | gram |
| Ha | Hectare (= 10 000 square metres) |
| kg | Kilogram (= 1 000 g) |
| km | Kilometer (= 1 000 metres) |
| kV | Kilovolt (10 ³ volt) |
| kVA | Kilovolt-ampere (10 ³ volt-ampere) |
| kWh | Kilowatt-hour (10 ³ watt-hour) |
| m | Meters |
| MVA | Mega volt-ampere (= 10 ⁶ volt-ampere) |
| MWh | Megawatt-hour (= 10 ⁶ watt-hour) |
| MW | Megawatt (= 10 ⁶ watt) |

DEFINITION OF KEY WORDS AND TERMINOLOGIES USED

The Right of Way (RoW) of a transmission Line is a strip of line that may be used to construct, operate, maintain and repair the transmission line facilities. The Line usually follows the centre line of the transmission corridor and 5meters in width.

A Wayleave is a corridor maintained under the transmission line mainly for maintenance and safety reasons. It normally extends beyond the RoW. For this line, it is 35meters.

Compensation means cash or in-kind payments at replacement value for an asset or a resource acquired or affected by the Project at the time the asset is replaced.

Project-Affected Household (PAH) means a household that includes one or several Project-Affected Persons as defined above. A PAH will usually include a head of household, his/her spouse and their children, but may also include other dependents living in the same dwelling or set of dwellings, like close relatives such as parents and grandchildren.

Project-Affected Area means an area, which is subject to a change in use because of the construction or operation of the Project

Project-Affected Person (PAP) means any person who, as a result of the implementation of the Project, loses the right to own, use, or otherwise benefit from a built structure, land (residential, agricultural, pasture or undeveloped/unused land), annual or perennial crops and trees, or any other fixed or moveable asset, either in full or in part, permanently or temporarily. PAPs may include:

Physically Displaced People, i.e. people subject to Physical Displacement as defined hereunder,

Economically Displaced People, i.e. people subject to Economic Displacement as defined hereunder.

Physical Displacement means loss of shelter and assets resulting from the acquisition of land associated with the Project that requires the affected person(s) to move to another location.

Economic Displacement means loss of income streams or means of livelihood resulting from land acquisition or obstructed access to resources (land, water or forest) caused by the construction or operation of the Project or its associated facilities.

Transmission corridor means area measuring up to 40 meters in width and Approx 50 km in length that will be acquired for the establishment of the 220kV line from Bulemwa village (Hoima district) up to Main Quarters village at Kinyara Sugar factory, Masindi district.

Project means the proposed 220kV Hoima-Kinyara transmission line and associated substations.

Access roads means all existing and newly established roads and tracks, and areas cleared or driven over to provide access to and from the construction areas, and for the transportation of the construction workforce, equipment and materials.

0.1 EXECUTIVE SUMMARY

0.1.1 Project Background

The Electricity Act of 1999 liberalized the power sector by breaking up Uganda Electricity Board that had monopoly for power generation, transmission and distribution, into three companies responsible for generation (UEGCL), transmission (UETCL) and distribution (UEDCL) of electric power in Uganda. The Act authorized the licensing of independent power producers (IPP), to generate, distribute and sell power. UETCL has the responsibility of high voltage power transmission, bulk purchase from IPP and bulk sale to independent power distributors.

As part of its strategic growth and energy planning, GoU through UETCL proposes to construct the Hoima-Kinyara 220kV electricity transmission line. The line will evacuate the power generated from the Kinyara Co-generation plant (40MW) on the power grid. The power line will ultimately be extended up to Kafu to interconnect with the Karuma-Kawanda power line. This will help improve system reliability to transmit power from Karuma, the generation plants in Western Uganda including the Oil Refinery power plants and minihydros in the region. Therefore the proposed Hoima-Kinyara Transmission line is a key strategy being undertaken by government to improve regional connectivity to the grid.

The proposed transmission line will provide adequate transmission infrastructure to meet the power supply needs of Western Uganda and evacuate mini-hydro power plants within the project area. The proposed project consists of:

- Construction of approximately 50 km of double circuit steel tower transmission line on steel towers from the proposed Hoima substation to Kinyara Substation.
- Substation Extension at Hoima with bays to Kinyara
- Construction of 220/132/33kV, 2X15/20MVA new substation at Kinyara.
- Clearing of right-of-way as necessary
- Construction of access roads as necessary
- Construction of workers camps and storage facilities for the project materials

The Associated Facilities

The proposed 220kV Transmission line from Hoima to Kinyara has an associated facility which includes the expansion of the sugar plant at Kinyara to increase the bagasse for power generation. The current process of sugar production at Kinyara involves receiving cane at the factory and unloading it from the transport vehicles onto the cutting and shredding machine. The cutting and shredding machines prepare the cane, after which the cane is taken to the mill for juice extraction.

The milling capacity in Kinyara plant is 181.82 Tons of Cane per Hour (TPH) on a 22-hour basis, representing a 4000 Tons of Cane per Day (TCD). The resultant bagasse is burned in three steam boilers and four steam turbo generators. The

steam boilers current capacity is of 118 TPH capacity with an outlet steam parameters of 315⁰C. The boiler is designed for bagasse firing, with a feed water inlet temperature of 105⁰C. With the increased production, there is excess bagasse that the KSW wishes to use for power production.

Expansion of the Cogeneration Plant

For the cogeneration plant to increase power generation from 14.5MW to the proposed 45MW, the milling capacity will be increased from 4000 TCD to 7,500 TCD to enable the plant increase the quantity of bagasse. With increased bagasse, Kinyara will install 2x135 tph plant, with 110 Kg/cm² (a)/540±5⁰c boilers, 1x45MW steam turbine with two bleeds and one controlled extraction. The plant is expected to be operational for 320 days in a year, with a crushing rate of 7,500 TCD.

Actual Project Activities

Design of the Proposed Line

- ✓ The first stage of the activities will be to design the proposed expansion plant. The design will be for the civil works as well as the electro-mechanical equipment to be used in the production.

Procurement

- ✓ Procurement of equipment for Civil works
- ✓ Procurement of the electro mechanical equipment

Manufacture and Transport

- ✓ Manufacture and transport of the Civil works equipment and electro mechanical equipment to site

Construction Activities

- ✓ Civil works Phase I (excavations, cutting, compacting, and levelling the plant area) and excavation for the electromechanical equipment block
- ✓ Installation of the electromechanical equipment and building the factory
- ✓ Construction of the Switchyard station with installation of step up transformers step up voltage up to 132kV
- ✓ Substation Extension at Kinyara to accommodate the 220kV transmission line and associated switchgear
- ✓ Synchronisation and commissioning of Factory equipment. Here the generation plant will be synchronised with the transmission line at the switchyard

Access Roads

- ✓ The access to the substation at Kinyara will be gained largely by use of existing access roads within the estate. For the benefit of the large substation equipment, there may be some widening of the access roads near the substation gate to allow for smooth turning of trucks.

The Interface between Kinyara and UETCL

Kinyara will generate the power at low voltage and step up to 11kV. They will install the step up transformer and the associated switchgear to step up from 11kV to 132kV. That means Kinyara will design, procure and install the generator transformer and the step up transformer with a full transformer bay.

The 132kV bus bar will be the interface from which UETCL will offtake the power at 132kV. UETCL will be responsible for the 132kV line bays and interconnection with the Hoima-Kinyara line.

0.1.2 Project Aims

- To provide adequate transmission infrastructure to meet the energy needs for Uganda's population for social and economic development especially western areas of Masindi, Hoima and the surrounding districts
- Facilitate evacuation of power from the planned co-generation at Kinyara Sugar Works
- Facilitate rural electrification and improve the standards of living for the population in project area.
- Provide a reliable alternate high voltage link to the Albertine region

NEK Consults Ltd (herein referred to as the Consultant) was appointed by UETCL (herein referred to as the Client) to carry out the Consultancy Services for Environmental and Social Impact Assessments (ESIA) and preparation of the Resettlement Action Plan (RAP). This Report is specific to the preparation of the EISA based on the proposed project activities and their impacts on the project area and the Project Affected Persons (PAPs).

0.1.3 Project area and location

The Hoima-Kinyara transmission Line traverses 2 districts, 4 sub-counties, 10 parishes and 25 villages across a distance of approximately 50 km. Table 0.1 below presents a summary of the various administrative units crossed by the transmission line.

Table 0.1: Summary of Administrative units crossed by the Hoima-Kinyara Transmission Line

| No | District | Sub-county | Parish | villages |
|----|--------------|------------|-----------|-----------|
| 1 | Hoima | 3 | 6 | 15 |
| 2 | Masindi | 1 | 4 | 10 |
| | Total | 4 | 10 | 25 |

0.2 LINE ROUTE

0.2.1 Overview

In terms of land cover/use, the proposed Hoima-Kinyara transmission line can be divided into 2 major segments. These include HK 301-HK 306 and HK 306-HK 308.

0.2.2 Segment 1: Between HK 301-HK 306

This segment of the Hoima-Kinyara transmission line (HK 301-HK 306) is situated mainly in Hoima District (approx. 30km) and partly in Masindi district (approx. 6km). It cuts across Bujumbura, Kigorobya, Kyabigamire and Budongo sub-counties. The line starts from Bulemwa village in Bujumbura division of Hoima Municipality. It traverses several villages including Bwendero, Dwoli west, Wagaisa, Kiswero, Mpunda, Kaburingi, Enjinga, Abangi, Onini, Mbarara, Bineneza up to Rwempisi in Budongo sub-county, Masindi district. In Homa district it goes through 5 parishes of Kiragura, Birungu, Kiryangobe, Bulyango and Kijongo. In Masindi district, it goes through Nyantozzi and Kasene in Budongo sub-county. Throughout these villages, the line passes through cultivated land mainly of cassava, maize, beans and bananas. Certain segments are under fallow and most of the land traversed is private. Throughout this segment of the line, the land use is majorly subsistence farming. There are no Central Forest Reserves crossed by the line. Farmers in the Masindi segment cultivate tobacco as a major cash crop especially in Enjinga, Abangi and Onini villages. However, as the line approaches angle point HK 306 after Bineneza village of Masindi district, via Kimanaya II up to Rwempisi village, the farming system is dominated by sugarcane plantations grown by outgrowers (private farmers) with intent to sell to Kinyara Sugar factory.

0.2.3 Segment 2: Between HK 306 and HK 309

This segment of the line is situated in Masindi district and in only Budongo subcounty. It cuts through Nyantozzi and Kinyara parishes via Kiryamyongo, Kyamongi, Kisagura, Kingo Campa and Main Quarters villages. Although it is slightly similar to segment 1 in term of land use (farming activities), the difference is that the entire stretch is about 96% sugar cane plantation belonging mainly to Kinyara Sugar Works Ltd. Just like segment 1, no Central Forest Reserves are affected by the transmission line. This segment is about 11 km.

0.2.4 The Need for ESIA

Overview

Several activities will be undertaken during the construction of the 220kV Hoima-Kinyara approximately 50km power line. The proposed construction of the planned transmission line will involve among others, the following activities:

- Acquisition of the right of way and way leaves for the power line;
- Survey and mapping of the routes which will involve detailed Line route survey (line profiling, soil studies, pegging and tower spotting).
- Construction of towers which will be done prior to the Installation of conductors. Tower foundations will vary according to the prevailing geology.

- Detailed engineering which will include completion of geotechnical and engineering surveys to provide detailed information needed for, placement/location of towers, design of foundations, design of towers, and the sub-station design.

The implementation of the above activities will result in a number of environmental impacts that require an Environmental Impact Assessment (ESIA). Furthermore, the third schedule of the National Environment Act Cap 153, lists projects to be considered for environmental impact assessment. In section 19 (10b), of the Act, there is a need for an ESIA for electrical infrastructure establishment including Transmission lines.

These activities will lead to social and environmental impacts, both negative and positive. Impacts such as restriction on land use, landscape impairment and visual amenity, habitat encroachment, water resource contamination, flora, fauna and social disruption are likely to arise from the implementation of the project.

These impacts require identification, quantification and mitigation before the project is implemented. Most importantly to make the project meet the World Bank requirements, people who are likely to be affected by the project need to be consulted so that their views and suggestions are incorporated in the project design as appropriate.

0.6.1 Purposes and Objectives of the ESIA

The purpose of conducting this ESIA was to;

- examine the existing environmental character of the proposed approx 50 km transmission line and the area likely to be affected by establishing the proposed power line;
- investigate the likely impacts of the proposed project on the biophysical and social-economic environment of the affected landlords in the power corridor together with the villages, parishes, districts and surrounding areas of influence;
- Promote environmentally sound and sustainable development through the identification and implementation of appropriate enhancement and mitigation measures.
- Provide the public, NEMA, World Bank and Lead Agencies and other stakeholders with information for decision-making on the environmental consequences of proposed construction of the approx 50 km power line and the associated substations.

The Specific Objectives of the ESIA were to:

- Improve the environmental design of the project;
- Ensure that resources are used appropriately and efficiently;
- Identify appropriate measures for mitigating the potential negative impacts of the project; and
- Facilitate informed decision making, including setting the environmental terms and conditions for implementing the power line construction.

All these objectives shall be applied to both the Hoima-Kinyara transmission line as well as all substation works at Hoima and Kinyara that are identified as part of the scope of this work. This ESIA document therefore will govern both the construction of the proposed transmission line and the 2 associated substations.

0.2.5 The ESIA Process

The ESIA report is designed to meet requirements of the GoU as well as the policies and guidelines of the World Bank, and the various International Financial Institutions (IFIs) that are expected to finance the construction of the 220KV Hoima-Kinyara transmission line.

The ESIA was conducted following the terms of reference (TORs) that were prepared by UETCL and approved by NEMA. The ESIA process involved review of existing literature on electricity transmission, ecological surveys along the proposed power corridor, social surveys and consultations with the relevant stakeholders including potentially affected persons.

This ESIA report is organized into 9 main chapters, namely;

- Chapter 1, this one provides the background to the power line project and the ESIA procedure
- Chapter 2 describes the proposed project, including its construction and operation activities;
- Chapter 3 describes the legislative, regulatory, and policy requirements for the project;
- Chapter 4 describes the baseline physical and biological environments in the power corridor and the project area;
- Chapter 5 describes the baseline socio-economic environments in the power corridor and the project area;
- Chapter 6 describes the public consultation and disclosure program undertaken for the project;
- Chapter 7 provides an analysis of project alternatives and the preferred project option;
- Chapter 8 provides impact identification, management and monitoring; and,
- Chapter 9 provides the framework for the Social and Environmental management and Action Plan to be mitigated and the likely impacts during project implementation
- Other chapters include conclusions and recommendations, References, and Appendices

0.3 PLANNED PROJECT ACTIVITIES

0.3.1 Transmission Line Design

According to the final studies and design , the transmission line will be constructed using lattice towers The steel monopole will not be used since there are no fragile ecosystems affected that would warrant the use of such structures.

0.3.2 Construction Activities

Over view

The construction activities are divided into two separate components: Procurement, Manufacturing and Transport; and Construction which is further divided into the three distinct sections of transmission line. The procurement, manufacturing and transportation component is broken down into five tasks. The first task (engineering) involves the design and specification of all transmission line components. The remaining tasks involve the actual procurement of these components, and the logistics of transportation to Uganda. Detailed

engineering will include completion of geotechnical and engineering surveys to provide detailed information needed for, placement/location of towers, design of foundations, design of towers, and the sub-station design

Substation Works

Detailed technical analysis and power system studies were carried out by an independent consultant (SMEC International Pty Ltd) and currently, the construction of the Hoima substation is in progress. It is important to note that there will be two substations of which one will be at Kinyara to tap the expected 30-50 megawatts of electricity that will be generated by Kinyara Sugar Ltd and the other at Bulemwa (Hoima Municipality) adjacent Biseruka Road. In this respect, the key activities will be Substation Extension at Hoima substation to accommodate Kinyara line and construction of a 220/132/33kV, 2X15/20MVA new Kinyara substation at Main quarters village.

Access Roads

To the extent feasible, access to the transmission line way leaves will be gained largely by use of existing public highways and access roads. Where the planned transmission line follows the existing transmission line, the existing access tracks within such way leaves will be used. Access to the new tower locations will be gained via a short 'spur' from such way leaves.

Equipment

The storage yard for the planned transmission line construction is expected to be the base for a fleet of standard vehicles characteristic of the anticipated project works. It is anticipated that the following vehicles and equipment will be required:

- One large crane for handling goods within the storage yard;
- Trucks of various sizes, some fitted with Hiab or Atlas-type hoists for unloading materials and equipment at each tower site;
- Mobile cranes;
- Tractors with winches;
- Cable stringing pullers;
- Pilot line winders;
- Cable stringing tensioners;
- Cable reel carriers;
- Truck/trailer mounted water tanks;
- 4-wheel drive vehicles;
- Compressors with pneumatic equipment such as rock drills; and
- Concrete mixers.

No equipment storage yards and camp sites will be established inside the protected areas.

0.3.3 Labour Force and camps

For the transmission line works, the number of staff required during construction could include; project managers, supervisors, and other technical categories and unskilled workers who can be recruited locally. Semi-skilled and unskilled workers will be trained by Supervisors and UETCL/Consultants Safeguards staff prior to the commencement of construction. Local people will be recruited as unskilled labourers from the villages

traversed by the transmission line, where possible. On average, an estimated 100 people are anticipated to constitute the workforce on the power line. These staff will be housed a labour camp(s) which will be built or rented by the contractor in consultation with UETCL. Workers Contracts and Code of Conduct shall developed and signed with workers to avoid sexual harassment, Gender Based Violence, Defilement, Elopement and deployment of children to work at sites.

0.3.4 Decommissioning

It is anticipated that the transmission facilities will be continuously maintained and repaired, and will be operated for several decades. Because of their long useable life, the circumstances under which they might ultimately be decommissioned are difficult to foresee at this stage. However, a decommissioning framework for the construction and operation phase has been suggested.

0.4 ENVIRONMENTAL IMPACTS

The proposed project will have a series of environmental impacts which have been grouped into the following categories

- a. Impacts associated with transmission corridor acquisition and line construction
- b. Impacts associated with access roads
- c. Impacts associated with substations
- d. Impacts associated with labour camps.

These impacts have been discussed in detail and appropriate mitigation measures have been suggested. The document also presents an environmental management plan and mitigation plan for each of the impact categories identified.

0.4 ENVIRONMENTAL MONITORING PROGRAMME

0.4.1 Overview

The general approach to effects of monitoring is to compare the pre- and post- project situations, measuring relevant environmental impacts against baseline conditions. Baseline data establish a reference basis for managing environmental impacts throughout the life of the project. Monitoring process will therefore to be introduced to check progress and the resultant effects on the environment as the construction of building proceeds.

The Contractor and UETCL will undertake the necessary monitoring measures for short- and long-term monitoring programme respectively. However, during monitoring close links should be maintained with other relevant lead agencies. Much of the work during the construction stage can form part of the contractor's routine inspection activities that will be included in construction contract. The planned mitigation measures indicated in **5.1** should, therefore, be included on the list of contractual items. These should be planned and checked against their effectiveness in reducing the negative impacts/or enhancing the benefits identified in this report.

The process should also include regular reviews of the impacts that cannot be contemplated at the time of doing this Environment Impact Assessment. Action shall be taken in response to the unforeseen changes and subsequently scale up the mitigation and monitoring measures. Monitoring should undertake appropriate new actions to mitigate any negative effects.

To achieve this, a two-stage programme is proposed:

- i) Stage I Short-term monitoring programme
- ii) Stage II Long-term monitoring Programme

The issues to monitor may include the following:

- Monitoring and supervision of the excavations for tower locations
- Forestation of new land and regeneration of opened up areas
- Monitoring of traffic safety;
- Monitoring the fate of solid waste/debris disposal and other wastes after they have left the site.
- Monitoring resettlement of families
- Monitoring compensation for land, crops, trees, structures etc
- Valuation forms possessed by all PAPs
- Monitoring of livelihood of displaced persons
- Relocation of water sources
- Water quality
- Integrity of wetlands
- Behavioural changes
- Occupational health
- Public health concerns such as prevalence of communicable diseases including HIV/AIDS
- Emerging concerns from the community on the activities of the contractor
- Child labour
- Misuse of compensation cash
- Fire fighting preparedness among others.

The contractor shall be required to develop their own ESMP to guide implementation of the construction phase and including pre and post construction phase.

0.5.2 Short -Term Environmental Monitoring programme

This programme is aimed at monitoring environmental impacts that will last up to end of construction period. These are:

- Activities associated with planning including resettlement and compensation which are mainly undertaken by the developer (UETCL).
- Actual construction activities which are mainly under taken by the Contractor.

On completion of the ESIA, some activities must be undertaken, and these include but not limited to: Preparation of tender documents that should include environmental issues as identified in this report; these should emphasize that most activities related to

implementation of the mitigation measures should be undertaken by contractor since he is a major player in this phase.

Once implementation begins, monitoring also starts. The Contractor (SEO) will carry out daily and weekly readings and assessments which are filled in a form and submits to the Consultant (Environmental specialist – ES) monthly. The Consultant (ES) will work on behalf of the Developer (UETCL) who has the overall environmental responsibility of his project. ES will make regular visits to the site once or twice a month, to cross-check with what has been put down in the forms by the contractor. The ES will make Quarterly reports to be submitted to the NEMA/DEO and the Client. A mid-term review of environmental issues scheduled at the midpoint of the contract is recommended. This will have the objective of reviewing environmental monitoring and management activities as well as making recommendations for long-term environmental monitoring requirements. An overall short-term monitoring report should be submitted to DEO, Client and NEMA at the end of the liability period.

0.5.3 Long-Term Environmental Monitoring Programme

This involves long term monitoring and action programme during operation and maintenance of building. Some of the issues will need to be monitored beyond liability period as will have been recommended in the mid-term review or by the Consultant and the compliance team. These issues may include

- Water flow; monitoring flow of water will continue for about 1 year after construction.
- Monitoring of maintenance of the new plantations to replace the forests affected until about 5 years when fast growing trees are ready for harvesting
- Livelihood; income restoration will have to be monitored beyond liability period because it is a slow process and may require about 5 years to get positive results.

The programme should be drawn in the light of the success of inter-agency cooperation and ensure that there is a suitable master plan which is well coordinated with plans of other organisations.

The first long-term monitoring report is proposed to be submitted 1 year after liability period. A yearly report will be required and an overall long term monitoring report should be submitted at end of 5 years after construction. An environmental Audit shall be carried on completion of the project and before commissioning to verify compliance with the mitigation measures recommended and if the contractor has complied with his Environment Management Plan. **Table 9.4** below presents an environment monitoring plan.

0.5 SUMMARY OF RECOMMENDATIONS

0.5.1 Recommendations

The ESIA team recommends that the project should proceed with the following recommendations;

- a) Conduct and implement pre-construction phase mitigation measures which include;
 - Sensitization of the affected community
 - Planning and co-ordination with local authority especially sub-county administration

- b) Prepare a Resettlement Action Plan on which actual compensation and resettlement shall be based. This will include:
- Socio-economic Survey of the people who have either been displaced, lost property including land, crops as well as loss of income due to change in business premises {Directly Project Affected Persons};
 - Cadastral Survey of the individual peoples' portions of land to be acquired by the project;
 - Property Valuation.

In addition to the above, all emerging issues as at June 2016 highlighted in the report should be addressed before all PAPs are compensated. In summary, all emerging concerns from both PAPs and keystakeholders rotate around the quality, appropriateness and validity of the RAP study conducted in 2013. The following actions among others should be taken;

- (i) In consultation with the Chief Government Valuer, update the valuation report and ensure all PAPs are compensated with entitlements that are able to replace what has been lost basing on current market rates and not the 2013 rates.
- (ii) All irregularities cited to be in the former RAP study should be verified on each individual PAP and if found to be true, they should be addressed.
- (iii) The assumption that all PAPs were not given time to understand the valuation forms which they signed is very critical and can undermine the quality and transparency of the RAP study. It is based on the allegation that up to date, no single PAP was given a copy of the valuation report to understand how they were affected by the transmission line. According to several testimonies from several PAPs consulted, it is alleged that most PAPs were 'forced' to sign the valuation forms without understanding their content. Therefore to rectify this allegation, all PAPs should be given copies of the valuation forms signed to study and appreciate the criteria of valuation used to arrive at their entitlements.

- c) During construction phase, the following general mitigation measures should be undertaken and will include but not limited to the following:
- Minimize displacement and impacts on property
 - All properties damaged or affected negatively during construction phase should be compensated for appropriately.
 - Ensure employment opportunities for the local people
 - Ensure health and safety for both workers and the public
 - Control reduction of biodiversity
 - Ensure all livelihoods lost are restored through a transparent and adequate compensation procedure and livelihood restoration plan.
 - Mainstream HIV/AIDS prevention in contractors SEAP.

The management and monitoring plan should be attached as a condition for the Hoima-Kinyara 220 kV construction contract so as to make the contractor aware of his environmental obligation before securing the contract and enhance the implementation of the EMP. Overall; this will enhance environmental standards in the whole project. In case of any archaeological finds during excavation, these should be reported and handed

over to the Department of Antiquities in the Ministry of Tourism, Trade and Industry for further follow up. Provide incentives for resettlement so that the involuntary resettlement turns out to be voluntary for example giving land to displaced persons with secure land tenure. (E.g. titled land). It is also imperative that UETCL puts in place an institutional arrangement solely responsible for environmental issues in both planning and project implementation for the present and future projects.

1 INTRODUCTION

1.1 Project Background

The Electricity Act of 1999 liberalized the power sector by breaking up Uganda Electricity Board that had monopoly for power generation, transmission and distribution, into three companies responsible for generation (UEGCL), transmission (UETCL) and distribution (UEDCL) of electric power in Uganda. The Act authorized the licensing of independent power producers (IPP), to generate, distribute and sell power. UETCL has the responsibility of high voltage power transmission, bulk purchase from IPP and bulk sale to independent power distributors.

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The Government of Uganda (GoU), through The Uganda Electricity Transmission Company Limited (UETCL) proposes to construct the Hoima-Kinyara 220kV transmission line to provide adequate transmission infrastructure to meet the power supply needs of the Western Uganda and evacuate mini-hydro power plants within the region such as Bugoye mini hydro power plant, Kilembe mines, Kasese Cobalt Company Ltd, Kakaka mini hydro,

Rwimi mini hydro, Nyamugasani and others. The project is part of the overall national grid system plan identified in the UETCL Grid Development. The proposed project consists of:

- Construction of approximately 50 km of double circuit steel tower transmission line on steel towers from the proposed Hoima substation to Kinyara Substation.
- Substation Extension at Hoima with bays to Kinyara
- Construction of 220/132/33kV, 2X15/20MVA new substation at Kinyara.
- Clearing of right-of-way as necessary
- Construction of access roads as necessary
- Construction of workers camps and storage facilities for the project materials

The Associated Facilities

The proposed 220kV Transmission line from Hoima to Kinyara has an associated facility which includes the expansion of the sugar plant at Kinyara to increase the bagasse for power generation. The current process of sugar production at Kinyara involves receiving cane at the factory and unloading it from the transport vehicles onto the cutting and shredding machine. The cutting and shredding machines prepare the cane, after which the cane is taken to the mill for juice extraction.

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The environment audit of the existing factory is also already under preparation as a separate document and shall be reviewed and cleared by the World Bank before submission to NEMA for issuance of a Compliance Agreement to guide implementation of any required corrective actions.

Expansion of the Cogeneration Plant

For the cogeneration plant to increase power generation from 14.5MW to the proposed 45MW, the milling capacity will be increased from 4000 TCD to 7,500 TCD to enable the plant increase the quantity of bagasse. With increased bagasse, Kinyara will install 2x135 tph plant, with 110 Kg/cm² (a)/540±5⁰c boilers, 1x45MW steam turbine with two bleeds and one controlled extraction. The plant is expected to be operational for 320 days in a year, with a crushing rate of 7,500 TCD.

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- ✓ The first stage of the activities will be to design the proposed expansion plant. The design will be for the civil works as well as the electro-mechanical equipment to be used in the production.

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- ✓ Procurement of equipment for Civil works
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Manufacture and Transport

- ✓ Manufacture and transport of the Civil works equipment and electro mechanical equipment to site

Construction Activities

- ✓ Civil works Phase I (excavations, cutting, compacting, and levelling the plant area) and excavation for the electromechanical equipment block
- ✓ Installation of the electromechanical equipment and building the factory
- ✓ Construction of the Switchyard station with installation of step up transformers step up voltage up to 132kV
- ✓ Substation Extension at Kinyara to accommodate the 220kV transmission line and associated switchgear
- ✓ Synchronisation and commissioning of Factory equipment. Here the generation plant will be synchronised with the transmission line at the switchyard

Access Roads

- ✓ The access to the substation at Kinyara will be gained largely by use of existing access roads within the estate. For the benefit of the large substation equipment, there may be some widening of the access roads near the substation gate to allow for smooth turning of trucks.

The Interface between Kinyara and UETCL

Kinyara will generate the power at low voltage and step up to 11kV. They will install the step up transformer and the associated switchgear to step up from 11kV to 132kV. That means Kinyara will design, procure and install the generator transformer and the step up transformer with a full transformer bay.

The 132kV bus bar will be the interface from which UETCL will offtake the power at 132kV. UETCL will be responsible for the 132kV line bays and interconnection with the Hoima-Kinyara line.

1.2 Project Aims

- To provide adequate transmission infrastructure to meet the energy needs for the Uganda population for social and economic development especially western areas of Masindi, Hoima and the surrounding districts
- Facilitate evacuation of power from the planned co-generation at Kinyara Sugar Works
- Facilitate rural electrification and improve the standards of living for the population in project area.
- Provide a reliable alternate link/ring to the Albertine region

NEK Consults Ltd (herein referred to as the Consultant) was appointed by UETCL (herein referred to as the Client) to carry out the Consultancy Services for Environmental and Social Impact Assessments (ESIA) and preparation of the Resettlement Action Plan (RAP). This Report is specific to the preparation of the EISA based on the proposed project activities and their impacts on the project area and the Project Affected Persons (PAPs).

1.3 Project Area and location

The Hoima-Kinyara transmission Line traverses 2 districts, 4 sub-counties, 10 parishes and 25 villages across a distance of approx 50 km. Table 1.1 below presents a summary of the various administrative units crossed by the transmission line. Details of each sub-county and parish are presented in tables 1.2 and 1.3 below. Figure 1.2 presents a map of all villages traversed by the transmission line. The bold red line in Figure 1.1 and all other figures below presents the Hoima-Kinyara transmission line while the black one indicates the proposed future extension to Kafu.

Hoima Kafu Proposed Transmission line: - Administration

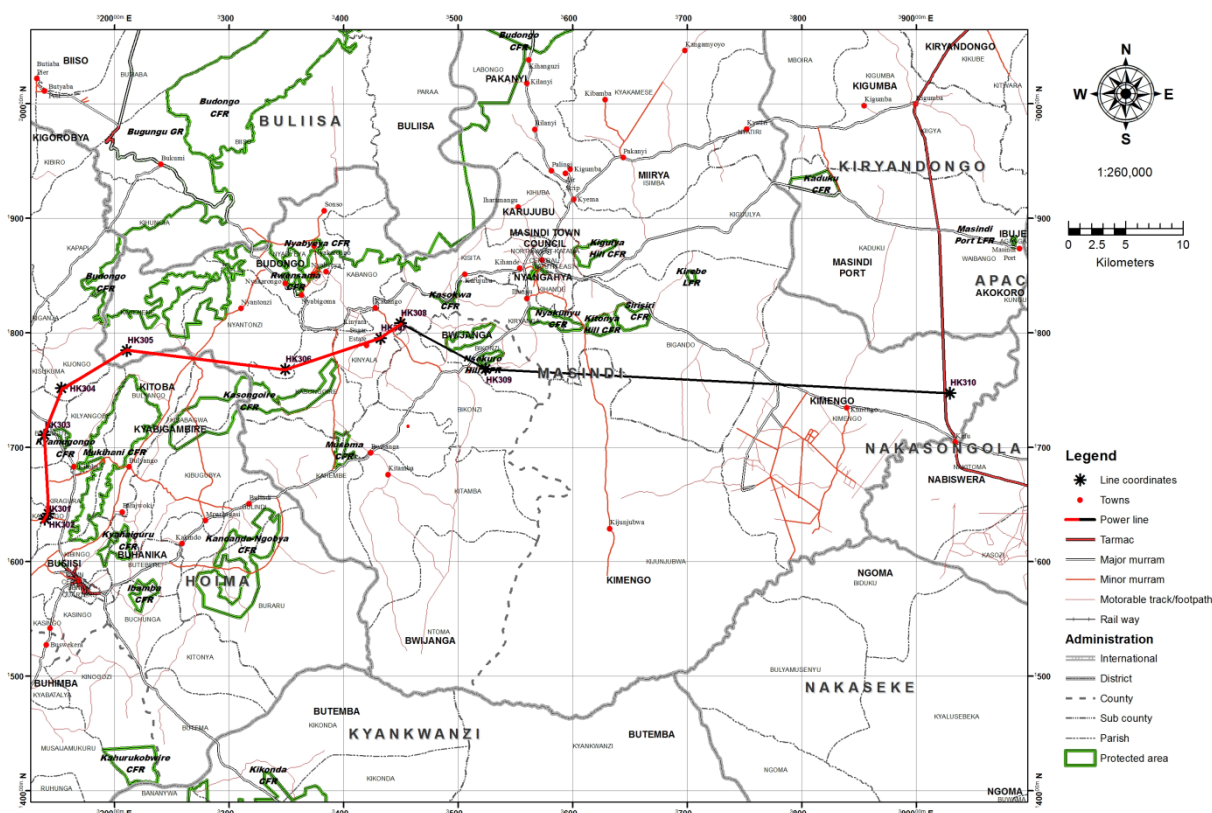


Figure 1.1: Map of Uganda (Hoima & Masindi districts) showing the overview of the project area

Table 1.1: Summary of administrative units crossed by the Hoima-Kinyara Transmission Line

| No | District | Sub-county | Parish | villages |
|----|--------------|------------|-----------|-----------|
| 1 | Hoima | 3 | 6 | 15 |
| 2 | Masindi | 1 | 4 | 10 |
| | Total | 4 | 10 | 25 |

The Tables 1.2 and 1.3 below present the administrative units crossed by the Transmission Line in the above mentioned districts.

Table 1.2: Administrative units crossed by the Transmission Line in Hoima District

| District | Sub-county | Parish | Village |
|----------|--------------|------------|-------------|
| Hoima | Kyabigambire | Kisabagwa | Bineneza |
| Hoima | Kitoba | Kiragura | Bulemwa |
| Hoima | Kitoba | Kiragura | Dwoli west |
| Hoima | Kitoba | Kiragura | Wagaisa |
| Hoima | Kitoba | Kiragura | Bwendero |
| Hoima | Kitoba | Birungu | Kiswero |
| Hoima | Kitoba | Birungu | Mpunda |
| Hoima | Kitoba | Birungu | Birungu |
| Hoima | Kitoba | Birungu | Kaburungi |
| Hoima | Kitoba | Kiryangobe | Kyabasengya |
| Hoima | Kitoba | Bulyango | Mbarara |
| Hoima | Kigorobyia | Kijongo | Kigomba |
| Hoima | Kigorobyia | Kijongo | Kyamucumbe |

Source: Field data

Table 1.3: Administrative units crossed by the Transmission Line in Masindi District

| District | Sub-county | Parish | Village |
|----------|------------|------------|---------------|
| Masindi | Budongo | Kinyara | Kingo campa |
| Masindi | Budongo | Kinyara | Main quarters |
| Masindi | Budongo | Kasongoire | Kiryamyongo |
| Masindi | Budongo | Kasongoire | Kisagura |
| Masindi | Budongo | Kasongoire | Waipachu |
| Masindi | Budongo | Nyantanzi | Kyamongi |
| Masindi | Budongo | Nyantanzi | Rwempisi |
| Masindi | Budongo | Nyantanzi | Kimanya ii |
| Masindi | Budongo | Nyantanzi | Bineneza |
| Masindi | Budongo | Kasenene | Onini |
| Masindi | Budongo | Kasenene | Enjinga |
| Masindi | Budongo | Kasenene | Abangi |

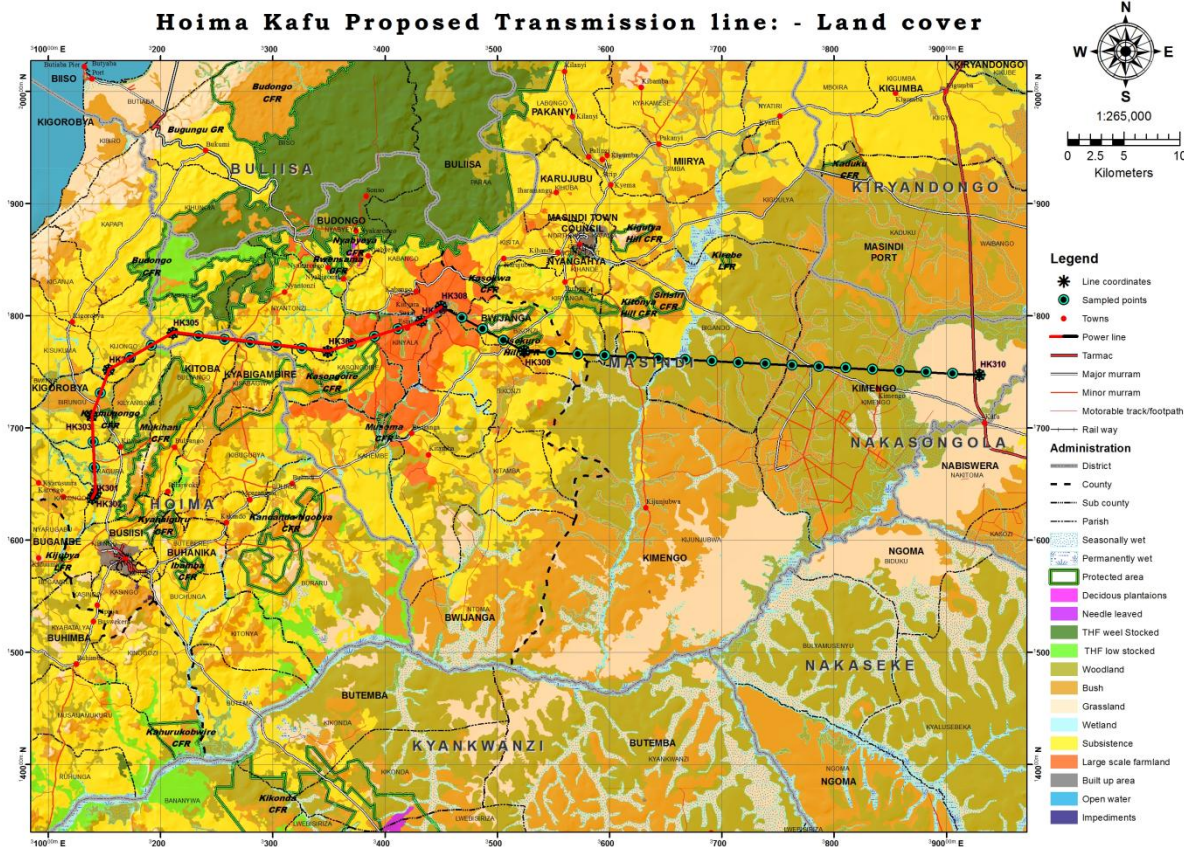


Figure 1.3: Land cover along the proposed Hoima-Kinyara Transmission line

1.4 Line route

1.4.1 Overview

In terms of land cover/use, the proposed Hoima-Kinyara transmission line can be divided into 2 major segments. These include HK 301-HK 306 and HK 306-HK 308.

1.4.2 Segment 1: Between HK 301-HK 306

This segment of the Hoima-Kinyara transmission line (HK 301-HK 306) is situated mainly in Hoima District (approx. 30km) and partly in Masindi district (approx. 6km). It cuts across Bujumbura, Kigorobya, Kyabigamire and Budongo sub-counties. The line starts from Bulemwa village in Bujumbura division of Hoima Municipality. It cuts across several villages including Bwendero, Dwoli west, Wagaisa, Kiswero, Mpunda, Kaburingi, Enjinga, Abangi, Onini, Mbarara, Bineneza up to Rwempisi in Budongo sub-county, Masindi district. In Homa district it goes through 5 parishes of Kiragura, Birungu, Kiryangobe, Bulyango and Kijongo. In Masindi district, its goes through Nyantozzi and Kasene in Budongo sub-county. Throughout these villages, the line passes through cultivated land mainly of cassava, maize, beans and bananas. Certain segments are under fallow and most of the land traversed is private. Throughout this segment of the line, the land use is majorly subsistence farming. There are no Central Forest Reserves crossed by the line. Farmers in the Masindi segment cultivate tobacco as a major cash crop especially in Enjinga, Abangi and Onini villages.

However as the line approaches angle point HK 306 after Bineneza village of Masindi district, via Kimanaya II up to Rwempisi village, the farming system is dominated by sugarcane plantations grown by outgrowers (private farmers) with intent to sell to Kinyara Sugar factory.

Hoima Kafu Proposed Transmission line (HK 301 to HK 306): - Land cover

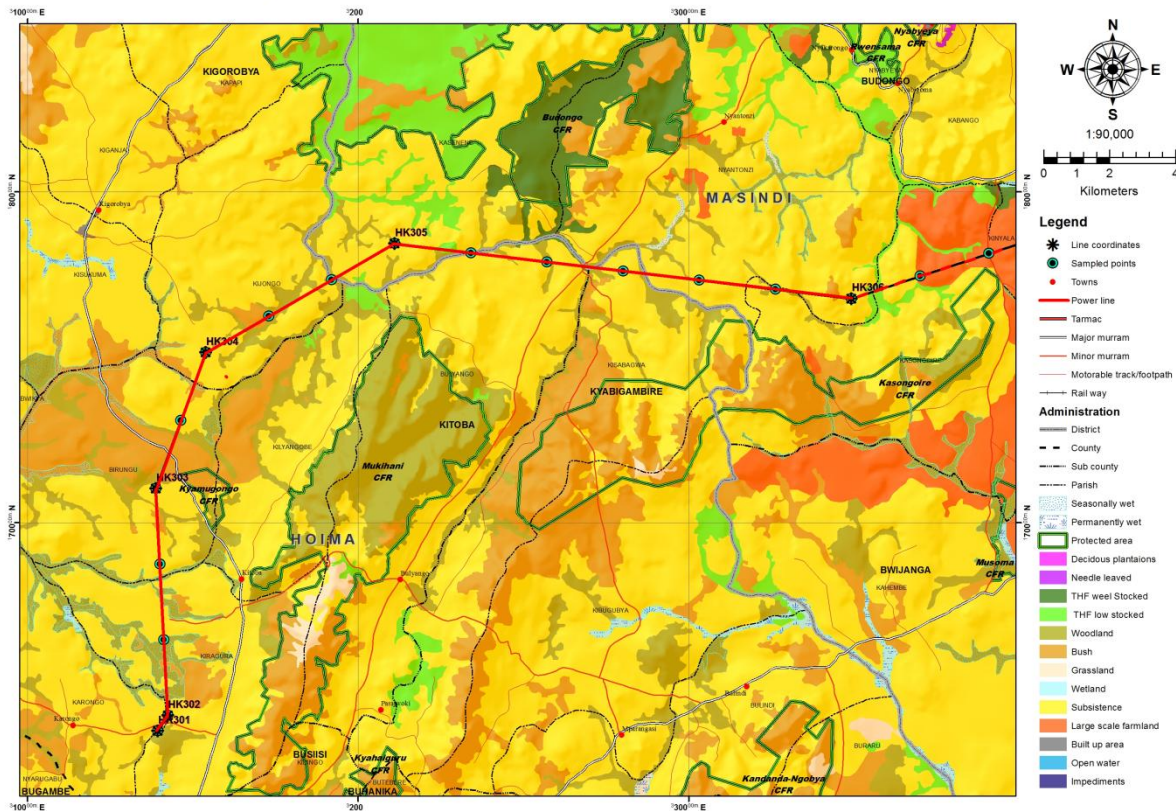


Figure 1.4: Hoima-Kinyara Transmission line showing the location of HK 301-HK 306

1.4.3 Segment 2: Between HK 306 and HK 309

This segment of the line is situated in Masindi district and in only Budongo subcounty. It cuts through Nyantozzi and Kinyara parishes via Kiryamyongo, Kyamongi, Kisagura, Kingo Campa and Main quarters villages. Although it is slightly similar to segment 1 in term of land use (farming activities), the difference is that the entire stretch is about 96% sugarcane plantation belonging mainly to Kinyara Sugar Works Ltd. Just like segment 1, no Central Forest Reserves are affected by the transmission line. This segment is about 11 km.

Hoima Kafu Proposed Transmission line (HK 306 to HK 309): - Land cover

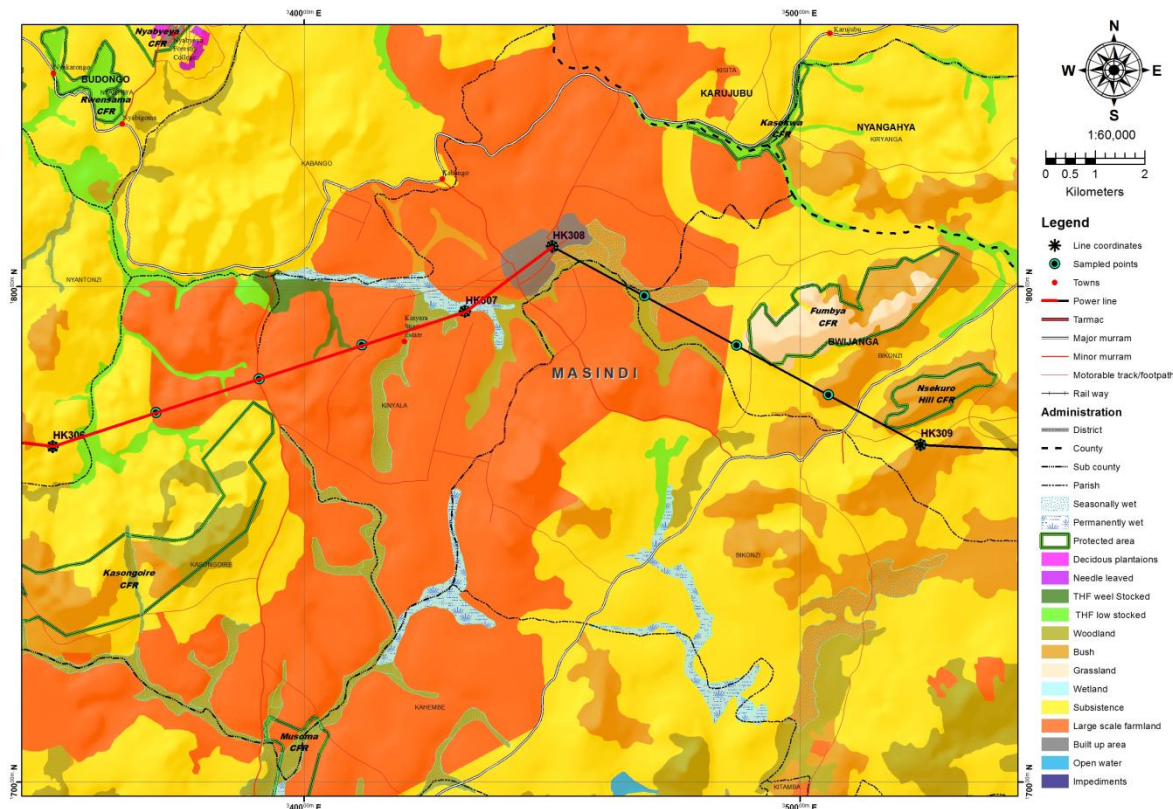


Figure 1.5: Hoima-Kinyara Transmission line showing the location of HK 306 and HK 308

Table 1.4: Summary of the Line route system for the Approx 50km Hoima-Kinyara 220KV Transmission Line

| Angle point | Coordinates | | Remarks | Village | Sub-county | District |
|-------------|-------------|-----------|-------------------------|---------------|------------|----------|
| | Eastings | Northings | | | | |
| HK301 | 313945 | 163694 | Corners/substation site | Bulemwa | Kiragura | Hoima |
| HK302 | 314249 | 164166 | Corner point | Bulemwa | Kiragura | Hoima |
| HK303 | 313891 | 171021 | Corner point | Mpunda | Birungu | Hoima |
| HK304 | 315399 | 175138 | Corner point | Kigomba | Kijongo | Hoima |
| HK305 | 321112 | 178430 | Corner point | Enjinga | Kasenene | Masindi |
| HK306 | 334934 | 176769 | Corner point | Rwempisi | Nyantanzi | Masindi |
| HK307 | 343251 | 179495 | Corner point | Kingo camp | Kinyara | Masindi |
| HK308 | 345013 | 180805 | Corner point | Main quarters | Kinyara | Masindi |

1.5 The Need for ESIA

1.5.1 Overview

Several activities will be undertaken during the construction of the 220kV Hoima-Kinyara approx 50km power line. The proposed construction of the planned transmission line will involve among others, the following activities:

- Acquisition of the right of way and way leaves for the power line;
- Survey and mapping of the routes which will involve detailed Line route survey (line profiling, soil studies, pegging and tower spotting).
- Construction of towers which will be done prior to the Installation of conductors. Tower foundations will vary according to the prevailing geology.
- Detailed engineering which will include completion of geotechnical and engineering surveys to provide detailed information needed for, placement/location of towers, design of foundations, design of towers, and the sub-station design.

The implementation of the above activities will result in a number of environmental impacts that require an Environmental Impact Assessment (ESIA). Furthermore, the third schedule of the National Environment Act Cap 153, lists projects to be considered for environmental impact assessment. In section 19 (10b), of the Act, there is a need for an ESIA for electrical infrastructure establishment including Transmission lines.

These activities will lead to social and environmental impacts, both negative and positive. Impacts such as restriction on land use, landscape impairment and visual amenity, habitat encroachment, water resource contamination, flora, fauna and social disruption are likely to arise from the implementation of the project.

These impacts require identification, quantification and mitigation before the project is implemented. Most importantly to make the project meet the World Bank requirements, people who are likely to be affected by the project need to be consulted so that their views and suggestions are incorporated in the project design as appropriate.

1.5.2 Purposes and Objectives of the ESIA

The purpose of conducting this ESIA was to;

- examine the existing environmental character of the proposed approx 50 km transmission line and its associated supporting facilities such as workers camps and access roads and the area likely to be affected by establishing the proposed infrastructure;
- investigate the likely impacts of the proposed project on the biophysical and social-economic environment of the affected landlords in the power corridor together with the villages, parishes, districts and surrounding areas of influence;
- Promote environmentally sound and sustainable development through the identification and implementation of appropriate enhancement and mitigation measures.
- Provide the public, NEMA, World Bank and Lead Agencies and other stakeholders with information for decision-making on the environmental consequences of proposed construction of the approx 50 km power line and the associated substations.

- To analyse and evaluate alternatives in light of the project area and its surrounding environment so as to improve project design and minimise social and environmental impacts of the project.

The specific objectives of the ESIA were to;

- Improve the environmental design of the project;
- Ensure that resources are used appropriately and efficiently;
- Identify appropriate measures for mitigating the potential negative impacts of the project; and
- Facilitate informed decision making, including setting the environmental terms and conditions for implementing the power line construction.

All these objectives shall be applied to both the Hoima-Kinyara transmission line as well as all substation works at Hoima that are identified as part of the scope of this work. This ESIA document therefore will govern both the construction of the proposed transmission line and the substation construction at both Hoima and Kinyara.

1.5.3 The ESIA Process

This ESIA report is designed to meet requirements of the GoU as well as the policies and guidelines of the World Bank, and the various International Financial Institutions (IFIs) that are expected to finance the construction of the 220KV Hoima-Kinyara transmission line.

The ESIA was conducted following the terms of reference (TORs) that were prepared by UETCL and approved by NEMA. The ESIA process involved review of existing literature on electricity transmission, ecological surveys along the proposed power corridor, social surveys and consultations with the relevant stakeholders including potentially affected persons.

This ESIA report is organized into 9 main chapters, namely;

- Chapter 1, this one provides the background to the power line project and the ESIA procedure
- Chapter 2 describes the proposed project, including its construction and operation activities;
- Chapter 3 describes the legislative, regulatory, and policy requirements for the project;
- Chapter 4 describes the baseline physical and biological environments in the power corridor and the project area;
- Chapter 5 describes the baseline socio-economic environments in the power corridor and the project area;
- Chapter 6 describes the public consultation and disclosure program undertaken for the project;
- Chapter 7 provides an analysis of project alternatives and the preferred project option;
- Chapter 8 provides impact identification, management and monitoring; and,
- Chapter 9 provides the framework for the Social and Environmental management and Action Plan to be mitigated and the likely impacts during project implementation
- Other chapters include conclusions and recommendations, References, and Appendices

2 PLANNED PROJECT ACTIVITIES

2.1 Transmission Line Design

2.1.1 Overview

According to the final studies and design, the transmission line will be constructed using lattice towers. The steel monopole will not be used since there are no major stretches of fragile ecosystems affected that would warrant the use of such structures.

2.1.2 Steel Lattice

The steel lattice towers are the commonly used type in Uganda and worldwide (Figure 1.1). Tension towers will be used at angle points, dead end points, at points where the local topography demands it, and at intervals of approximately 5 km along straight stretches of line. They are recognizable because the insulators are to be mounted horizontally. They will be designed to take horizontal and vertical loads and thus, are heavier than the other type of towers, which are known as suspension towers.



Plate 2.1: Foundation Excavation complete



Plate 2.2: Pillar positioning and anchoring



Plate 2.3: Pad and chimney Foundation for dry areas



Plate 2.4: Construction of a lattice tower along Kawanda-Mutundwe line



Plate 2.5: Raft foundation for a lattice tower in wetland areas

Concrete pad and chimney foundations shall be used for the towers though raft foundations may be required for some locations especially in wetlands if erecting towers in wetlands is deemed necessary. Climbing guards shall be installed on all towers in attempt to reduce vandalism and the risk to the public safety. The towers will be about 30-33 m in height, although the specific height of the towers may vary depending on the topography. The distance between towers will vary between 200-400 m. The way leaves for the 220kV line is 40 m. Where lines run in parallel, UETCL requires an additional 5 m of separation between the way leaves. No permanent structures, such as buildings will be allowed to remain or be constructed within the way leaves. Growth of crops will be permitted, but limited to a height of 1.8 m or less, thus most annual crops and low growing perennial crops such as tea will be permitted. It is important to note that before the project construction activities begin, there are important pre-construction activities such as materials sourcing e.g. stone products (aggregates etc); murrum materials which are vital for tower foundations works are all important sources of impacts on the project.

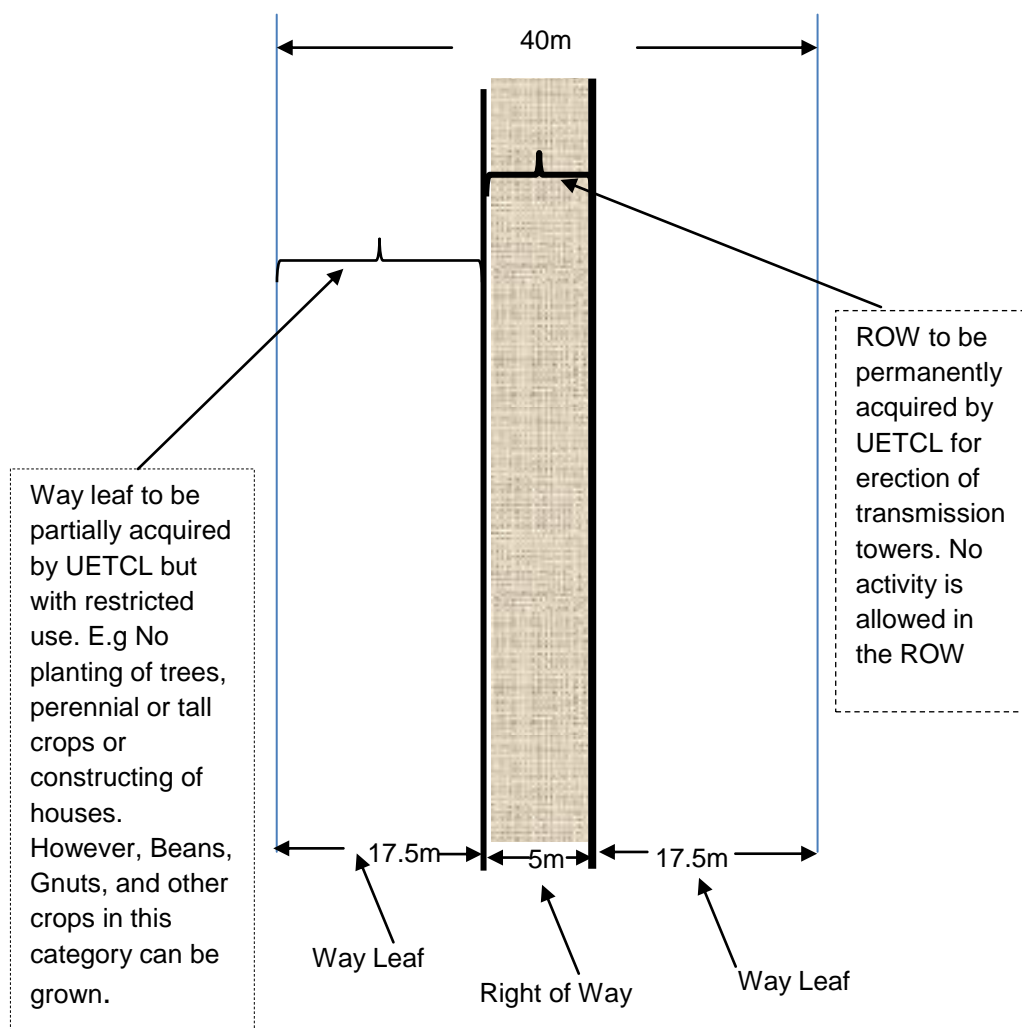


Figure 2.1: Sketch of the proposed 220kV Hoima-Kinyara Transmission corridor



Plate 2.6 A fully operational 220kV lattice tower

2.1.3 Steel Monopoles

2.1.3.1 Overview

Whereas the previous ESIA studies had suggested the likelihood of using steel monopoles, final studies and design indicate that the Hoima-Kinyara transmission line will be constructed using lattice towers only. The steel monopoles are normally proposed for power transmission through sections of the wetland areas and Central Forest Reserves which is not applicable in this case. The transmission conductors are normally supported on modular steel monopole structures ((Figure 2.2). The optimum recommended above-

ground pole height for a steel monopole is 22 m (providing about 3m buried in the foundation) to enable line spans of 250 m.

2.1.3.2 The Advantages of the Steel Monopoles

The monopole structures have advantage in that, they are not easily as susceptible to theft as the common lattice steel towers (pylons). In addition, the steel monopoles have a smaller footprint requirement (about 1 square meter) compared to lattice steel structures (5x5 meter). The steel monopoles provide for a safe clearance (ground to conductor) which is of an advantage because it is not easy for wildlife to grasp onto them easily.

The poles are designed to be as compact as possible and at the same time have adequate spacing between conductors to prevent mid-span clashing and allow maximum span lengths. Steel monopoles will normally need facilities for climbing both during construction and for maintenance. Climbing bolts are readily fitted during climbing and removed when not in use to avoid unauthorized personnel from climbing the towers.

Steel monopoles can be either buried directly in the ground (typically up to 20% of the height in the ground) or bolted on a concrete foundation. These would be grouted and cemented into place as required under the circumstances. Steel monopoles would normally be coated with an epoxy covering to eliminate corrosion at ground level. Steel poles can also be either (i) set on an excavated concrete foundation with protruding bolts to lock a lower welded steel flange into position, or (ii) set on a section of pole driven into the ground fitted with a steel flange plate welded to the top of the buried pole section.

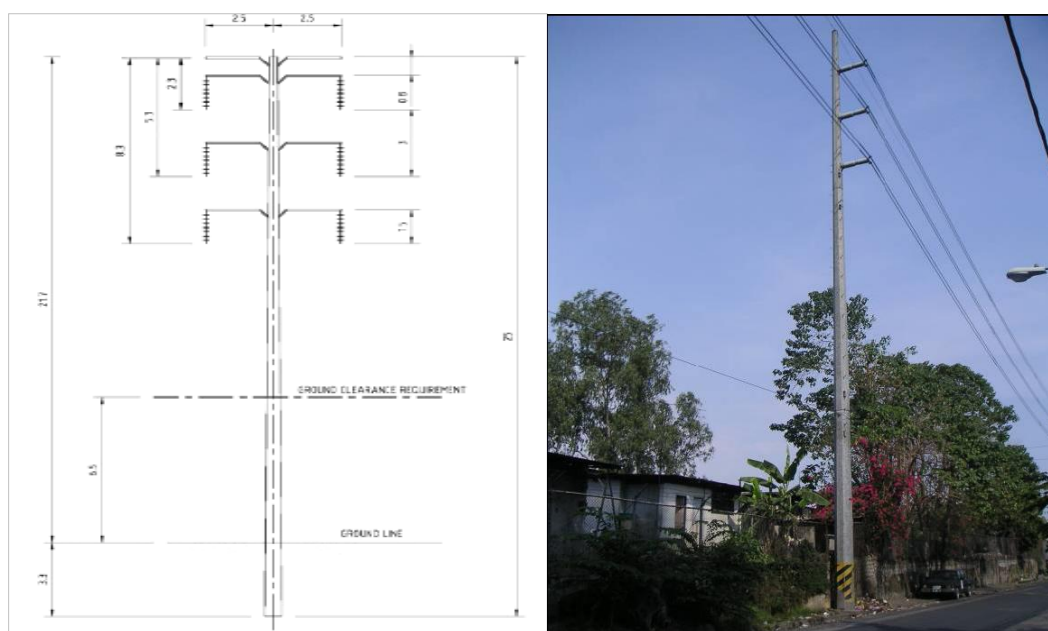


Figure 2.2: Illustration of Steel monopole

2.2 Project Construction and maintenance

During construction it will be necessary for the contractor to provide temporary road access for each pole structure on the line. However, there will be need to acquire permanent access which will be compensated after the values are established through the planned Resettlement Action Plan (RAP) study.

2.2.1 Substation Lay out

The substations designed for expansion will include the installation of double circuit transmission lines together with provision for onward connections to future grid substations. All substations are designed for a conventional outdoor, air-insulated 220 kV switchyard with a substation building housing 33 kV indoor metal enclosed switchgear and control, protection, communication and auxiliary equipment.



Plate 2.7: Sub Station works under construction at Kawanda and are likely to be similar to that at Kinyara and Hoima (Bulemwa village)

2.2.2 System Protection and Communication

a) Communication

New transmission line ground wires will be fitted with optical fibres to facilitate future development of a high speed SCADA and communications systems to the remote parts of the power system. The fibre optic system will be installed as the main communication link for data and speech transfer with a power line carrier based telecommunication link or microwave communication links installed as a backup. The fibre optic link, which has a much higher reliability, capacity and speed, shall facilitate remote control of substations from the load dispatch centre at Hoima or Kinyara Substation as well as provide for telephone communication.

b) Protection

To ensure overall line and power system integrity, protection systems shall be multi-functional microprocessor-controlled. Equipment protection provisions are given below for each category of equipment.

i) Line Bays

The overhead lines shall be protected with distance protection, auto reclosing with settable auto reclose cycles and fuse failure/trip monitoring features, with at least 3 independent settable zones as the main protection system. For trip signaling purposes, the distance protection relays at each end of a line will need to communicate with each other via the proposed fibre optic communication links between substations. The back-up line protection system shall consist of a non-directional over-current and a directional earth fault with two stages, one working with communication to remote device and the other independent.

ii) Transformers

In addition to gas detection, oil temperature, winding temperature, pressure release and oil level relay devices, transformers shall be equipped with current differential protection and restricted earth fault on two or more windings where applicable as main protection. As back-up protection, transformers shall have non-directional over-current protection and restricted earth fault on all windings.

iii) Busbars

Busbar protection shall consist of an intelligent low-impedance current differential scheme with back-up breaker failure protection.

2.2.3 Construction Activities

2.2.3.1 Over view

The construction activities are divided into two major components. These include

1. Procurement, Manufacturing and Transportation of raw materials for the transmission line;
2. Construction

Engineering and detailed design will commence upon award of the Contract. At this stage, minor adjustments may be made to the route to allow the Contractor to optimize the design including number of towers and span distances between towers, foundation designs, and number of heavy angle towers. The 220 kV Hoima-Kinyara transmission line will be Approx 50 km. The proposed construction of the planned transmission line will involve among others, the following activities, acquisition of the right of way for the power line; survey and mapping of the routes which will involve detailed Line route survey (line profiling, soil studies, pegging and tower spotting).

2.2.3.2 Construction of Transmission Lines

All the towers on the transmission line will be constructed prior to the installation of conductors. Tower foundations will vary according to the prevailing geology. For the majority of towers, pad and chimney foundations will be used, which will be excavated mechanically. By this method, a concrete pad will be constructed at the bottom of the excavation, and each foot of the tower erected within its own 'chimney' of steel reinforced concrete. After 48 hours, the form work will be removed, and the excavation will then be back-filled to original ground level and compacted.

In areas that may be prone to seasonal flooding and wetland areas, a raft foundation for transmission line towers will be used. The raft foundation is similar in concept to the pad and chimney foundation, except all four feet of each tower will be set on a single raft of concrete. If the tower is sited upon hard rock, a minimal foundation only is required. Any required excavation of rock will be carried out by drilling, barring, wedging or use of compressed air tools. It is not anticipated that blasting will be necessary. Upon delivery of the steelwork from the storage yard to the tower location, erection of the transmission towers will proceed using a winch and gin pole. Typically, the gin pole will be supported on one leg of the tower while the sections are bolted on. The gin pole will then be lifted to a higher attachment point to repeat the process.

Once the towers are erected, the conductors and shield wires will be strung and tensioned with specialized equipment to achieve the designed sag. Stringing is carried out first by hanging a pilot wire from each tower, connecting the pilot wires together, and then using the pilot wire to draw the conductor along the insulators. This is normally done in sections of six to seven km at a time. Guard structures will be used when installing the conductor over highways, main roads, waterways, railroads or any overhead power or communication lines to ensure the conductors do not cause a hazard to the public or the construction staff.

Compression dead-ends and splices will be used to secure the conductor to certain towers and join sections of conductor. After the conductors and shield wires are attached to the insulators or clipped to supports, the lines will be sagged to the proper tensions, and fitted with vibration dampers. A number of tests will be undertaken to ensure that the line performs to specification. During testing, line ground clearance will also be thoroughly checked. Once construction of the transmission line is completed, the soil along the right-of-way will be assessed for problems such as erosion or compaction, and corrective action will be taken as appropriate. Areas of bare soil will be seeded with native cover crops to stabilize the soil, reduce erosion and prevent invasion by undesirable plant species.

No chemical use (e.g. curing agents, plasticizers, cable oils or pesticides) will be required on site during construction. Curing of concrete foundations will be executed by means of wet jute bags. It is expected that the EPC Contractor will carry out the works simultaneously. The timing and schedule will be confirmed following selection of the EPC Contractor during civil works. There will be construction of the line structures, accessories and conductors.

2.2.3.3 Substation works

Detailed technical analysis and power system studies were carried out by an independent consultant (SMEC International Pty Ltd) and currently, the construction of the Hoima substation is in progress. It is important to note that there will be two substations of which one will be at Kinyara to tap the expected 30-50 megawatts of electricity that will be generated by Kinyara Sugar Ltd and the other at Bulemwa (Hoima Municipality) adjacent Biseruka Road. In this respect, the key activities will be Substation Extension at Hoima substation to accommodate Kinyara line and construction of a 220/132/33kV, 2X15/20MVA new Kinyara substation at Main quarters village.

2.2.3.4 Location considerations for substations

During selection of these substations sites, several factors will have to be considered which include;

- Sufficient land area will have to be required for installation of equipment with necessary clearances for electrical safety, and for access to maintain large apparatus such as transformers.
- The sites also have to have enough space for expansion due to load growth or planned transmission additions.
- Environmental effects such as drainage, noise and road traffic effects will have to be considered to be very low.
- Other factors to consider will be the need to calculate Grounding (earthing) and ground potential rise to protect passers-by during a short-circuit in the transmission system. And of course, the substation sites have to be reasonably central to the distribution area to be served.

2.2.3.5 Access Roads

To the extent feasible, access to the transmission line way leaves will be gained largely by use of existing public highways and access roads. Where the planned transmission line follows the existing transmission line, the existing access tracks within such way leaves will be used. Access to the new tower locations will be gained via a short 'spur' from such way leaves.

However, where there are no existing access tracks, an access track (single carriage) of approximately 5 m width will be cut through vegetation along the way leaves following the centerline of the way leaves. Clearance for housing and other buildings will be maintained by local adjustment of the route. Cut trees will be left for use by the local owners and in case they are of timber type and ready for harvest, the landlords will be given notice to harvest such trees before the start of project work.

To the extent feasible, in areas of the way leaves outside the access tracks, clearance of vegetation will be minimized. Only huge trees close to the line will be cleared i.e. those that can potentially damage the transmission line in case they fall off (typically large trees within 40 m of the transmission corridor). All clearance of vegetation will be done by hand and with no use of heavy machinery. Where soil is exposed in the process, the soil will be backfilled to reduce erosion concerns.

2.2.3.6 Equipment

The storage yard for the planned transmission line construction is expected to be the base for a fleet of standard vehicles characteristic of the anticipated project works. It is anticipated that the following vehicles and equipment will be required:

- One large crane for handling goods within the storage yard;
- Trucks of various sizes, some fitted with Hiab or Atlas-type hoists for unloading materials and equipment at each tower site;
- Mobile cranes;
- Tractors with winches;
- Cable stringing pullers;

- Pilot line winders;
- Cable stringing tensioners;
- Cable reel carriers;
- Truck/trailer mounted water tanks;
- 4-wheel drive vehicles;
- Compressors with pneumatic equipment such as rock drills; and
- Concrete mixers.

2.2.3.7 Labour Force

For the transmission line works, the number of staff required during construction could include; project managers, supervisors, and other technical categories and unskilled workers who can be recruited locally. Semi-skilled and unskilled workers will be trained by supervisors prior to the commencement of construction. Local people will be recruited as unskilled labourers from the villages traversed by the transmission line, where possible. On average, an estimated 100 people are anticipated to constitute the workforce on the power line. While in many cases the workers will arrive at the site on foot, some pool transport can be provided as necessary to bring workers to the way leaves. Expatriate staff will be housed in existing accommodation preferably, modest private houses which can be rented by the expatriates within the nearby towns. Construction workers' camp sites may be required for some staff and if this is deemed necessary, the client will guide the contractor on where to locate such facilities. The need for camps has been explained further in section 2.2.3.8 below. The entire recruitment process for the workers will be managed by the contractors in accordance with Uganda labour laws.

2.2.3.8 Construction Camps and Plant/Storage Depots

Overview

The proposed power line construction works will employ approximately 100 people. The contractor may choose to rent houses for such staff in Hoima town or any nearby trading centres where adequate accommodation can be obtained. The contractor can also choose to construct a workers camp for his staff. Basing on previous projects and or projects of similar nature such as road works, contractors normally construct workers camps to improve coordination and manage workers in one single location. Regardless of whether camps will be rented or constructed, the contractor has to ensure that accommodation for staff meet certain minimum conditions. Such camps are also used as storage deposits for equipment and certain raw materials including fuel. The number of camps and their sizes cannot not be established at this time as this will be determined by the contractor. Similarly, the residential capacity of each camp cannot be established although it is assumed that some casual labourers & staff may choose to commute from their homes depending on the nature of work they are employed to do.

It is recommended that camps and depots be located away from settled areas and on land of low community value. A reliable water supply should be required and it is important that this does not interfere with existing community water supplies. Retention bunds should be constructed around fuel and oil storage areas and all drainages and effluent should be treated before being discharged into the general environment.

Staffing and category of employees

The transmission line works will be undertaken by different and to some extent, specialized personnel to direct the set of activities. The personnel may be of the following categories among others:

- a. Electrical engineers
- b. Civil engineers;
- c. Surveyors;
- d. Materials engineers;
- e. Medical staffs who include a medical officer, nurses and medical support personnel like the cleaners. There will be occasional HIV/AIDS counsellors who will be on the site for awareness and Voluntary Counselling and Testing (VCT);
- f. Quarry equipment operators;
- g. Plant equipment operators;
- h. Drivers for trucks;
- i. Casual labourers;
- j. Site guards and others.

Components of the labour camp(s)

Generally, the labour camps are expected to comprise an administration block (with offices for various staff), accommodation block(s), a restaurant/dining hall, a parking yard, a storage yard or house for raw materials & equipment, a recreation site preferably sports centre, a field laboratory, a generator house, adequate toilet and bath rooms facilities for both sexes, security and gateman house, mechanical workshop (garage), fuelling point, septic tanks and a fence among others. The location, sizes, numbers and components of each camp will be determined by the contractor in consultation with UETCL.

2.2.3.9 Operation and Maintenance (O & M)

Once the transmission lines are constructed there is relatively little ongoing maintenance required. The key maintenance activities will involve surveillance of the condition of the transmission line and way leaves; emergency maintenance and repairs; and vegetation maintenance activities. Vehicular access to sections of the way leaves during O&M will be for supervision, monitoring and to carry out line repairs when needed. Outside agriculture areas or otherwise cleared areas, undesirable vegetation within the way leaves will be controlled by cutting. Herbicides will not be used in vegetation control. The vegetation clearance in the weaves will take place in accordance with UETCL's existing way leaves clearance programme which allows it to be done once annually.

As for the substations, their normal operations will generally be manned by 3-5 operational staff whose work will be to monitor and guard the installations. There will be modest public health facilities to serve such staff in the substations. The majority of traffic to and from the substation will be light vehicles, i.e. no regular loads greater than two tonnes, and should be no more than five vehicle movements per day. The transmission system will be almost free from noise, and emissions will be limited to a low hum. This will not be noticeable from within buildings outside the substation site. The substations will be nearly maintenance-free. Maintenance will be limited to annual cleaning and checking of circuit breaker connections, and will require a team of approximately five engineers and semi-skilled workers, for approximately one week. Regular/routine changing of transformer oil will not be required.

2.3 Decommissioning

It is anticipated that the transmission facilities will be continuously maintained and repaired, and will be operated for several decades. Because of its long useable life, the circumstances under which it might ultimately be decommissioned are difficult to foresee at this stage. However, the following decommissioning framework should be followed for the rest of the project components in the construction phase and later the transmission line at the end of its life span;

2.3.1 Construction phase decommissioning

Although the Project Owner (UETCL) has the overall responsibility of environmental compliance, at the project level the Contractor will be responsible for decommissioning at the end of the construction phase, and Construction phase decommissioning costs are to be included in the Construction Contract. Monitoring of decommissioning activities is to be conducted by the Supervising engineer.

Excavation sites (e.g. tower foundation sites and others)

Excavated material should be used for backfilling whenever possible. Top soils should be stored separately so that after backfilling the remainder can be spread within the line wayleave without compromising fertility of the area.

Sources of raw material sites (borrow pits & quarries)

A restoration plan for exhausted sites should be implemented immediately before opening up new ones. This means that decommissioning of exhausted sites in the project area will

be systematic and continuous during transmission line construction operations. Although backfilling of gullies and pits with tailings/cut to spoil will contribute to restoration of the landscape, this may not suffice and may still leave open ditches and gullies. Therefore, the contractor & developer need to make a deliberate move to re-grade and restore such pits to a state near to the original one. Re-grading will be done using a tractor grader where the overburden will be scooped and filled with the open ditches to create a leveled ground. After leveling of the open ditches, the contractor and developer should embark on tree planting on all the entire exhausted pits and the surrounding areas to stabilize the soil and reduce on the risk of ground failure. Such areas can be planted with trees of *Maesopsis eminii*, *Makemia lutea* or shrubs like *Tithonia* and *Vernonia amygdalina*. Trees like pines (*Pinus caribea* or *Pinus patula*) and eucalyptus can also be planted. Cultivation in this area should be stopped to give way for natural regeneration and stabilization of the ground.

Workers camps

The labour camps shall be demolished and all residues disposed in consultation with the local leaders. Wooden residues can be given to the community as firewood or for further construction. Doors, frames, windows, chairs, beds, iron sheets and all household accessories can be given or sold off to the workers and the community. The foundations must be excavated and concrete murrum used for road repairs with the project area. The camp area shall then be planted with trees and then left to natural regeneration, colonization and succession. All waste shall be removed and disposal in a safe way and according to applicable national legislation.

Temporary access roads

The major roads shall be left to facilitate community services depending on the prior agreements with the landlords. However some access roads and path ways established temporarily for either delivery of raw materials or to facilitate any of construction activities shall be decommissioned in consultation with the land lords. Such activities will include re-digging the roads using tractor graders, leveling and replanting with trees.

Contaminated land general site rehabilitation

Contaminated soils shall be removed and disposed at site authorized by NEMA for disposal of hazardous waste. All other unused materials (non-hazardous) such aggregates, hardcore, sand and other shall be removed from wayleaves and tower spots and either given to the community or disposed in consultation with the district authorities. Metals can be picked out and collected to be sold as scrap for recycling in Kampala or any other town with recycling plant or can be given to the community for re-use.

2.3.2 Operation phase decommissioning

Overview

Project facilities such as towers, cables and substation equipment have long lifespans. However, following their useful lifespans they may become less effective to continue operation, become difficult to repair or simply obsolete. In such an event, UETCL can deem it necessary to replace existing project equipment with new project equipment on the same site or abandon the line altogether.

The major components that will be required for decommissioning of Hoima-Kinyara transmission line after its lifespan include:

1. Transmission line components removal;
2. Electrical systems removal;
3. Structural foundations removal;
4. Re-vegetation.

General decommissioning guidelines are provided below. However, it is noteworthy that the specific requirements and approach for each activity may not be as exactly as it was before commissioning because the technologies and construction techniques available when the project will be decommissioned may have changed.

Transmission Line Components Removal

Assuming the transmission line has gone through its useful life and no longer serves a useful purpose for the area, it will be disassembled and removed. Initially the conductors will be de-energized, removed from the tower hangers, collected and be transported and disposed-off in accordance with relevant national waste management regulations and World Bank waste management guidelines applicable at the time of decommissioning. The lattice steel tower components would then be disassembled and removed, including grounding rods. Using lifting cranes, tower sections would be loaded in trucks and managed in accordance with relevant national waste management regulations and World Bank waste management guidelines applicable at the time of decommissioning.

Electrical Systems Removal

The disassembly and removal of substation equipment will essentially be the same as its installation, but in reverse order.

Structural Foundations Removal

The areas around the transmission line towers, along with any access roads that were necessary, will be reclaimed. When towers are removed from their foundations, the foundations need to be removed too so as to enable re-vegetation of the land. The concrete and steel in the foundations will be broken-up and removed to appropriate depth. All concrete and steel debris will be removed from the site and disposed-off as per National and World Bank guidelines. The excavated lattice tower foundations are to be backfilled with soil material.

Re-vegetation

A Revegetation Plan is to be prepared following the Project useful lifespan for revegetation of the Project footprint. This plan is to be prepared in collaboration with a botanical expert and the following elements are to be considered in its preparation:

- Best native plant species to be chosen for restoration;
- Best time for revegetation depending on species to plant and habitat to restore;
- Preferential habitats for endangered species.

Reclaimed areas will then be revegetated according to the plan.

3 POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

3.1 Introduction

This Chapter provides analysis of the policy, legal and institutional framework within which the proposed 220kV Hoima-Kinyara Approx 50km line is expected to operate. This Chapter covers relevant Ugandan and Development Partner policies, legislations and guidelines. Key Ugandan legislations governing the conduct of ESIA are the National Environmental Act (Cap 153) and the Environmental Impact Assessment Regulations (1998). The National Environmental Act established the National Environment Management Authority (NEMA), and entrusts it with responsibility to ensure compliance with the ESIA process in planning and execution of development projects.

3.2 Policy Framework

Policy framework is critical in planning and implementation of development projects. In regard to the ESIA of the 220kV Hoima-Kinyara Approx 50km Transmission Line, policies related to energy sector and environment are important. These policies can be looked at national or development partner levels.

3.2.1 National (Ugandan Policies)

3.2.1.1 Overview

The key Ugandan policies relevant to the proposed project include;

- The National Energy Policy, 2002
- The National Environment Management Policy, 1994
- Vision 2025
- The Uganda's Vision 2040
- The Land Policy
- National Gender Policy
- HIV/AIDS Policy
- Wetlands Policy
- National Development Plan II
- National Water Policy

3.2.1.2 The National Energy Policy, 2002

The goal of the energy sector in Uganda is to meet the energy needs of the Ugandan population for social and economic development in an environmentally sustainable manner. The National Energy Policy objectives include:

- establishing availability, potential and demand of the various energy resources in the country
- increasing access to modern and reliable energy services as a contribution to poverty eradication
- improving energy governance
- stimulating economic development; and
- managing energy related environmental impacts

In pursuit of these objectives, the Government of Uganda (GOU) will therefore ensure that environmental considerations are given priority by energy suppliers and users to protect

the environment and will put in place a monitoring mechanism to evaluate compliance with established environmental protection guidelines.

3.2.1.3 The National Environmental Management Policy, 1994

The National Environment Management Policy for Uganda (1994) is the cornerstone of the country's commitment to social and economic development that is environmentally sustainable and brings the benefits of a better life to all. The National Environment Management Policy gives the overall policy framework, which calls for sustainable development that maintains and enhances environmental quality and resources productivity to meet human needs of the present generation without compromising ability of future generations to meet their own needs.

The framework points out cross-sectoral guiding principles and strategies to achieve sustainable socio-economic development. The policy sets a guiding principle that Environmental Impact Assessment should be required for any activities, which cause significant impact on the environment.

The National Environment Management Policy 1994 supports and promotes the proposed 220kV Hoima-Kinyara Approx 50 km line activity under its energy sector objective, "To meet the national energy needs through increased use of hydropower..."

3.2.1.4 Vision 2025

Vision 2025 is a set of goals that the Uganda government set to achieve for the common good and economic development of the country by the year 2025. The goals cover political, economic, social, environmental, and cultural aspects of life.

Key in the environmental goal is the desire by Ugandans to have a sustainable socio-economic development matched with environmental quality and ecosystem resilience. In order to achieve a sustainable socio-economic development, government prioritized industrialization (value addition) as the key factor. To this end, Rural Electrification program was established to catalyze the socio-economic development of the rural areas of the country.

In order for the people of Hoima, Masindi and the surrounding districts of Uganda to benefit from the rural electrification program, reliable grid power is one of the key ingredients. The proposed 220kV Hoima-Kinyara power line will go a long way to meeting this mission.

4.2.1.5 Uganda's Vision 2040

In 'Vision 2040' Uganda Government set goals to achieve by the year 2040 ranging from political, economic, social, energy and environment. With respect to environmental goals, the government aspired to have sustainable social-economic development that ensures environmental quality and preservation of the ecosystem. Vision 2040 recognizes energy as a key driver of the economic development and notes that for Uganda to shift from a peasantry to an industrialized and urban society, it must be propelled by electricity as a form of modern energy. It estimates that Uganda will require 41,738 MW of electricity by year 2040 thus increasing its electricity consumption per capita to 3,668 kWh. Furthermore

access to the national grid must significantly increase to 80 percent. To this end, Uganda will fully exploit its hydropower potential by developing large and small Hydropower plants including Isimba, Ayago, Karuma, Kalagala and Murchison Bay besides other renewable sources of energy such as wind, solar and bio-gas. To reduce the energy deficit, in the long-term government would invest in development of nuclear power from uranium deposits in the country. Vision 2040 notes that to improve access and availability of electricity to the rural and urban areas, especially to economic zones and other productive areas, new transmission lines to evacuate power will be built and rural electrification programmes accelerated. Therefore the proposed Hoima-Kinyara is in line with aspirations of Vision 2040.

4.2.1.6 National Gender Policy (1997)

The overall goal of this policy is to mainstream gender concerns in the national development process in order to improve the social, legal/ civic, political, economic and cultural conditions of the people of Uganda, particularly women. Thus, in the context of the power sector, this policy aims to redress imbalances which arise from existing gender inequalities and promotes participation of both women and men in all stages of energy project cycle, equal access to, and control over significant economic resources and benefits.

This policy would especially apply to recruitment of transmission line construction labour where women should have equal opportunity as men for available jobs. This policy also requires provision of a working environment that is conducive to women as well as for men in addition to gender-disaggregated impacts and vulnerabilities.

This policy would especially apply to recruitment of construction labour for transmission line construction where women should have equal opportunity as men for available jobs. This policy also requires provision of a work environment that is safe and conducive to women as is for men considering gender-disaggregated differences and vulnerabilities. This, for example, applies to onsite worker's sanitation facilities where women should have separate facilities from men's.

4.2.1.7 HIV/AIDS Policy 1992

In Uganda, current effort to combat HIV/AIDS is characterized by a policy of openness by Government and this has, to a large extent, been emulated by civil society, political and social institutions, and workplaces. HIV/AIDS is recognized by Ministry of Health as a considerable risk in construction of infrastructure projects and it (together with the ministry responsible for labour) encourages employers to develop in-house HIV/AIDS policies, provide awareness and prevention measures to workers and avoid discriminating against workers or living with or affected by HIV/AIDS. To ensure HIV/AIDS is addressed in the workplace, the policy encourages employee awareness and education on HIV/AIDS. To protect the infected and affected persons from discrimination, employers are required to keep personal medical records confidential. Employees living with, or affected by, HIV infection and AIDS, and those who have any related concerns, are encouraged to contact any confidant within the organization to discuss their concerns and obtain information. It is anticipated that during line construction, there may be an influx of people into the project area possibly resulting into sexual fraternization and a risk of HIV/AIDS spread. These

requirements are expected to be fulfilled by the transmission line construction contractors or their subcontractors.

The requirements of this policy are expected to be fulfilled by the Hoima-Kinyara transmission line construction contractors or their subcontractors, especially in regard to having an in-house HIV Policy, worker sensitization and provision of free condoms. This policy is relevant to the project if implementation of proposed transmission line construction leads to in-migration into the project area by people seeking construction jobs and indulging in prostitution or irresponsible sexual fraternization associated with HIV/AIDS risk.

4.2.1.8 Wetlands Policy, 1995

The national policy on conservation and management of wetlands aims at curtailing loss of these resources and ensuring that their benefits are equitably distributed to all people of Uganda. The wetlands policy calls for:

- Sustainable use to ensure that benefits of wetlands are maintained for the foreseeable future;
- Environmentally sound management of wetlands to ensure that other aspects of the environment are not adversely affected;
- Equitable distribution of wetland benefits;
- Application of environmental impact assessment procedures on all activities to be carried out in a wetland to ensure that wetland development is well planned and managed.

In order to operationalize the policy and to provide a legal framework for its implementation, wetland related issues have been adequately incorporated into the National Environmental Act, Cap 153. This policy is relevant to the Project since there exists riverine swamps within the project area especially those areas crossed by Twanga, Waki and Nyabikonko streams. However, the impact on wetland is expected to be minimum since no tower will be located in wetlands.

4.2.1.9 National Development Plan II

NDP II is the second in a series of five-year plans tailored to achieving Uganda Vision 2040, whose goal is to transform Uganda into an upper middle income country. NDP II was launched by the President of Uganda in June 2015. NDP II is anchored on five priority areas - agriculture, tourism, infrastructure, mineral, oil and gas and human capital development. Under NDPII, Government plans to invest in the necessary Infrastructure to facilitate the exploitation of the abundant renewable energy sources including hydropower, geothermal, and nuclear, so as to increase power generation capacity from 850MW in 2013 to 2,500MW in 2020 and prepare for achievement of the required 41,738 Mega Watts by year 2040. Also, the country targets to increase per capita electricity consumption from 80 Kwh to 588kWh by 2020 and 3,668 kWh by 2040. As significant as power generation is the extension of the transmission networks into a national grid in line with the regional agreements. The plan mentions several hydropower plants in the pipeline and new grid network to provide alternative routes to make power supply more reliable. Therefore the proposed Hoima-Kinyara transmission line is in line with the five major priority areas of the NDPII.

4.2.1.10 Land Policy 2012

The Uganda's National Land Policy was approved in February 2013 by Cabinet as the framework for development and use of Uganda's land resources for the next decade. The Policy has two major objectives: (1) to re-orient the land sector in national development by articulating management co-ordination between the land sector and other productive sectors in the economy; and (2) enhancing the contribution of the land sector to the social and economic development of the country.

The key issues outlined in the policy include:

- The creation of a customary register to facilitate registration of customary rights;
- Strengthening women's land rights through enactment of provisions promoting the regime of marital property law and joint ownership of land and property for married parties;
- The need to overhaul the existing institutional framework for land administration and land management through decentralization of land services by bringing land services nearer to the populace to make them more efficient, cost-effective and accessible;
- The re-institution of administrative Land Tribunals to handle escalating land conflicts and land evictions; and
- The legal recognition of the dual operation of both customary system and statutory system in land rights administration, land dispute resolution and land management by empowering customary authorities to perform their functions.

Therefore all pre and post construction activities undertaken by either UETCL or the contractor or both shall be coordinated with district local governments of Hoima and Masindi taking into all interpretations provided for by the Land Policy.

4.2.1.11 National water policy 1999

The goal of this policy is to provide guidance on development and management of the water resources of Uganda in an integrated and sustainable manner, so as to secure and provide water of adequate quantity and quality for all social and economic needs, with full participation of all stakeholders and mindful of the needs of future generations. The policy aims to:

- Promote rational use of water.
- Control pollution and promote the safe storage, treatment and disposal of waste, which could pollute water and impact public health.

This policy is relevant to the Project since it requires rational use of water from streams in the project area and avoidance of contamination of water course.

3.2.2 Development Partner Policies

3.2.2.1 Overview

Development partners or their agencies fund most development projects in developing countries, Uganda inclusive. Most development partners require either the World Bank (WB) or African Development Bank (AfDB) guidelines as a basis for funding development projects. Therefore, the 220kV Hoima-Kinyara power line diversion ESIA addresses the WB social and environmental safeguard policies. The following World Bank operational guidelines and procedures are relevant to the 220kV Hoima-Kinyara power line.

3.2.2.2 World Bank Operational Policies

The Operational Policies provide basis on which the World Bank screens proposed projects to determine the appropriate extent and type of EA to be undertaken. The Bank classifies proposed projects as Class A, B, C or F1 depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts. The project sponsor is responsible for any environmental due diligence required by the Safeguard Policies.

There are ten 'Safeguard Policies' that the Bank regards as critical to ensuring identification, minimization and mitigation of potential social and environmental impacts of development projects, they are;

- OP 4.01- Environmental Assessment (EA)
- OP 4.11 - Physical Cultural Resources
- OP 7.60 - Disputed Areas
- OP 4.36 - Forests
- OP 4.10 - Indigenous Peoples
- OP 7.50 - International Waterways
- OP 4.12 - Involuntary Resettlement
- OP 4.04 - Natural Habitats
- OP 4.09 - Pest Management and,
- OP 4.37 - Safety of Dams

The discussion below presents the Safeguard Policies relevant to the 220kV Hoima-Kinyara power line. Other than the policy on ESIA, Involuntary Resettlement, Physical Cultural Property, Natural Habitats and Forests, the other WB policies are not being triggered by the proposed 220kV Hoima-Kinyara power line.

O.P. 4.01, Environmental Assessment

This is the umbrella policy for the World Bank's safeguard policies and requires an environmental impact assessment carried out before implementation of category A projects. Category A projects are ones that are likely to have significant adverse impacts and irreversible environmental impacts. Conversely, category B projects are those with limited impacts that can be mitigated, and require an initial environmental evaluation or project appraisal document with an EMP covering all negative impacts. In this respect, the Hoima-Kinyara transmission line falls under category B since its impacts on the human populations and other important areas including wetlands, forests and other natural habitats is less adverse than those of category A. For example, the line does not impact any major wetlands except those in the periphery of some streams. Since all streams have a confined wet width of not more than 120 meters (table 4.13), adjusting tower spots and spanning across these streams will ensure no tower is located in any wetland. The line will physically displace only 3 homesteads and the rest of physical displacement will involve some few structures which are not necessarily homesteads. The line does not affect any Central Forest Reserves and other than graves (about 54 in number,), there are no other physical cultural features affected.

EA is a process whose breadth, depth, and type of analysis depend on the nature, scale, and potential environmental impact of the proposed project. EA evaluates a project's potential environmental risks and impacts in its area of influence; examines project alternatives; identifies ways of improving project selection, siting, planning, design, and implementation by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts; and includes the process of mitigating and managing adverse environmental impacts throughout project implementation. The Bank favors preventive measures over mitigatory or compensatory measures, whenever feasible.

The Bank requires environmental assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making. This ESIA has been prepared in accordance with the O.P. 4.01 operation manual of the World Bank.

O.P. 4.12, Involuntary Resettlement

This is the guiding policy when a project results in involuntary resettlement. OP 4.12 describes the detail and elements that a resettlement plan should include. These include objectives, potential impacts, socio economic studies, legal and institutional framework, eligibility, valuation and compensation of losses, resettlement measures, relocation planning, community participation, and grievance redress procedures, implementation schedule, costs and budgets, and monitoring and evaluation. This report conforms to the WB policy requirement on contents and structure. Elaborated below are sections relevant to the 220kV Hoima-Kinyara power line.

WB OP 4.12.(6a) requires institution of measures to ensure that displaced persons are (i) informed about their options and rights, (ii) consulted on, offered choices and provided with technically and economically feasible resettlement alternatives, and (iii) provided prompt and effective compensation at full replacement costs. *This was taken care of already by a RAP which was carried out in 2013 and updated in 2016. A RAP implementation consultant is being procured by UETCL to address all concerns raised by the PAPs in Annex 1.*

WB OP 4.12 (8) requires that particular attention be paid to the needs of vulnerable groups among those displaced such as those below the poverty line, landless, elderly; women and children and indigenous peoples and ethnic minorities. *The number, names and category of all vulnerable people was documented in the RAP and it is through this documentation that they will be given special attention when compensation of all PAPs commences.*

WB.OP 4.12 (13 a) stipulates that any displaced persons and their communities and any host communities receiving them should be provided with timely and relevant information, consulted on resettlement options and offered opportunities to participate in planning, implementing and monitoring resettlement. *During the EISA and RAP update, about 85% of all PAPs were re-consulted and all their concerns have been documented. All PAPs are interested in being compensated promptly although there has been almost a 3 years delay which has resulted into loss of incomes and livelihoods. Consultation with the majority of*

PAPs indicates that most of them prefer cash compensation to resettlement. UETCL is procuring a RAP implementation consultant to expedite the compensation process and ensure all concerns raised by all PAPs are adequately addressed.

WB OP 4.12 (12a) states that payment of cash compensation for lost assets may be appropriate where livelihoods are land-based but the land taken for the project is a small fraction (less than 20%) of the affected asset and the residual is economically viable.

WB OP 4.12 Para (6 b & c) state that in case of physical relocation, displaced persons are provided with;

- assistance (such as moving allowances) during relocation; and
- residential housing, or housing sites, or as required, agricultural sites for which a combination of productive potential, location advantage, and other factors are equivalent to the advantages of the old site
- support after displacement, for a transition period, based on a reasonable estimate of the time likely to be needed to restore their livelihood and standards of living
- development assistance in addition to compensation measures such as land preparation, credit facilities, training, or job opportunities.

WB OP 4.12 Para 13 (a) requires that appropriate and accessible grievance mechanisms are established to sort out any issues arising. *All communities have been sensitized and have a tentative committee that will work with local leaders, RAP implementation consultant, NGOs and UETCL to constitute a Grievance Redress Committee(GRC). A GRC has been proposed in this ESIA and chapter 9 (section 9.12) discusses the composition of GRC.* These frameworks will be relevant in mitigating adverse socio-economic impacts associated with 220kV Hoima-Kinyara power line project.

O.P 4.11, Physical Cultural Resources

This policy gives guidelines for the preservation of cultural property and seeks to avoid their elimination, otherwise mitigation activities be undertaken to limit the adverse impacts as far as possible.

Whereas there are no serious cultural properties along the transmission line apart from graves, chance findings could be encountered during the construction of the proposed steel structure transmission line. Detailed in the EMP are measures to mitigate impacts on cultural properties. For example RAP studies have already been conducted and all graves in the transmission corridor were enumerated as structures and all affected PAPs will be compensated for such structures to ensure that they are relocated in accordance with cultural norms of the affected people and society. A Chance Find Procedure has been suggested in section 9.11. Details of these and other World Bank guidelines can be obtained from their site, www.worldbank.org.

3.2.2.3 The World Bank Group Environmental, Health and Safety Guidelines for Electric Power Transmission and Distribution

The EHS Guidelines for Electric Power Transmission and Distribution include information relevant to power transmission between a generation facility and a substation located

within an electricity grid, in addition to power distribution from a substation to consumers located in residential, commercial, and industrial areas. The document lists environmental issues, occupational health and safety concerns and community health and safety impacts which are associated with transmission lines. All the issues presented in these guidelines were either taken care of at design stage or are discussed and mitigated as part of this report. For example air craft safety and navigation as part of the community health and safety concerns was taken care of at feasibility study stage by ensuring that the line was routed away from airfields. The line was also designed to avoid Central Forest Reserves, congested areas and other sensitive habitats (wetlands and other protected areas) as a strategy of ensuring that adverse impacts are eliminated at design stage. The applicable issues are mainly terrestrial and habitat alteration, electro magnetic fields, hazardous materials, concerns due to live powerlines, working at height, exposure to chemicals, visual amenity and noise which are already captured in this ESIA report.

OP 4.04 - Natural Habitats

This policy seeks to ensure that World Bank-supported infrastructure and other development projects take into account the conservation of biodiversity, as well as the numerous environmental services and products which natural habitats provide to human society. The policy strictly limits the circumstances under which any Bank-supported project can damage natural habitats (land and water areas where most of the native plant and animal species are still present). Specifically, the policy prohibits Bank support for projects which would lead to the significant loss or degradation of any Critical Natural Habitats, whose definition includes those natural habitats which are either:

- legally protected,
- officially proposed for protection, or
- unprotected but of known high conservation value

Although the Hoima-Kinyara transmission line may be considered to trigger OP 4.04 considering the fact that the line cut across riverine forests and other natural habitats which are belts of various plant species, this impact is regarded as minor because the affected habitats will not be used as hosts for transmission towers. The width of such belts is less than 120 meters and spanning across such habitats has been recommended. Besides, none of these habitats are either legally protected or officially proposed for protection. None of these habitats are known to be of high conservation value except that they protect some streams from sedimentation. Basing on the studies that were carried out, ecological history of the project area including the transmission route, the project area is a disturbed ecosystem (farmlands) with low bird populations. Although the power line is close to Budongo Forest Reserve (about 2.5km), it is not necessary to undertake further stringent mitigation measures such as installing visual deterrents because the risk of bird electrocution is very low. However, the interaction of the power line and the well-being of birds and bats shall continuously be monitored by UETCL to assess how the few birds in the area will be affected.

OP 4.36 – Forests

The Bank's current forests policy aims to reduce deforestation, enhance the environmental contribution of forested areas, promote afforestation, reduce poverty, and encourage economic development. According to the Bank, a forest is an area of land of not less than 1.0 hectare (about 2.47 acres) with tree crown cover (or equivalent stocking level) of more

than 10% that have trees with the potential to reach a minimum height of 2 meters at maturity. A forest may consist of either closed forest formations, where trees of various stories and undergrowth cover a high proportion of the ground, or open forest. The definition includes forests dedicated to forest production, protection, multiple uses, or conservation, whether formally recognized or not.

Recognising that this policy needed to be taken care of, the strategy was to design a transmission route which does not affect any legally protected forest reserves. In this regard, the line avoided all Central Forest Reserves in the project area such as Kasongire, Budongo, Mukihani and Kyamugongo. Never the less, some private bush lands are affected in accordance with the Bank's definition of forests above. Since this policy is supposed to be read in conjunction with the Natural Habitat's policy, it is important to recognize that OP 4.36 has been triggered by the Hoima-Kinyara transmission line although the proposed mitigation measures are adequate to address impacts on forests. Such measures include;

- Spanning across natural belts.
- Compensating all forest owners whose trees have been affected by the line.
- UETCL to supporting tree planting programmes at both district and sub-county level.
- Movement of equipment (vehicles, contractors and the entire construction crew) to follow designated path ways or agreed upon access roads. This will avoid unintended damages to vegetation and animal habitats.
- Project to be monitored by district and local authorities to ensure that when unplanned destruction of vegetation occurs during project implementation, UETCL is held accountable and will have to compensate for the loss appropriately.
- Contractor to work with National Forestry Authority field staff to map out forest zones or project area segments with invasive species and to take up precautionary measures to avoid spreading the species to other zones.
- UETCL and the contractor to guard against fires arising from campsites and other construction activities.

3.3 Legal Frame Work

3.3.1 Overview

There are a number of legislative and regulatory instruments in Uganda that address environmental management in both general and specific terms. Among these is the 1995 Constitution of the Republic of Uganda and a number of Acts. The Acts and Regulations of particular relevance to the proposed 220kV Hoima-Kinyara power line are;

- National Environment Act CAP 153
- The constitution of the Republic of Uganda, 1995
- Environmental Impact Assessment Regulations, 1998
- The National Environment (Control and Certification of Environmental Practitioners) Regulations, 2001
- The National Environment (Standards for Discharge of Effluent into Water or on Land) Regulations, 1999
- The National Environment (Waste Management) Regulations, 1999
- The National Environment (Wetlands, River Banks and Lake Shores Management) Regulations, 2001

- The Land Act, 1998
- The Electricity Act, 1999
- The Uganda Wildlife Act, 2000
- The Historical and Monuments Act, 1967
- The Water Act, Cap 152

Other regulations that deem consideration, depending on the particular project and project location include;

- The National Environment (Delegation of Waste Discharge Functions) Instrument, 1999
- The National Environment (Minimum Standards for Management of Soil Quality) Regulations, 2001
- The National Environment (Noise Standards and Control) Regulations, 2003
- The National Environment (Management of Ozone Depleting Substances and Products) Regulations, 2001
- Worker's Compensation Act
- National Forestry and Tree Planting Act

3.3.2 The Constitution of the Republic of Uganda, 1995

The most important instrument and supreme law in environment management and legislation in Uganda is the 1995 Constitution of the Republic of Uganda. The Constitution provides for the right of every Ugandan to a clean and healthy environment. The Constitution puts the duty to maintain a clean and healthy environment on the Parliament of the Republic of Uganda. It stipulates that Parliament shall provide measures intended to protect the environment from abuse, pollution and degradation.

The 1995 Constitution provides for:

- matters pertaining to management of land, natural resources and the environment, and the sustainable development thereof (Objective XXVII), including energy resources;
- the right of every Ugandan to a clean and healthy environment (Article 39);
- the responsibility of government to enact laws that protect and preserve the environment from degradation and to hold in trust for the people of Uganda such natural assets as lakes, rivers, wetlands, forest reserves, game reserves and national parks [Article 237(2)]; and
- the right of every Ugandan to fair and adequate compensation in instances of the compulsory acquisition of land.

3.3.3 National Environmental Act, CAP 153

The main law relating to the protection of the environment in Uganda is the National Environment Act (NEA), Cap 153. This Act states the duty to protect and preserve the environment and provides for the establishment of measures to manage the environment for sustainable development and promotion of environmental awareness. The NEMA was created under the NEA and is mandated with the responsibility to oversee, coordinate and supervise environmental management in Uganda, including the review of environmental impact assessments carried out for various projects.

The Act outlines the principles of environmental management and the rights to a decent environment. Furthermore, the Act sets out principles for:

- institutional arrangements
- environmental planning
- environmental regulations
- environmental standards
- environmental restoration orders and easements
- records, inspection and analysis
- financial provisions
- offences
- judicial proceedings and
- international obligations

The third schedule of the Act lists projects requiring environmental impact assessment. The schedule specifies that any development that involves electrical infrastructure including (electrical generation stations; electrical transmission lines; electrical substations and pumped-storage schemes) must be subjected to an Environmental Impact Assessment. It is therefore on the above basis that an ESIA for the 220kV Hoima-Kinyara power line has been conducted.

3.3.4 The Environmental Impact Assessment Regulations, 1998

Environmental Impact Assessment Regulations, 1998 provide for implementation of the NEA. These Regulations require that all projects listed in the third schedule of the NEA should be subjected to an impact assessment before implementation. Electrical infrastructure is identified as a Category III listed activity requiring a full ESIA. The ESIA process goes through three major stages: Screening, the ESIA study, and decision-making. The Environmental Impact Assessment Regulations, 1998 were majorly the basis for conducting the Hoima-Kinyara ESIA.

3.3.5 The National Environment (Control and certification of Environmental Practitioners) Regulations, 2001

Regulation 16(1) states that no person shall conduct an ESIA or carry out any activity relating to conduct of an environmental impact study or environmental audit as provided under the Act, unless that person has been duly certified and registered in accordance with these regulations. These Regulations apply to all persons certified and registered under the regulations as Environmental Practitioners, and corporate persons and partnerships registered under the regulations to co-ordinate individually registered persons to conduct environmental impact assessments or environmental audits. They also deal with those who wish to conduct ESIA's in Uganda.

The regulations set out the procedures of the application for certification and the code of practice and professional ethics. The practitioners have to pay prescribed fees (Fourth Schedule) before they can be fully registered.

This is a relevant provision since meant to professionalize the ESIA practice in the country so that the findings of an ESIA study are authoritatively used in decision-making. This ESIA report has been prepared by a NEMA ESIA Registered Team Leader and other 3 Registered and Certified Environmental Practitioners.

3.3.6 The National Environmental (Standards for Discharge of Effluent into Water or on Land Regulations), 1999

These regulations provide standards for effluent discharge. Section 6 (2) detail maximum permissible limits for 54 regulated contaminants, which must not be exceeded before effluent is discharged into water or on land. The materials used in the re-construction of the transmission line may have some of the regulated contaminants in which case the provisions become relevant in designing the EMP.

3.3.7 The National Environment (Waste Management) regulations, 1999

These regulations provide for the management of waste. Regulation 4 describes the sorting and disposal of domestic waste and provides that the generator of domestic waste may, without a license issued under these regulations, dispose non-hazardous waste in an environmentally sound manner in accordance with by-laws made by a competent local authority.

The Regulations also directly mention the application of cleaner production as a means to minimize production of wastes. Regulation 5 (1) states that a person who owns or controls a facility or premises, which generate waste, shall minimize the waste generated by adopting cleaner production methods. These include the improvement of production processes through;

- Conserving raw materials and energy
- Eliminating the use of toxic raw materials
- Reducing toxic emissions and wastes
- Monitoring the product cycle from beginning to end by:
 - identifying and eliminating potential negative impacts of the product
 - enabling the recovery and re-use of the product where possible
 - reclamation and recycling and
 - incorporating environmental concerns in the design and disposal of a product

These provisions apply to the proposed 220kV Hoima-Kinyara power line diversion/transmission line. During the construction process, domestic waste, construction material waste and those related will be generated. Management of this waste should comply with provisions of this regulatory standard.

3.3.8 The National Environment (Wet Land, River Bank and Lake shores Management), Regulations 2001

These regulations provide for the management of wetlands, river banks and lake shores. Regulation 17 (1) states every landowner, occupier or user who is adjacent or contiguous with a wetland shall have a duty to prevent the degradation or destruction of the wetland and shall maintain the ecological and other functions of the wetland.

Section 12 (1) of the regulations provides that 'subject to the provisions of these regulations, a person shall not carry out any activity in a wetland without a permit issued by the Executive Director (of NEMA).

Section 23 (1) (a) of the regulations require a person who intends to 'use, erect, reconstruct, place, alter, extend, remove or demolish any structure or part of any structure in, under, or over the river bank or lake shore;' to make an application to the NEMA for Environment Impact Assessment before any such activity takes place.

The wetlands, river banks and lake shores regulations in section 34 provide that ‘a developer desiring to conduct a project which may have a significant impact on a wetland, river bank or lake shore, shall be required to carry out an environmental impact assessment in accordance with sections 20, 21 and 22 of the National Environment Act’.

The proposed 220kV Hoima-Kinyara power line diversion will traverse twanga, Bineneza and few wetland systems in both Hoima & Masindi districts. For the intended project to comply with this regulation, the developer (JETCL) is required to secure a permit from NEMA before construction of the transmission line across these wetlands can be effected. However, this ESIA report adequately cover the provisions of section 23 (1) (a) and will serve the purpose for the application of a permit.

3.3.9 The Electricity Act Cap 145

The Electricity Act 1999 provides for the need to protect the environment during consideration, development and operation of Electricity supply projects. The Act, established the Electricity Regulatory Authority (ERA), as a statutory body mandated to regulate all aspects of the electricity industry in Uganda. Section 10 of the Electricity Act, 1999, clearly defines ERA’s mandate as regulator and comprises 19 specific functions.

S.50 (2) makes it a condition to follow procedures laid down in the National Environment Act, 1995 (CAP 153 of the Laws of Uganda) during removal of installations considered inappropriate for further operations of the plant/activity.

Furthermore, Section 68 of the Electricity Act, 1999 outlines procedures and conduct of licensee during placement and maintenance of any electricity supply lines in, over or upon any land. Subsection (3) requires the licensee to make as little damage as possible to land and to the environment and should ensure prompt payment of fair and adequate compensation to all interested persons for any damage or loss sustained by the placement and maintenance of any electricity supply lines in, over or upon any land. The Electricity Act, 1999 gives adequate guidelines for the conduct of a licensee and recognizes the need to make good any damage and notice to those who may be affected by the project activities.

The proposed 220kV Hoima-Kinyara power line ESIA adequately covers these provisions. The mitigation measures for foreseeable impacts are detailed in the EMP.

3.3.10 The Land Act Cap 227

The Land Act, Cap 227 provides that the Government or the local government shall hold land in trust for the people and protect natural lakes, ground water, natural streams, wetlands and any other land reserved for ecological purposes for the common good of the citizens of Uganda.

A local government may, upon request to the government, be allowed, to hold land in trust for the people and the common good of the citizens of Uganda. Section 40 (1) points out issues to be addressed during acquisition of land. It spells out that, no person shall:

- sell, exchange, transfer, pledge, mortgage or lease any land;
- enter into any contract for the sale, exchange, transfer, pledging, mortgage or lease of any land; and give away any land, or enter into any other transaction in respect of

- land on which the person ordinarily resides with his or her spouse, and from which they derive their sustenance, except with the prior written consent of the spouse;
- land on which a person ordinarily resides with his or her dependent children of majority age, except with the prior written consent of the dependent children of majority age;
- land on which a person ordinarily resides with his or the children below the age of the majority, except with the prior written consent of the Committee; and
- Land on which ordinarily reside orphans below majority age with interest in inheritance of the land, except with the prior written consent of the Committee.

Sections 43, 44 and 45(1) and (2) of the Land Act (1998), provides that national or local government may acquire land in accordance with the provisions of Article 26 and clause (2) of Article 237 of the Constitution of the Republic of Uganda.

The Act furthermore requires any person who owns or occupies land to manage and utilize it in accordance with the National Environment Act Cap 153 and any other laws binding.

Enforcement of the Land Act guidelines is through the Land Regulations (2001). The Regulations give details on matters such as application for Certification of Occupancy, converting leasehold into freehold system, formation of Community Land Associations, procedures for paying annual ground rent.

Part III sections 43, 44, and 45 specifically address the utilization of land in accordance with the various statutes and acts of environmental concern, which include the National Environment Act, The Water Act, and any other law passed by a competent authority. In addition, section 45 addresses the control of environmentally sensitive areas.

The relevant provisions of this act are very crucial under the proposed 220kV Hoima-Kinyara power line because, several individuals are likely to be displaced and/or inconvenienced during the construction and operation of the project. Furthermore, amongst these communities are women and children whose rights to family land have to be protected. The mitigation measures in the EMP adequately cover possible impacts.

3.3.11 The Uganda Wildlife Act, Cap 2000

The main objective of the Uganda Wildlife Act, Cap 200 of 2000 is to protect wildlife resources and enable derivation of benefits. The need for sustainable management of wildlife resources is captured within the framework of effective planning and stakeholder participation. The Act allows local community involvement and opens up wildlife management to the non-governmental/private sector by making it possible for the private sector to manage protected areas / wildlife and provide services.

The Uganda Wildlife Act provides for, *inter alia*, the sustainable management of wildlife, and establishes the Uganda Wildlife Authority (UWA) as the body mandated with the coordination, monitoring and supervision of wildlife management. It does so in partnership with neighboring communities and stakeholders. It was established as a result of a merger between the Uganda National Parks and the Game Department.

Wildlife is defined by the Act to mean any wild plant or wild animal or species native to Uganda and includes wild animals that migrate through Uganda.

Considering that much of the line will go through remote section of the countryside involving clearing of vegetation, and excavation of land to create holes etc, this Act is quite relevant, and relevant provisions should be complied with.

The Act in S.15 (1) & (2) requires that any developer desiring to undertake any project which may have significant impact on any wildlife species or community undertakes an ESIA in accordance with the National Environment Act. This ESIA is meant to make the reconstruction of the 220kV Hoima-Kinyara power line compliant to this Act. Any IUCN listed plant, animal species identified and relevant mitigation measures have been suggested to conserve them.

3.3.12 Historical and Monument Act, 1967

The existing law relating to archaeological sites in Uganda is the Historical and Monuments Act, 1967, which the Commissioner for Antiquities and Museums has currently placed under review.

The Act provides for the preservation and protection of historical monuments and objects of archaeological, paleontological, ethnographical, and traditional interest. Under this Act, the minister responsible may cause any of the aforesaid objects to be declared as preserved objects.

The Act prohibits any person from carrying out activities on or in relation to any object declared to be preserved or protected. Section 10 of this Act spells out the procedures and requirement to declare and inspect newly discovered sites that may have archaeological, paleontological, ethnographical, historical and traditional significance for purposes of protection.

Whereas there were no sites of archaeological, paleontological, ethnographical, historical and traditional significance identified in the power line corridor, chance findings may be encountered. Moreover, along the proposed route corridor there exist graves, which are revered traditional sites. The developer is urged to exercise due diligence where historical property is discovered in any way during construction of the 220kV Hoima-Kinyara power line and other related activities

3.3.13 Occupational Safety and Health Act, 2006

The Occupational Safety and Health Act of 2006 consolidate, harmonize and update the law relating to occupational safety and health and repeals the Factories Act of 1964. The Act provides for the health, safety, welfare and appropriate training of persons employed in work places.

During the construction and operation of the proposed transmission line, safety, welfare and training will be of paramount importance. Precautionary measures on Occupational Safety and Health have been stipulated in the EMP.

3.3.14 Public Health Act Cap 281

Section 7 of the Public Health Act Cap 281 provides local authorities with administrative powers to take all lawful, necessary and reasonable practicable measures for preventing the occurrence of, or for dealing with any outbreak of, any infectious communicable or preventable disease in order to safeguard and promote the public health.

Section 105 of the Public Health Act (1964) imposes a duty on the local authority to take measures to prevent any pollution that is dangerous to the health to enter any water supply that the public has a right to use for drinking or domestic purposes. The Act further details the location of waste disposal facilities such as solid waste skips and septic tanks in relation to settlements and food points.

During the construction and operation of the proposed 220kV Hoima-Kinyara power line, some activities may lead to contamination of the water supplies or spread of communicable diseases. Appropriate mitigation measures have been suggested in the EMP

3.3.15 Workers Compensation Act, 2000

The Workers compensation Act, 2000 provides for the provision of financial compensation for work related injury or illness.

3.3.16 Employment Act 2006 and Other related Acts

The Employment Act 2006 shall be the governing legal statutory instrument for the recruitment, contracting, deployment, remuneration, management and compensation of workers. The premise of Employment Act 2006 is the provisions of Article 40 of The Constitution of Uganda. The Act mandates Labor Officers to inspect regularly the working conditions of workers to ascertain that the rights of workers and basic provisions are provided and workers' welfare is attended to. The Act also provides for the freedom of association of workers permitting workers to join labour organizations. This provision is also supported by the Labour Unions Act 7, 2006, which provides elaborate guideline and regulation for membership.

Other laws related to workers' safety, social security and protection worth noting include:

- the Labour disputes (Arbitration and settlement) Act, 2006
- the Workers' Compensation Act, Cap 225
- the National Social Security Act Cap 222, and
- The Labour Unions' Act, 2005.

3.3.17 The Uganda Investment Code, 1991

The Code makes legal provision for both local and foreign investments in Uganda. It seeks to provide more favourable conditions for investment in the country and promotes the contribution to locally or regionally balanced socio-economic development. It establishes the Uganda Investment Authority to provide for other related matters. Utilization of local materials and the introduction of modern technology as well as the improvement of indigenous technology require a Developer to carry out an EIA of the likely impacts of implementing these technologies. The Hoima-Kinyara proposed development is still in line with this law.

3.4 International Legislations

3.4.1 Overview

Uganda has signed and/or ratified a number of international agreements relating to the environment, both regionally and globally. Conventions, which Uganda has ratified, include:

- the Ramsar Convention on Wetlands of International Importance, UNESCO;
- the Convention concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention) – UNESCO;
- the Convention on Biological Diversity (CBD) – United Nations;
- the African Convention on the Conservation of Nature and Natural Resources – OAU;
- the Convention for the Protection of the Ozone Layer and its Montreal Protocol;
- the Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal (Basel Convention);
- the Bamako Convention on the Ban of the Import into Africa and the Control of Trans-boundary Movement and Management of Hazardous Wastes within Africa – OAU;
- the Framework Convention on Climate – United Nations; and
- The Convention relating to the Preservation of Flora and Fauna in their Natural State.
- The Stockholm Convention on Persistent Organic Pollutants

The Stockholm Convention on Persistent Organic Pollutants is an international environmental treaty, signed in 2001 and effective from May 2004, that aims to eliminate or restrict the production and use of persistent organic pollutants (POPs) of which Uganda became a party in October 2004. Key elements of the Convention include the requirement that developed countries provide new and additional financial resources and measures to eliminate production and use of intentionally produced POPs, eliminate unintentionally produced POPs where feasible, and manage and dispose of POPs wastes in an environmentally sound manner. Under this treaty, several chemicals were identified as POP of which Polychlorinated biphenyls (PCBs) normally used in transformers are among other chemicals that were identified for elimination. Therefore in accordance with the provisions of the Stockholm convention, all transformer oils and other oils used under this project shall not contain PCBs.

Adequate provisions have been put in the EMP to ensure that this ESIA report meets the requirements of these conventions.

3.5 GAP analysis

In order to ensure that the ESIA for the proposed 220kV Hoima-Kinyara power line meets the environmental and social policies and guidelines of development partners, gap analysis was carried out on the relevant Ugandan and development partner policies, legislations and guidelines.

The legislations detailed above cover most of the lender policy environmental guidelines however; there are gaps in the socio-economic requirements.

Under the Ugandan laws the affected persons are monetarily compensated, and that the affected persons are only eligible for compensation if they have legally recognized rights to

the subject land, but the World Bank requires that all affected persons should be compensated, regardless of their occupancy status. WB policy provides for alternative land where compensation on land for land basis, compensation in kind and goes beyond monetary compensation by specifying that income must be restored at full replacement cost. In addition, perennial crops must be compensated for in cash at an established rate and annual crops shall be compensated in accordance to World Bank Safeguard Policy OP4.12.

Table 3.1 below gives a comparison of relevant Ugandan policies and regulations with those of the development partners. Since the World Bank requirements stipulate adoption of the more stringent measures, strategies that the developer (UETCL) will use to make the project meet the more stringent guidelines have been included.

Table 3.1: GAP Analysis of Relevant National and International Regulations and Guidelines

| Requirement | Guideline | Relevant Uganda Legislation | Action Taken to meet Stringent Requirement |
|--|--|--|--|
| Environmental & Social Impact Assessment (ESIA) | WB OP 4.01 | Comprehensively covered by the National Environment Act, Cap 153 and Environmental Impact Assessment Regulations, 1998 | ESIA subject of assignment as documented herein. UETCL is committed to further developing, appropriate management programs, organizational capacity, training, community engagement, monitoring and reporting |
| Natural Habitats | WB OP 4.04 | Covered under the National Environment (Wetlands, River Banks and Lake Shores Management) Regulations, 2001 and the Uganda Wildlife Act, Cap 2000 | No major natural habitats traversed, except some riverine forests. UETCL will commit to mitigation measures included in the EMP |
| Forests | WB OP 4.36 | Relevant provisions contained in the Forest Act and National Forest and Tree Planting Act | The line route was re-aligned to avoid all Central Forest Reserves. However, a few patches of land under farrow can be categorised as forests if the World Bank definition of forests is to be considered. The proposed mitigation measures will address impacts on forests. |
| Community Health, Safety and Security | Covered under IFCs General and Sector Specific EH&S guidelines | Community health covered by the Public Health Act, Cap 281 Employee health, safety and security by the Occupational Safety and Health Act, 2006 | UETCL will reduce worker and general public's exposure to vector borne diseases, STDs and construction and operation related safety hazards as indicated in EMP. |
| Pest Management | WB OP 4.09 | Relevant provisions covered by the Public Health Act, Cap 281 and the Occupational Safety and Health Act, 2006 | UETCL is will control pests using a combination of environmental design (avoid creating vector breeding habitat), mechanical control (i.e., bed nets), use of medications and prophylaxes, and limited use of approved, non persistent pesticides such as pyrethrum sprays |

| Requirement | Guideline | Relevant Uganda Legislation | Action Taken to meet Stringent Requirement |
|---|-------------------------|--|---|
| Pollution Prevention and Abatement | No WB or AfDB Guideline | The National Environment Regulations (Waste Management, 1999; Standards for Discharge of Effluent into Water or on Land, 1999; Noise Pollution, 2004 | UETCL and EPC Contractor will comply with the mitigation measures detailed in the EMP |
| Indigenous Peoples | WB OP 4.10 | No Specific law but right to belong to an entity covered by 1995 Constitution | No indigenous peoples as defined by the World Bank Group are in the project area |
| Cultural Property | WB (IDA) OP 4.11 | Comprehensively covered by the Historical and Monuments Act, 1967 | No known cultural properties exist except graves UETCL will adhere to mitigation measures in EMP to handle chance discovery of unknown artifacts during construction |
| Involuntary Resettlement | WB (IDA) OP 4.12 | No specific law but the 1995 Constitution and Land Act provide for fair and adequate compensation Compensation not at market value | UETCL will carry out comprehensive Resettlement Action Plan An uplift will be included in compensation so that those affected are not worse off as a result of the Project |
| Public Consultation and Information Disclosure | WB OP 4.01 | No specific provision | Stakeholders and PAPs were consulted in both English and local languages as appropriate. UETCL will make available project information locally and nationally |

3.6 Institutional framework

3.6.1 National Environmental Management Authority, NEMA

The National Environmental Act provides for establishment of NEMA as the principal agency responsible for coordination, monitoring and supervision of environmental conservation activities. NEMA is under the Ministry of Water and Environment (MWE) but has a cross-sectoral mandate to oversee the conduct of EIA through issuance of EIA guidelines, regulations and registration of practitioners. It reviews and approves environmental impact statements (EIS) in consultation with any relevant lead agencies. NEMA's enforcement branch is the department of Monitoring and Compliance. It is responsible for ensuring that enterprises comply with the various environmental regulations and standards. NEMA has appointed environmental inspectors whose powers and duties are spelled out in Section 81 of the National Environmental Act and can include stopping any activity which pollutes the environment. The environmental inspector may also issue an improvement notice requiring an operator of any activity to cease any activities deleterious to the environment which are contrary to the Act. NEMA has power; to prosecute environmental offenders and offences committed under the National Environment Act may earn the offender fines and prison sentences. NEMA works with District Environment Offices and Local Environment Committees at local government level, which undertake inspection, monitoring and compliance enforcement on its behalf. Therefore NEMA will review all EIAs and Project Briefs prepared in respect of this project.

3.6.2 Environmental Liaison Units in Ministries

NEMA is linked to sectoral lead agencies, private organisations and educational institutions through Environmental Liaison Units (ELUs). ELUs are charged with implementation of environmental programmes and integration of environmental concerns in sectoral policies, laws, regulations and programs. Consequently, they monitor investment programmes at their respective sectoral levels. Therefore relevant ELU's are stakeholders in the Project and will have input in to the EIA process. Such units include those at Ministry of Energy, Electricity Regulatory Authority, Makerere University, some NGOs such as Nature Uganda among others.

3.6.3 Ministry of Energy and Mineral Development, MEMD

The Ministry is responsible for the energy sector, dealing specifically with policy formulation, policy implementation and monitoring. In 1999, following approval by cabinet of the Power Sector Reform and Privatization Strategy and enactment of new electricity law (The Electricity Act, 1999), Electricity Regulatory Authority (ERA) was established to regulate the energy sector. Thus, while the MEMD formulates policy, ERA is charged with the mandate of regulating the energy sector, independent of the Ministry. Therefore Implementation of the Project will be by UETCL which is overseen by MEMD. Although MEMD has an environmental monitoring department which oversees environmental issues in energy projects, it may not be in position to adequately supervise all energy projects being undertaken by the government currently.

3.6.4 Electricity Regulatory Authority, ERA

The Electricity Regulatory Authority (ERA) is a statutory body established in accordance with the Electricity Act of 1999 (CAP 145) as an agency of the Ministry of Energy and Mineral Development. The mandate of ERA is "to provide for the generation, transmission, distribution, sale and use of electricity" in Uganda; to guide the liberalization of the electricity industry; and to manage licensing, rates, safety and other matters concerning the electricity industry. The main functions of ERA include:

- Issuing licenses for generation, transmission, distribution, of electricity processing applications for investors in the energy sector;
- Enforcement of requirement under the Act to ensure compliance with regulations;
- Establishing tariffs, reviewing, and approving rates of investment in the electricity sector;
- Advising the minister regarding the need for electricity projects; and
- Developing and enforcement of energy standards.
- ERA will ensure that, the operations costing of energy from the planned project will be in accordance with its set standards and tariffs.

Therefore, ERA will license this project for its development and operation. ERA also has an environment unit which monitors environmental compliance in energy projects. This department is said to be adequately staffed.

3.6.5 Uganda Electricity Transmission Company Limited

Uganda Electricity Transmission Company Limited (UETCL) is a Public Limited Company which was incorporated in March 2001 as a result of the power sector reform and liberalization policy that unbundled Uganda Electricity Board (UEB) into successor companies. The Company operate under policy guidance of the Ministry of Energy and Mineral Development. UETCL's mission is to dispatch, transmit quality and reliable bulk power in a viable and efficient manner; be an efficient and commercially focused single buyer actor and; mitigate emergency power situations in Uganda. The mandate of UETCL is to develop and implement national strategic plan as the appointed "Single Buyer Actor" in the power market. UETCL operational licenses require it to:

- Operate its Operation of High Voltage Transmission Grid (HVTG) facilities in compliance with the Grid code that involves promoting and developing policies and programs to achieve high level quality and reliable HVTG services in accordance with the Electricity Act.
- Operate the national power system with the objective of dispatching available electricity to meet load requirements at the lowest cost for customer service, maintaining system integrity and reliability.
- Purchase power to provide continuous and economic supply of electricity to meet the load requirement for customers served directly or indirectly from HVTG facilities at lowest reasonable cost.
- Import and export electricity power to neighbouring countries pursuant to the terms of the agreement(s) for such international power transactions.

It is the mandate of UETCL to transmit power to and from different substations in the national grid and in this regard, UETCL is the Developer for the Hoima-Kinyara transmission line and will be responsible for its construction, operation and maintenance including the substations. UETCL has an environment department headed by the

Principal Environment Officer. This department is well financed, staffed and has all the technical and financial capacity to monitor environmental issues under this project.

3.6.6 Local Government Administration Structures

The Local Governments Act, Cap 243 provides for decentralized governance and devolution of central government functions, powers and services to local governments that have their own political and administrative structures. Districts have powers to oversee implementation of development activities under supervision of their relevant departments such as environment, lands and water resources. District and Local Council administration of Hoima and Masindi will be vital in implementation of the project by mobilizing political goodwill and sensitizing local communities. Local administration leaders e.g. District Environmental Officers (DEO) will also play role in environmental monitoring associated with project construction and operation. District and Local Council administrations are stakeholders in the Project and will have input in to the EIA process as well as subsequent monitoring. For example DEOs will review the project EIA and provide guidance about local conditions to NEMA prior to approval decision. Environment departments at districts are overwhelmed with work due to understaffing and poor facilitation. These departments should be strengthened to ensure environment issues listed in the EMP are well managed, implemented and or monitored

3.6.7 Ministry of Gender, Labour & Social Development, MGLSD

Ministry of Gender, Labour & Social Development (MGLSD) is responsible for coordinating social development in Uganda. In collaboration with other stakeholders, MGLSD is responsible for inspecting state of occupational safety, labour relations, community empowerment, protection and promotion of rights and obligations of vulnerable groups for social protection and gender-responsive development. Therefore MGLSD is a stakeholder in the Project and will be responsible for inspecting the project for compliance with occupational health and safety regulations, national labour laws and gender equity. The District Labour Officer and District Community Development Officer(s) are the contact persons representing this ministry at the district. However since these people are usually few and bearing in mind that they supervise the entire district, they will require some form of facilitation to beef up their staff and financial resources to be able to monitor environmental issues associated with the project as presented in the EMP.

3.6.8 Rural Electrification Agency, REA

REA is a government agency responsible for promoting rural electrification by moving of our population from use of traditional energy sources (e.g. firewood and other basic forms of biomass) to the adoption of modern energy services (e.g. electricity, petroleum fuels, bio-fuels and improved stoves). REA is charged with the following key responsibilities:

- a) Undertake basic planning and preparation of projects in line with the Indicative Rural Electrification Master Plan (IREMP) and as determined by the Rural Electrification Board.
- b) Implement Government's priority rural electrification projects for public funding as determined by the Board.

- c) Generate and provide information relating to investment opportunities, costs and benefits of rural electrification and available technical and financial support facilities to all stakeholders.
- d) Recommend to the Rural Electrification Board the most efficient use of the Rural Electrification Fund (REF) for promotion of Rural Electrification Programme as set by Government policy.
- e) Process applications for financial support from the REF.
- f) Build and maintain a national database on rural electrification projects in Uganda.
- g) Prepare for the Board an annual status report on the Rural Electrification Programme indicating progress, challenges and obstacles, and identifying options for mitigating the obstacles.

Therefore REA has on-going rural electrification programs in the project areas and will liaise with UETCL to consider supplying power to local consumers using 33kV lines which should be provided for in substation designs at both Hoima and Kinyara.

3.6.9 Ministry of Water and Environment

The Ministry of Water and Environment (MWE) has the responsibility for setting national policies and standards, managing and regulating water resources and determining priorities for water development and management. It also monitors and evaluates sector development programmes to keep track of their performance, efficiency and effectiveness in service delivery. MWE has three directorates:

- a) Directorate of Water Resources Management (DWRM);
- b) Directorate of Water Development (DWD); and
- c) Directorate of Environmental Affairs (DEA).

The Directorate of Water Resource Management (WRMD) is responsible for water resources planning and regulation; monitoring and assessment and water quality management.

stones and shales. The sandstones and siltstones are mostly of high porosity and permeability.

Most of the areas traversed by the Transmission Line in both Hoima and Masindi districts are underlain by Bunyoro and Kyoga series which comprise shales arkoses and quartzites with tillite-like rocks in the Bunyoro series under the Precambrian era. However, the last 10km of the transmission line in Masindi district up to Kafu substation lie under the undifferentiated gneisses with granulite facies rocks. Figure 4.2 below presents the geological overview of the project area

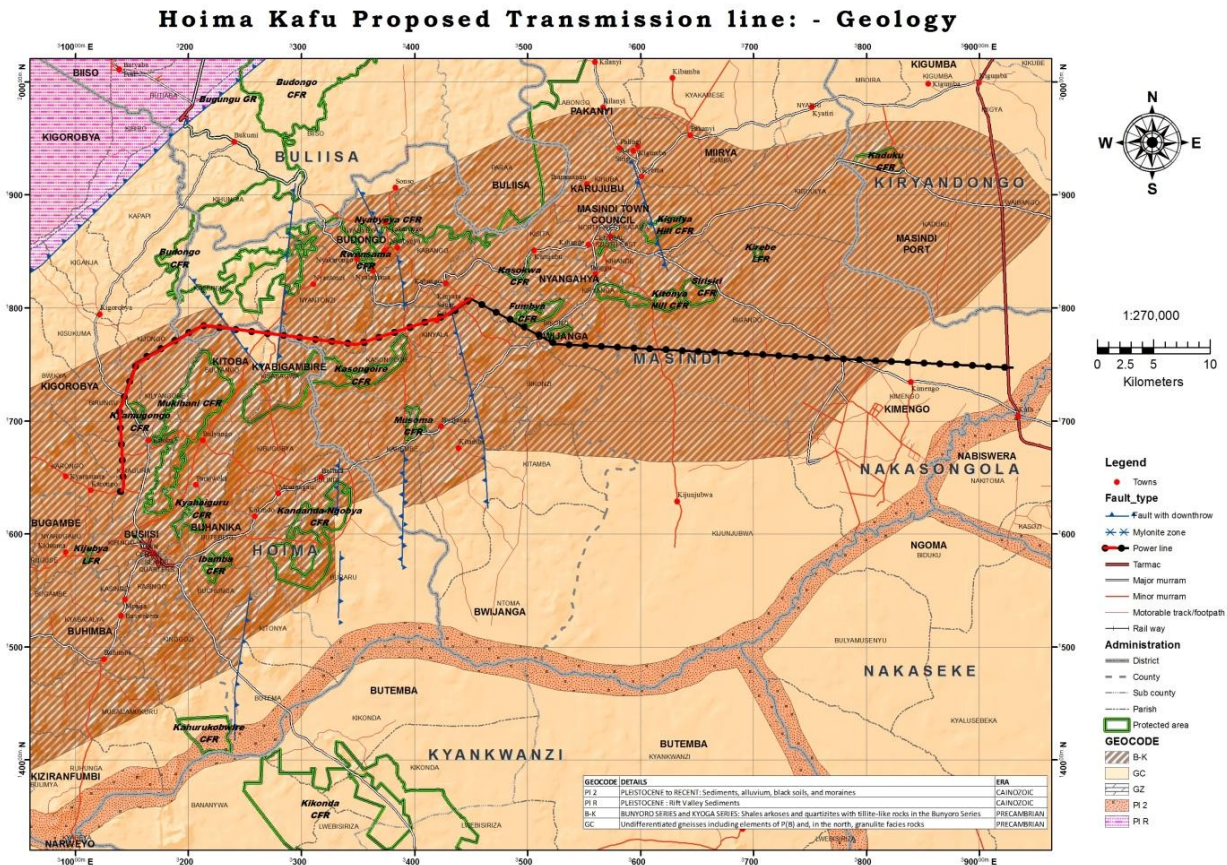


Figure 4.2 Map of Uganda (Hoima and Masindi districts) showing the differences in geology along the Transmission Line

4.1.3 Soils

Hoima's soils are ferrallitic and generally acidic. However they have adequate organic matter especially on the lower slopes and in the valleys. The soils are typically loam and deep on the valley slopes but tend to be shallower on the upper slopes. Soil erodibility is low, rainfall erosive is generally moderate. The water table is high with soils frequently water logged. The soils of Hoima are defined by a number of parameters, which include parent rock, age of soil and climate. As mentioned in the paragraph above the most dominant soil type is ferrallitic soil. Productivity soils are scarce, therefore, fair and low productivity soils in

Buseruka, part of Kigorobya, part of Kyabigambire, along the lakeshore and partly Buhimba must be managed effectively in order to sustain agriculture.

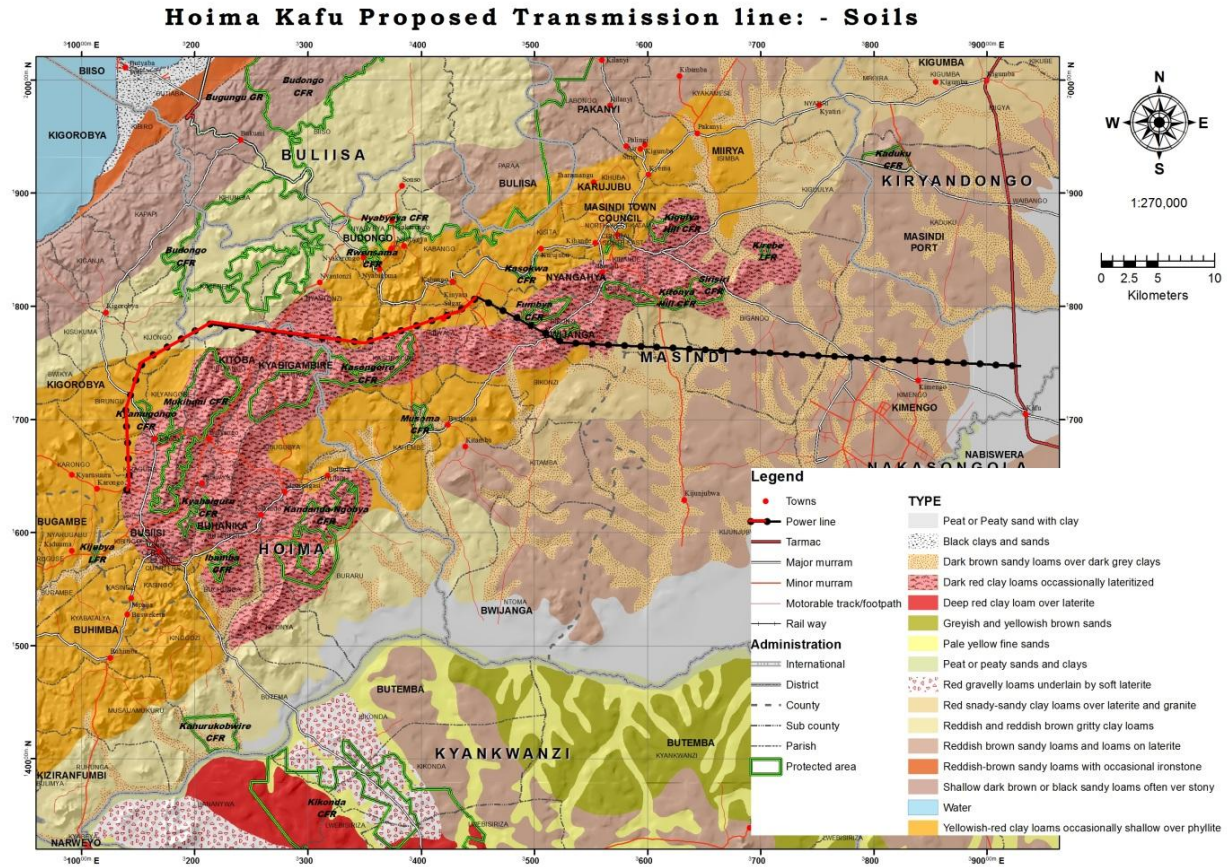


Figure 4.3: Map of Uganda (Hoima & Masindi districts) showing the soil types along the various segments of the Transmission Line

The major soil types under the proposed Hoima-Kinyara transmission line include yellowish-red clay loams occasionally shallow over phyllite, dark red clay loams which are occasionally lateritized and redish brown brown gritty clay loams. Figure 4.3 below presents the soil types along the proposed Hoima-Kinyara transmission line.

4.1.4 Climate
4.1.4.1 Rainfall

Hoima District has a sharp variation in rainfall amounts, mainly due to variations in the landscape. The landscape ranges from the low lying Rift Valley floor to the rift escarpment, and the raised hill ranges. The Rift Valley floor lies in a rain shadow and has the least amount of rainfall. The district receives a bimodal rainfall pattern with totals ranging from about 800 mm in the Lake Albert flat rising rapidly the further away East above the Escarpment to between 1250 - 1500 mm per annum before tapering off to 1000mm in the Eastern border areas of the District. The peak periods are between March - May and September to December. However, the rainfall pattern has become more erratic and less

predictable. In general, the second peak rainfall (August to November) is higher than the early peak. This presents a very important potential for agricultural development. Major agricultural enterprises include upland rice, tobacco, coffee, cotton, maize, cassava, bananas, beans, vegetables, millet, groundnuts, cocoa, Irish potatoes, tea and soya-beans.

Masindi has a favourable climate and its rainfall pattern is bimodal. The district receives an annual long-term average rainfall of 1,304 millimetres (mm). The district has three main climatic zones according to rainfall levels: (i) high rainfall zones: These are areas, which receive more than 1000 mm of rainfall per annum. These include, Budongo, Pakanyi, Karujubu and Nyangahya sub- counties; (ii) medium rainfall zones: These are areas with total amount of rainfall ranging between 800 mm – 1,000 mm per annum i.e. Kigumba, Kiryandongo sub-counties, and Bigando and Isimba parishes in Miirya sub-county; and (iii) lower rainfall zones: These are areas, which receive less than 800mm of rainfall per annum. These include Masindi Port, and Kimengo sub-counties. Figure 4.4 below presents the rainfall map of the proposed Hoima-Kinyara transmission line project area.

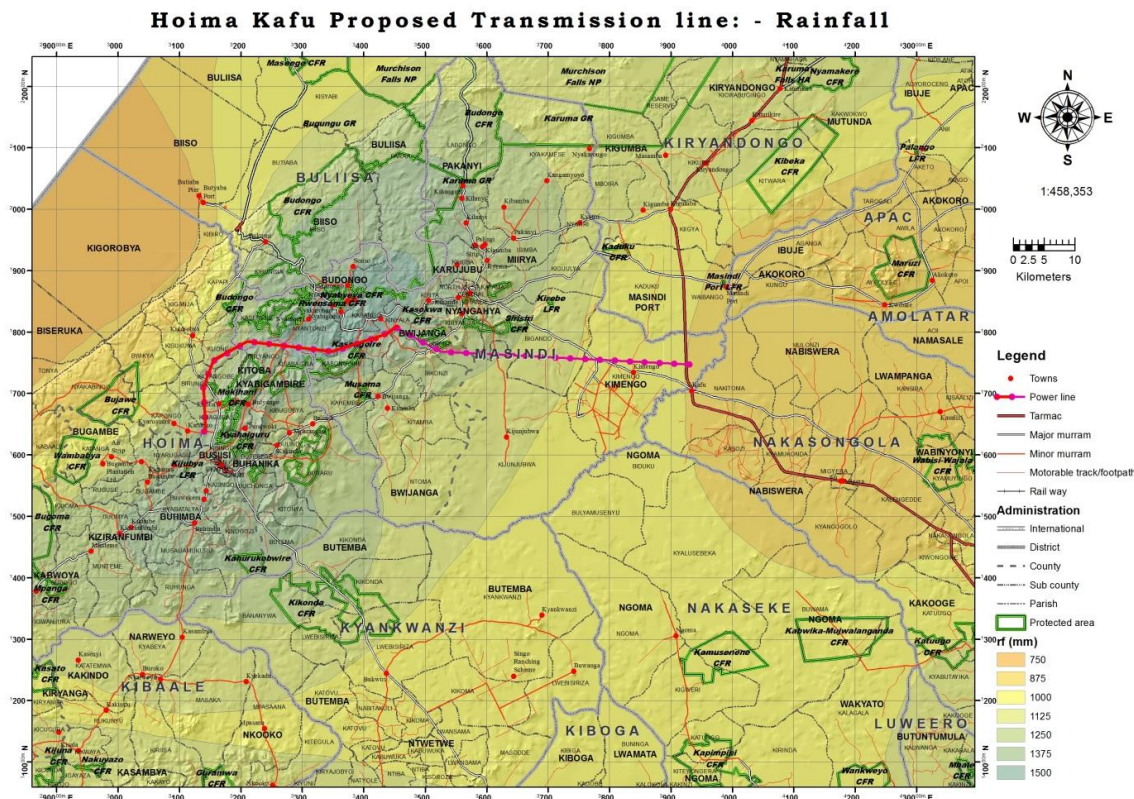


Figure 4.4: Map of Uganda (Hoima & Masindi districts) showing the average total rainfall received along the various segments of the Transmission Line

4.1.4.2 Temperature and Humidity

Temperatures in Hoima are moderate averaging 18 - 30°C with the hottest spot of the district lying in the Rift Valley to the West. Although this is a dry belt area it has potential for livestock keeping and Lake Fishery. Climate change and variability are the important factors impacting on the district’s agriculture and environmental sustainability.

4.1.4.3 Wind

In Hoima district, wind speed and direction records indicate a high incidence of strong winds especially in the Rift Valley. The prevailing winds commonly blow along the valley floor in a north-east to south-west direction or vice versa. Winds also blow across the Rift Valley in an east to west direction. On the escarpment prevailing wind-blow is largely multi-directional. The long term wind speed records from the East African Meteorological Department (1975) indicate average annual wind speed of 3 knots and 5 knots at 0600 hours and 1200 hours respectively. The general conclusion from these climatic figures is that for most of the year, the district experiences moderate to strong and gusty winds, increasing in the afternoon.

4.1.5 Noise

Baseline noise conditions were investigated along various segments of the Transmission Line using an Extech 407730 Sound Level Meter. Generally average noise levels along the entire Transmission Line are low (below 40dBA). This is because the transmission line passes through sparsely populated areas with low human activities. The Hoima-Kinyara Transmission Line passes through remote villages (wilderness) surrounded with bushes, thickets and gardens. Several parts of the corridor are either gardens or land under fallow.. Therefore, most of the baseline noise levels along the transmission line corridor are below 40dB (A). Table 4.1 below presents some of the baseline noise levels taken at some selected points along the Transmission Line corridor and Table 4.2 shows the Standards for Maximum Permissible Noise Levels **for various environments**.

Table 4.1: Noise levels at the various segments of the Hoima-Kinyara proposed transmission line corridor

| Name and location | Coordinates | Average dB(A) | Maximum dB(A) | Comments |
|---|------------------------------|---------------|---------------|--|
| Bulemwa village, Kiragula parish, Kitoba sub-county, Hoima district | E: 314100 N: 163894 H: | Below 40 | 43.6 | This site is about 200 meters from the proposed Hoima substation. Site is residential and is about 50 meters near Hoima-Biseruka road. Maximum noise levels are influenced by traffic (especially motorcycles and some cars). This site is surrounded by gardens of cassava, maize and a plantation of eucalyptus and pines. |
| Bulemwa village, Kiragula parish, Kitoba sub-county, Hoima district | E: 315049 N: 163726 H: | Below 40 | 73.9 | Point taken along Biseruka road about 300 meters from the proposed line. Area is a developing commercial area mixed with some residential houses. Maximum noise levels are influenced by traffic. Other than traffic, the area is still undisturbed with construction and hence average noise levels still below 40 dB(A) |

| Name and location | Coordinates | Average dB(A) | Maximum dB(A) | Comments |
|---|----------------------------------|---------------|---------------|--|
| HK 303 Mpunda village, Birungu parish, Kitoba subcounty, Hoima district | | 44.2 | 48.5 | Point taken along Kigoroby road in Mpunda village, Birungu parish, kitoba subcounty. This area is an upcoming trading centre. Maximum noise levels are influenced by a near by school and passing vehicles. Although developing into a trading centre, are activities are generally low. |
| Kingo Campa village, Kinyara parish, Masindi district | | Below 40 | Below 40 | Point taken in a sugar cane plantation. Activities are generally very low. Other than Kinyara sugar works traffic that may affect noise conditions in the plantations, noise levels are generally below 40dB(A) |
| HK309 , Kitamba village, Kitamba parish, Buijanga parish, Masindi district | E:343329 N:169291 H:1116 | Below 40 | Below 40 | Site is a few metersHK 309. Its located in a farm land and its surrounded with gardens of maize, cassava and shrubs. Although area has been modified by farming activities, homesteads are far scattered. Noise levels are below 40dB (A). Background noise is as a result of natural interactions of wind, birds and trees. |
| Kayera village, Kimengo subcounty, Masindi district | E: 392582 N: 174699 H:1045 | Below 40 | 58.8 | The point is 419m from HK 310 and about 80 from Kafu-Gulu highway. The site is savanna woodland characterized by <i>Accassia</i> and <i>Combretum</i> Sppp. Area is a grazing land. Other than the noise from the highway traffic, noise levels are generally below 40dB(A). |
| HK 310 Keyera village, Kimengo subcounty, Masindi district | E: 393004 N: 174703 H:1046 | Below 40 | 45.9 | HK 310 lies in Mr.Kabagonza Kasim's land. The site is a grazing area of savannah woodland nature. Background noise is influenced by birds, trees and to some extent back vehicles on the Kafu-Gulu highway which is about 445m away. |

Note that other than the few trading centers where noise levels were slightly above 40dB (A), the noise levels along the rest of the Transmission Line corridor is mostly below 40dB (A). It should also be noted that the noise meter used could not detect noise levels below 40dB9A).

Table 4.2 Standards for Maximum Permissible Noise Levels for various environments

| |
|--|
| |
|--|

| For General Environment | | |
|--|--|----------------------------|
| | Noise Limits dB(A) | |
| Facility | Day | Night |
| A. Any building used as hospital, convalescence home, home for the aged, sanatorium and institutes for higher learning, conference rooms, public library, environment or recreational site | 45 | 35 |
| B. Residential building | 50 | 35 |
| C. Mixed residential (with some commercial and entertainment) | 55 | 45 |
| D. Residential + Industry or small scale production + Commerce | 60 | 55 |
| E. Industrial | 70 | 60 |
| Construction site | | |
| (i) Hospitals, schools, institutions for higher learning, homes for the disabled, etc. | 60 | 50 |
| (ii) Buildings other than those prescribed in (i) | | |
| From a factory or workshop | | |
| Acceptable noise limit dB(A) | Duration (Daily) | Duration (weekly) |
| 85 | 8 Hours | 40 Hours |
| 88 | 4 Hours | 20 Hours |
| 91 | 2 Hours | 10 Hours |
| 94 | 1 Hours | 5 Hours |
| 97 | 30 Hours | 2.5 Hours |
| 100 | 15 Hours | 1.25 Hours |
| 103 | 7.5 Minutes | 37.5 Minutes |
| 106 | 3.75 Minutes | 18.75 Minutes |
| 109 | 1.875 Minutes | 9.375 Minutes |
| Accelerating vehicles | | |
| Vehicle Category in dB(A) | | |
| Vehicle Category | | Maximum sound level |
| 1 | Vehicles intended for carriage of passengers and equipped with not more than nine seats, including the driver's seat | 78 |
| 2 | Vehicles intended for carriage of passengers and equipped with not more than nine seat including the drivers seat and having maximum permissible mass of more than 3.5 tonnes- (a) With an engine power of more than 150KW (b) With an engine power of less than 150KW | 80 83 |
| 3 | Vehicles intended for carriage of passengers and equipped with more than nine seats including drivers seat: Vehicles intended for carriage of goods- (a) With maximum permissible mass not exceeding 2 tonnes (b) With maximum permissible mass exceeding 2 tonnes but not exceeding | 79 |

| | | |
|---------------------------|---|-----------------------------|
| | 3.5 tonnes | 80 |
| 4 | Vehicles intended for the carriage of goods and having a maximum permissible mass exceeding 3.5 tonnes- (a) With an engine power of less than 75KW (b) With an engine power of not less than 75KW but less than 150KW (c) With an engine power of less than 150KW | 81 83 84 |
| Mines and quarries | | |
| | Facility | Limit value in dB(C) |
| 1 | For any buildings used as a hospital, school, convalescent home, old age home or residential building | 109 dB(C) |
| 2 | For any building in area used for residential and one or more of the following purposes: Commerce, small scale production, entertainment, or any residential apartment in area that is used for purposes of industry, commerce, or small scale production, or any building used for the purpose of industry, commerce or small scale production. | 14dB(C) |

Time fame:

| | | | |
|--------------|----------------|---|----------------|
| Day | 6.00am | - | 10.00pm |
| Night | 10.00pm | - | 6.00am |

Source: The National Environment (Noise Standards and Control) Regulations, 2003

4.1.6 Land use types

4.1.6.1 Overview

Agriculture forms a base of the mainstream economic life of the people along the Transmission Line. Majority of the households along the Transmission Line are engaged in agriculture, though mainly practicing subsistence farming. Other than the area under Kinyara Sugar cane plantation (about 15km). There is limited application of modern techniques of production and this leaves farmers operating below their potential. Therefore 50% of the area traversed by the Transmission Line is under subsistence farming as presented in figure 4.5 below.

The following land use categories were documented along the Transmission Line. They are:

- Agricultural based activities mainly subsistence and a few commercials especially where there are sugarcane plantations.
- Savana wood land and grass lands under cattle and goat rearing.
- Private forest estate (e.g. individual, community and commercial forest estates.
- Public utilities (including roads, power transmission and water systems)

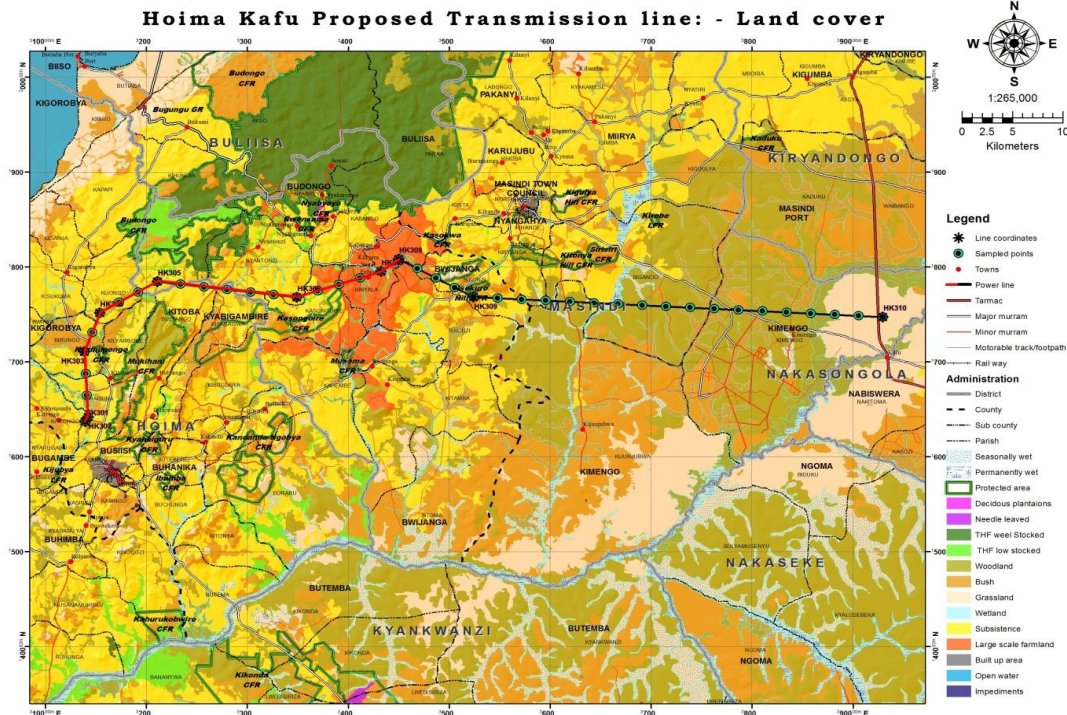


Figure 4.5: Showing the land cover along the Hoima-Kinyara Transmission Line

4.2 Biological Environment

4.2.1 Introduction

4.2.1.1 Overview

A network of high voltage (220 kV) transmission lines will be evacuating electricity from the substation at Bulemwa, Bujumbura Sub-county, Hoima district to Kinyara at Kinyara Sugar factory with future plans of extending the line to the main grid at Kafu (Masindi district) just across Kampala-Karuma-Gulu Highway. In accordance with the proposed World Bank funding scope, the biological environmental baseline was updated for the Hoima-Kinyara segment.

Transmission lines are made up of transmission line structures and metallic conductors (wires). Each transmission line is designed to carry specific electrical voltages, and the appearance of the line varies according to voltage.

The structures that support the conductors are made from single or double wooden poles, or lattice or tubular steel. A single circuit transmission line consists of a set of three metallic conductors to create a complete electrical circuit. Double-circuit towers carry two sets of

conductors, or six wires altogether. The two sets are not connected. For the Hoima-Kinyara line, only lattice towers will be used.

The conductor must clear the ground at the low point between the towers by at least seven metres as required by safety and industry standards. This height may vary in accordance with several national standards and specific license requirements for individual transmission lines. To prevent unwanted outages caused by lightening, a lightening guard, commonly called a 'sky wire' is installed at the highest point on the transmission tower/structure above the conductors.

Transmission line structures are commonly referred to as towers or poles and are secured into the ground. The lines are located within a cleared strip of land called a right-of-way (ROW). The width of the ROW can range between 30 to 80 metres depending on the size of the towers. The ROW width is determined by several factors including the number of lines in the ROW, distance to tall trees which must be kept from touching the line, and requirements for landing helicopters which must bring in parts and work crews to carry out repairs. Where multiple transmission line facilities are required the ROW is expanded to accommodate these needs. ROW widths will vary depending upon voltage carried by the transmission line, and the kind of tower structures used. In this regard, the corridor (ROW) for the Hoima-Kinyara transmission line will be 40meters.

4.2.1.2 How do transmission lines affect wildlife and habitats?

The impacts will differ depending on differences in soil, landform, plants, climate etc. The sensitivity of the habitat to disturbance plays an important role in defining and measuring the impacts. Each individual habitat feature, such as a tree or flower, also has different sensitivities to disturbance. Time is always needed to restore the balance of wildlife and habitat after any natural or human disturbance. In the case of human disturbance, the recovery period depends on the initial efforts to minimize the disturbance, as well as the nature of the disturbed site.

The use of areas that have been previously disturbed by man or natural events can lessen the magnitude of impacts to wildlife habitat. For example, constructing a transmission line through wildlife habitat that has burned recently will have less impact on the existing environment than constructing a similar line through a virgin forest. In general, transmission lines usually do not affect entire populations, but tend to affect only a few individuals.

4.2.1.3 The effect of ROW construction on wildlife habitat

Clearing of the ROW for a transmission line will remove relatively small amounts of wildlife habitat. The impact of this clearing varies from animal to animal. In some instances, clearing may encourage growth of plants that improve terrestrial habitat for certain animals such as small antelopes, hares, and understorey birds. On the other hand, clearing critical habitats

of rare and endangered species is likely to have a negative, adverse impact on those species.

4.2.2 Habitats to avoid in routing the transmission line

Avoid sensitive sites. Find a route which has the least possible negative impact, but with the most potential benefits. Consultation with local people is necessary to identify sensitive areas and their importance. However, to minimize costs and design complexity, a transmission line should be as short and straight as possible. Deviations must have reasonable geographical, technical, or environmental justification. Several types of habitat are avoided during the siting of transmission lines for both engineering and environmental reasons. Wetlands are crucial to the survival of many aquatic species including waterfowl, fish and amphibians. Shorelands and wetlands are quite sensitive to disturbance and are often unstable; they should be avoided as much as possible. Habitats critical to the survival of a species on a local or regional basis, habitats with endangered or threatened species, and productive habitats should be avoided wherever possible. Plant communities that are naturally sparsely vegetated and require a long time for re-vegetation may also be classified as sensitive.

Topographic features such as ridges and hills receive considerable long-term use by wildlife as travel corridors, and should be avoided when routing transmission lines. Special stands of trees also provide important and sometimes unique habitat.

The Government of Uganda (GoU) has prioritized the construction of the proposed Hoima-Kinyara 220kV transmission line to provide adequate transmission infrastructure to meet the power supply needs of Western Uganda and to evacuate electricity from power plants within and near the Project area. The project is part of the overall national grid system plan identified in the UETCL Grid Development Plan.

Initially, an Environmental Impact Assessment (EIA) was carried out with in the months of June, July, August, Sept, November, December 2012 and later in the months of March and April 2013 to document the impact of the proposed Hoima-Kinyara transmission on terrestrial flora fauna and the underlying ecosystems. The detailed study further assessed and evaluated potential environmental impacts likely to result from the construction of the proposed transmission line activities. It identified practical yet cost effective mitigation measures and provided information for developing an Environmental Monitoring Plan (EMP). The proposed path for the transmission line lies to a large extent within agricultural-natural-modified landscapes and populated areas to a small extent. Natural vegetation identified comprised of wetlands, woodlands, thickets and flood plains. The flood plains were mainly grasslands. Other vegetation cover types were artificial and included tree plantations, crop gardens (cultivations) and grazing paddocks.

In order to provide base line data for evaluating ecological values of the areas to be affected, vegetation studies were conducted and select indicator taxa inventoried:

- Vegetation surveys - to establish vegetation types and their composition
- large and medium-sized mammals
- birds,
- herpetiles (amphibians and reptiles) and
- insects (butterflies)

However due to delays in securing funding for the line, the power line was not constructed since 2012. Therefore to update the ESIA report with current information that depicts real field conditions in respect of the biological environment, both social economic and ecological studies on vegetation, large and medium sized mammals, birds, herpetiles and insects were conducted afresh in the month of June 2016 focusing on the Hoima-Kinyara segment of the transmission line which is going to be funded by the World Bank.

4.2.3 Ecological and social economic importance of the various taxa sampled

4.2.3.1 Overview

The choice of the taxa surveyed were selected for their i) biodiversity value, ii) availability of comparative data, iii) ease of sampling. The select taxa sampled together with the multitude of other biodiversity, contribute to the ecosystem services that humanity derives from the ecosystem. Continued enjoyment of the full range of ecosystem services, will very much benefit from sustenance of the holistic biodiversity or at the very worst very carefully managing impacts that we cause to them.

4.2.3.2 Plants

Plants offer potential advantages over other taxa as biodiversity indicators because they are the primary producers. Their abundance and diversity is likely to influence the species richness belonging to higher trophic levels (Davenport *et al.*1996, Kent *et al.* 1996). Plants are also a major indicator of changes in environmental conditions for example changes in water availability, soil chemistry, etc. Short term effects of environmental changes are easy to observe and they would include conditions like sudden withering of otherwise healthy plants and even death of some species. Such effects are easily detected and monitored in plants than in animals because of the shorter life cycles and immobility of plants. This makes plants the best environmental indicators and hence the need for vegetation surveys to gather baseline data before undertaking projects that are potentially capable of changing the environment.

4.2.3.3 Mammals

Mammals are a morphologically diverse group. For Uganda, they vary in size ranging from the largest at about 5,000 kgs to the smallest at about 2 grams, from nocturnal to diurnal species. They inhabit all possible habitats, from terrestrial, aquatic, aerial/arboreal to fossorial. Some are bold while others are shy and many are secretive.

Mammals are a very significant component of any terrestrial ecosystem. Impacts on the dynamics of their populations, species composition and preferred habitats may have gross and irreversible impacts on the ecosystem for the larger species of mammals.

4.2.3.4 Birds

Birds are good indicators of general biodiversity i.e. areas very rich in birds species have been found to also be rich in other biodiversity. Birds have been found useful as bio-indicators because they are:

- Wide spread, they occur in all habitats (forest, grassland, water, cultivated land)
- Diverse, yet there are a few problematic species in identification
- Taxonomically well known and stable compared to plants whose nomenclature keeps changing
- Relatively large, conspicuous- easily surveyed with simple methods like observations, use of calls to record their presence or absence.
- Mostly active during the day (compared to many mammals, amphibians)
- Specialized in their habitats in some cases e.g. forest or water bird specialist. The disappearance of such specialist species in an ecosystem can be used to assess the health of that particular ecosystem or the extent of degradation.

4.2.3.5 Herpetiles (Amphibians and Reptiles)

Ecologically, amphibians are important; they are mostly predators, acting as primary and secondary carnivores. Their prey consists mostly of insects, some of which are pests to crops or disease vectors. They are also inter-linked in food chains, often acting as food for other vertebrates, such as pigs, birds, snakes and sometimes man. Amphibians are known to be an easily recognizable taxon in given habitats; and populations are sometimes specialized within a narrow habitat. This makes it easy and practical to monitor changes in composition over time, given different conditions (Heyer et al., 1994). Impacts on their habitat are reflected in changes in numbers and species diversity in a short time. These are some of the factors that have made amphibians to be recognized, nowadays, as good indicators of habitat change. They respond fairly quickly to habitat impacts.

Reptiles are important in nature as predators within the food webs of their habitats. They help keep animals that humans regard as pests under control. While reptiles are not as ecologically important to human-kind as are fishes, birds, and mammals, they suffer at the hand of humans more than any other animal group.

4.2.3.6 Butterflies

Insects play vital ecological roles in ecosystems especially as pollinators, pests, biological agents of diseases and pest control (Holt & Miller 2011). Several studies show that insects have a large influence on plant diversity and thus contribute majorly in structuring plant communities.

Butterflies were identified for use as a representative taxon in the assessment of the impacts of this project on beneficial insects. This is because of their ability to respond relatively fast to environmental changes and thus may play a valuable role in ecological monitoring.

4.2.4 Objectives

The main objective of this survey was to describe the biophysical environment in the transmission area, with particular reference to unique habitat types and their constituent dominant flora and fauna.

The specific objectives of the study were to:

- i. Identify and document existing flora and fauna in the project area
- ii. Document important habitats of wildlife species in the project area
- iii. Describe the conservation status, if known (e.g. IUCN Red List, CITES) of these species occurring in the area with special attention given to rare and threatened, endemic or near endemic species,
- iv. Evaluate the impacts the project will have on the fauna and their habitats

4.2.5 Methods

The Hoima-Kinyara route that was ground-truthed for vegetation and indicator fauna (insects, amphibians, reptiles, birds and mammals) is presented in Figure 4.6.

The surveys were conducted by walking several sections of the transmission line close to angle points or where natural and semi natural habits were spotted. GPS points would be marked as references to these habitats and sampled (Appendix 3(a)). Floral surveys located sampling quadrats or transects along this route. For faunal surveys, each transect covered a distance of 200 metres and a width of 100 metres either side of the transmission line and surveyed in one hour. Only species ahead were recorded to avoid recounts. The faunal species surveyed were herpetiles (amphibians and reptiles), birds and mammals. Transects are good for establishing species presence and are also useful in density estimates (Burnham et al., 1980).

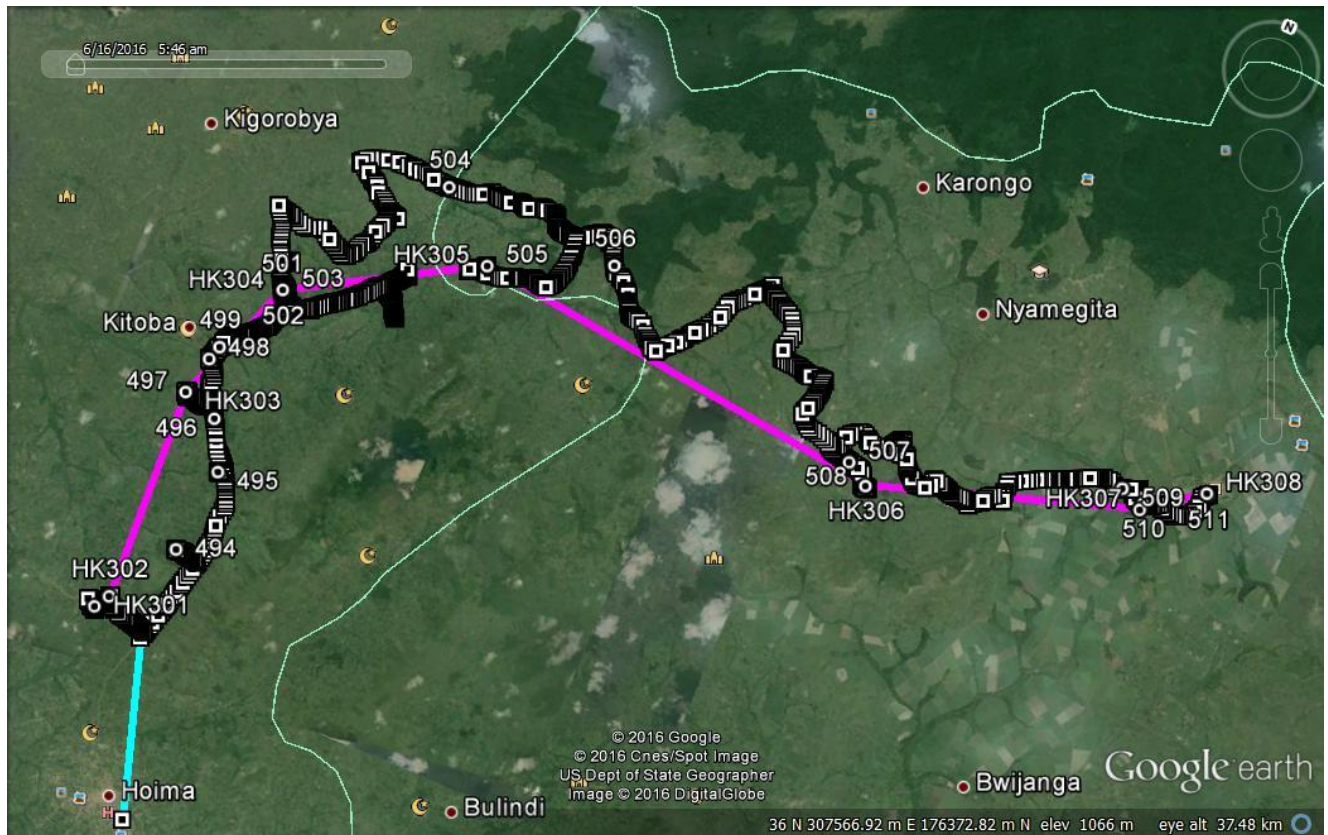


Figure 4.6: Survey foot print for plants and indicator fauna
Note the Hoima-Kinyara transmission line is in pink.

4.2.5.1 Floral survey methods

Floral surveys involved two botanical Quantitative Assessment methods. These included;

- a. Quadrant sampling method
- b. Transect/ Plotless sampling method

a) Quadrat sampling method

This method was applied at the selected corner sites for intensive study. At each of the selected sampling Points, a (20 x 20) m plot was assessed. All woody species of tree and shrubby habit were assessed and enumerated from such (20 x 20) m plots, whereas herbs and grasses were enumerated in quadrats measuring (5 x 5) m nested at the left hand top corner of the (20x20) m quadrats. This ensured that all major vegetative assemblages at the project site were captured in the survey effort.

b) Transect/ Plotless sampling method

Floral composition along transmission route of the project across the homogenous/ heterogeneous landscape was assessed by a transect method, where vegetation communities along were randomly assessed. Fieldwork within each plot included plant collection, structural analysis and species diversity characterization of all floras represented.

Quantitative data collected included: life form characterization of each species; % coverage and abundance. Evidence of current and previous disturbance, incidence of exotic species invasion and general notes were also compiled for each sample plot/point. Conservation status of plants was assessed in accordance to IUCN Redlist.

Tree layers ranged from 3m+ high. The Shrub layers ranged from 1 - 3 m, whereas the herb layer was from 0-1m. Any herb that was >3m was recorded here as a tree and likewise, a tree seedling that was <1m high was recorded in the herb layer (Kent and Coker, 1992; Magurran, 1988).

4.2.5.2 Mammal Sampling

The mammal surveys were conducted in the same general area as all the other taxa surveyed for this report. The surveys were largely restricted to medium sized to larger mammals and any small mammal records were only incidental. Terrestrial mammals vary widely in ease of observation and different survey methods may be applied for different species. Conspicuous and large mammals may simply be counted by direct observation. However, several mammal species of conservation concern may mostly be secretive and nocturnal. Searching for mammal traits formed a major core method for the field surveys. Traits such as dung, feeding signs, footprints, burrows and dens were searched for and recorded as evidence of the presence of mammals. Mammal tracks are mostly looked for on the wet or muddy areas near ponds and streams where animals come to feed or drink. Associated feeding signs such as partially eaten vegetation or carcasses also provided evidence of traits of mammals. This was accompanied by contacting the local people who were met in the field. An inquiry into the mammals encountered in their day-to-day work was made. Most of the mammal names were given in the local names. The Mammals of Uganda book by Bere (1964), Wilson and Reeder (2005), Smithsonian National Museum of Natural History (2005), and Animal Diversity Web (1995–2006) were used to ascertain local animal names with their English and scientific names. The status of the mammals was evaluated using the IUCN Red Data List (2008). However, as not many local mammals can be reliably detected by these traits, this method may need to be supplemented by other survey efforts.

4.2.5.3 Birds Surveys

The main habitats within the proposed project area include subsistence farmlands with scattered trees, patches of riverine forests, forest, swamps and sugarcane plantations. Bird surveys were carried out using transect counts. Existing footpaths were used or motorable roads within the proposed project area as transects as shown in Figure 4.6. The counting technique involves walking along the transect which was divided in 200m sections and at every 200m point, the habitat type and all individuals of bird species (seen or heard) within the 100m radius were recorded. Birds were identified according to the bird guide by Stevenson et al. (2005). Opportunistic records of birds seen or heard outside the sampling area but within the surrounding area were also made and added to the checklist. Bird species were further categorized according to their habitat categories to ease analysis.

Each species was assigned an ecological (or habitat) type according to Bennun et al. (1996). This is designed to assist in classifying habitats, and also to assess the importance of an individual habitat to a defined group of bird species with a known habitat requirement. Hence, birds were divided into the following three categories:

- Forest-dependent species (FF-species) are forest interior birds often uncommon even at the forest edge.
- Forest generalists (F-species) are generalists in their ecology, occasionally occurring outside forests.
- Forest non-dependent species (f-species) are sometimes seen in forests, usually at the edge or in large gaps, but are better thought of as forest visitors.
- Non-forest (open habitat) species. The divisions of species found in non-forest habitats is less fine grained with several habitats being lumped together. For example open woodland, bushland, and grassland are all grouped under the single heading of open habitats (O).
- Birds were further grouped into other categories such as: 1) water specialists or generalists (water birds), i.e. species adapted to aquatic/swamp habitats (Water birds), 2) migratory species (PM) which occur seasonally, or 3) according to their conservation or endemic status. A degree of caution needs to be exercised if including migratory species in analysis as their inclusion on the list may depend more on the time of year that the habitat was visited than their actual presence or absence.

4.2.5.4 Herpetiles (Amphibians and Reptiles) Sampling

For amphibian and reptilian fauna, the main methods of sampling were: Visual Encounter Surveys (VES) and Opportunistic Surveys. VES is similar to the Timed Constrained Count (TCC) method described by Heyer et al. (1994). A person moves slowly in a habitat, watching the foliage above the ground carefully, turning logs or stones, inspecting retreats and watching out for surface-active species. The method generates encounter rates of species in their habitats in a unit hour. The local people met at or near the sampling points were interviewed to establish the reptilian species that may not have been recorded during active sampling. The amphibian or reptilian species encountered were identified and recorded. Identification of the herpetofauna followed Schiøtz, (1999), Channing and Howell (2006) and Spawls et al. (2006).

4.2.5.5 Insects (Butterflies) Sampling

The butterfly fauna of the target areas was sampled through the systematic use of sweep net at each point location. Random sweeping within the areas (Rapid Biodiversity Assessment) that involved combing through a defined area and catching and identifying every species encountered was employed. Opportunistic observations were included to help build the species list.

Table 4.3: Subjective characterization of observed butterfly species abundance

| Sighting | Description | Scores |
|----------|-------------------------|--------|
| >100 | Very abundant | 5 |
| 50-100 | Relatively Abundant (A) | 4 |
| 21-49 | Many (M) | 3 |
| 5-20 | Rare (R) | 2 |
| 1-4 | Very rare (VR) | 1 |

Specimen handling and data processing

The different species of butterflies encountered were identified on wings from expert knowledge. Individuals whose correct identification could not be established in the field were taken as voucher specimens and identified using available field guides (e.g. Larsen, 1991; Larsen, 2005). Cross checking was done using the extensive reference collections at the Zoological Museum, Makerere University. Each of the butterfly species was assigned to one of the ecological categories as described by Davenport (1996). The major categories considered in this study are forest dependent species (F), forest edge/woodland species (f), open habitat species (O), widespread species (W), migratory species (M), and wetland species (S).

Restricted range species

Species of restricted range (those not recorded throughout the transect work during the survey) and only recorded in a single microhabitat or at most two microhabitats were considered.

4.2.6 Results

4.2.6.1 Flora

Species diversity

The project area is mostly a constructed ecosystem and has been altered by devastating agricultural activities. However, a few natural habitats mosaics were encountered; where a total of 144 plant species were identified in the sampled project area, excluding the annual and perennial food crops. All identified plants belong to 42 families and 99 genera. Of the encountered plants, 33 were tree and grass species respectively (Figure 4.7), due to savannah woodland structure of the project area. However, most woody plants (trees and shrubs) were underwritten by the remaining riverine forests which were previous huge tropical rain forests that have been degraded by anthropogenic activities. A significant number of sedges (11 Species) especially *Cyperus sp* were identified due to the frequent wetlands that gestate the spreading streams and seasonally flooded area.

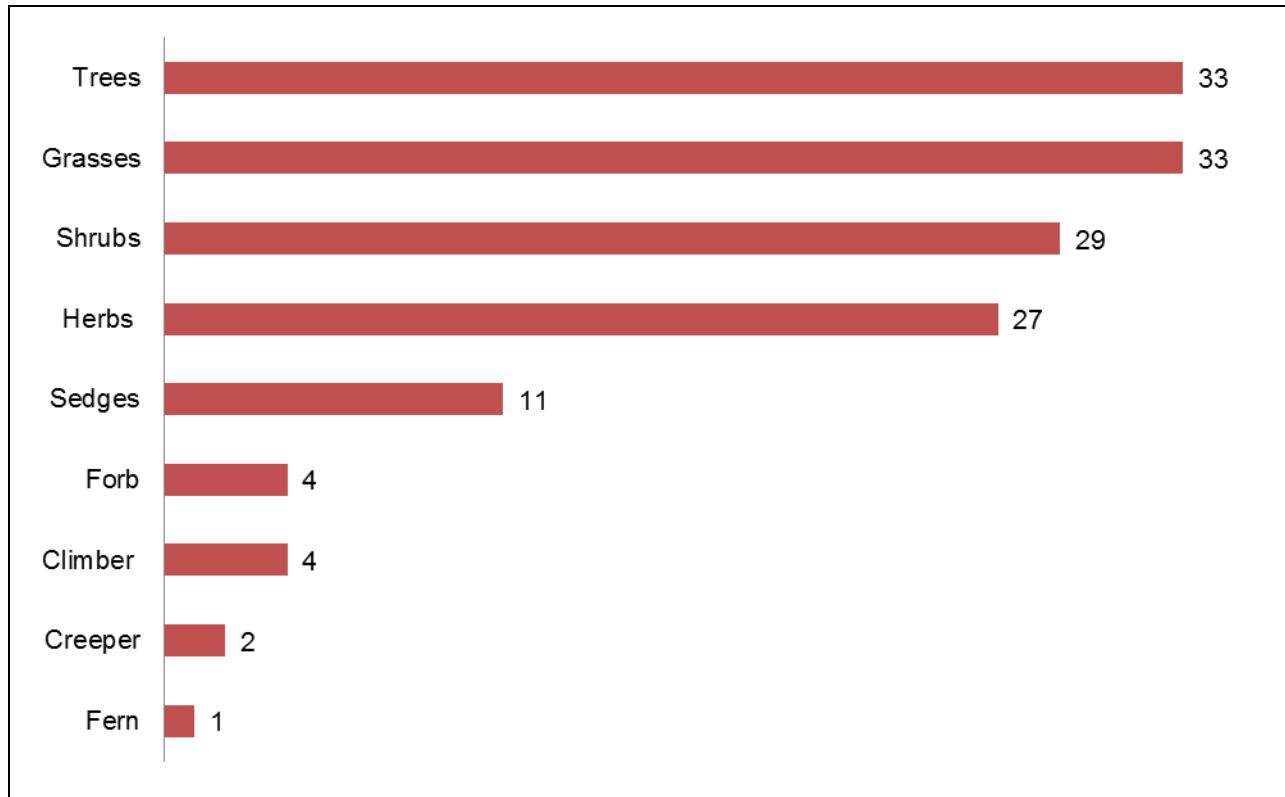


Figure 4.7: Abundance of plant species (by their life form) within the sampled sites

Flora Species of Conservation Concern

Among the most important tree species that was encountered within the project area included *Meosopsis eminii*, which is protected by the constitution of Uganda and it's listed on NFA species List. However, most plants species that were encountered are not yet assessed in accordance to IUCN Redlist of species; while otherwise a few were of Least Concern (LC) (Annex 3).

Farming impacts and habitat modification

Most of the project area is under subsistence and commercial cultivation (E.g. Sugarcane estates, tobacco and *Eucalyptus manors*). Local communities in Hoima and Uganda at large are heavily reliant on natural resources for livelihood (Kalema et al. 2010) and today nearly all the natural vegetation has disappeared owing to major land use changes such as clearing forests for timber, charcoal and firewood, and swamps for cultivation. The area also still holds mosaics of natural vegetation especially in the wetlands and riverine forests. Habitat modification leads to reduction in the number of species as result of unsuitable habitat, and dominance of invasive species that are sensitive to disturbances like *Mimosa pigra* and *Lantana camara*. This will mostly affect the intact wetlands and Riverine forests. These impacts can vary in effects depending on the intensity and frequency of the disturbances; can be short term and reversible, or they can be long term and irreversible. If the habitat is recovered after a short time, species can easily regenerate.

Invasive species

Some invasive species were encountered during the survey (Table 4.4); most of them were abundant in the farmlands and disturbed wetlands. These have a large potential to suppress indigenous plant species (Cronk & Fuller 2001, Global Invasive Species Programme 2003).

Table 4.4: Invasive species that were encountered in the project area

| Species | Common name | Family | Origin | Abundance *(DAFOR) |
|------------------------------|-------------|---------------|-----------------|--------------------|
| <i>Alternanthera pungens</i> | | Amaranthaceae | South America | O |
| <i>Amaranthus spinosa</i> | ----- | Amaranthaceae | Central America | O |
| <i>Euphorbia spp</i> | Milk weed | Euphorbiaceae | ----- | O |
| <i>Phyllanthus inflatus</i> | | Euphorbiaceae | Unknown | O |
| <i>Bidens pilosa</i> | Black jack | Poaceae | Americas | F |
| <i>Digitaria scalarum</i> | | Poaceae | ----- | O |
| <i>Portulacca oleracea</i> | | Portulacaceae | ----- | O |
| <i>Mimosa pigra</i> | | | | O |
| <i>Lantana camara</i> | | | | |

*DAFOR: D=Dominant (>81%) A=Abundant (61-80%) F=Frequent (41-60%) O=Occasional (21-40%) R=Rare (0-20%)

- i. ***Mimosa pigra*** is a moist ground invasive shrub capable of covering large parts of wetlands once disturbances are chronic and it proliferates as grazing intensifies. *Mimosa pigra* is invading many wetlands in Uganda and was seen in some swamps along the line route
- ii. ***Lantana camara*** invades areas that are drier unlike *Mimosa pigra* but both species thrive with disturbance (Cronk & Fuller 2001). Their presence makes indigenous flora in any given area susceptible to suppression effects (Cronk & Fuller 2001, Global Invasive Species Programme 2003).



Plate 4.1: Farmed wetland



Plate 4.2: Tobacco gardens



Plate 4.3: *Phoenix reclinata*-Riverine Forest



Plate 4.4: Fallow lands



Plate 4.5: Sugarcane plantation next to riverine forest



Plate 4.6: Extensive Papyrus swamp

4.2.6.2 Wetlands and water quality

Wetlands included open streams, seasonal and permanent wetlands. Species of seasonal wetlands included *Echinochloa pyramidalis*, *Loudetia simplex*, *Cyperus* spp., *Fimbristylis dichotoma*, *Cissampelos mucronata*, *Leersia hexandra* and *Polygonum salicifolium*. *Cyperus papyrus*, *Phragmites mauritiana*, *Phoenix reclinata* were among the many species of permanent wetlands. In these wetland areas were also found patches of swamp forest vegetation and the species here included *Phoenix reclinata*, *Albizia zygia*, *Maesopsis eminii*, *Macaranga schweinfurthii* and *Alchornea cordifolia* (Plate 4.6). Swamp forest species were *Phoenix reclinata*, *Acacia polyacantha*, *Blighia unijugata*, *Albizia grandibracteata* etc.

Water Quality Assessment

Water samples were picked from different water points along the 3 key permanent wetlands (Twanga, Waki and Nyabikonko streams) crossed by the proposed transmission line. Unlike the ESIA studies of 2013, water sampling in other wetland systems in the project area that are more than 1.5km a way from the transmission line were not sampled. It was assumed not be necessary because powerline construction activities will hadly affect such ecosystems. Baseline water quality was analyzed at Notational Water and Sewerage Corporation (NWSC) to determine the physio-chemical and bacteriological characteristics of the sources. Specifically, the samples were analysed pH, Electrical Conductivity, Colour, Turbidity, Total Dissolved Solids, Total Suspended Solids, Alkalinity, Hardness, Calcium, Magnesium, Bi-Carbonate, Chloride, Fluoride, Total Iron, Sulphates, Nitrates, Copper, Lead, Zinc, Oil and grease and Faecal coliforms. The results were compared with National Standards for portable water (Table 4.5). Table 4.6 below presents a summary of the results. Detailed results of the laboratory tests for each sample and parameters tested is presented in Annex 8 against permissible standards.



Plate 4.7: Water sampling along the various swamps in the project area

Table 4.5: Maximum permissible standards for selected parameters for potable water

| Parameter | Units | National Standards for Portable water (Maximum permissible) |
|--|-----------|---|
| PH | - | 6.5-8.5 |
| Alkalinity: Total as CaCO ₃ | mg/L | 500 |
| Bicarbonate as CaCO ₃ | mg/L | 500 |
| Calcium: as Ca ²⁺ | mg/L | 75 |
| Chloride | mg/L | 500 |
| Biochemical Oxygen Demand (BOD) - 5 days at 20°C | mg/L | Not specified |
| Bicarbonate as CaCO ₃ | mg/L | 500 |
| Colour (apparent) | Pt/Co | 15 |
| Copper (Cu) | mg/L | 1.0 |
| Electrical Conductivity (EC) | uS/cm | 2500 |
| Fat, Oil & Grease (FOG) | mg/L | 0.0 |
| Fluoride | mg/L | 1.5 |
| Hardness: Total as CaCO ₃ | mg/L | 500 |
| Iron: Total | mg/L | 1.0 |
| Lead (Pb) | mg/L | 0.05 |
| Magnesium: as Mg ²⁺ | mg/L | 50 |
| Nitrate - N | mg/L | 5.0 |
| Ortho-Phosphate: Reactive | mg/L | 1.0 |
| Sulphate: SO ₄ ²⁻ | mg/L | 200 |
| Total Dissolved Solids (TDS) | mg/L | 1200 |
| Total Suspended Solids (TSS) | mg/L | 0 |
| Turbidity | NTU | 10 |
| Zinc (Zn) | mg/L | 5.0 |
| Faecal coliforms | No./100mL | 0 |
| Cadmium (Cd) | mg/L | 0.001 |

Note: Several samples were analyzed and their properties were compared against these standard in Annex 8

Table 4.6: Water quality assessment along Hoima-Kinyara Transmission line

| Name & location of stream/swamp | Coordinates at which sample was taken | Hydrological particulars of the stream | Water quality results |
|--|---------------------------------------|--|--------------------------------|
| Wetland/streams to be crossed by the transmission line | | | |
| Twanga stream | E: 322473 | Originates from Bisaju | The sample showed satisfactory |

| Name & location of stream/swamp | Coordinates at which sample was taken | Hydrological particulars of the stream | Water quality results |
|---------------------------------|---------------------------------------|---|---|
| | N: 180700 H: 1068 | village via Onini villages and joins river Waki up to lake Albert. It's a permanent stream and a permanent water source by the surrounding community. Water is used for both cooking and other domestic purposes. | physical-chemical characteristics of the source except for clour (due to turbidity, suspended solids) & faecal coliform count which failed to meet the National Standards for for portable water quality. For details of the water quality results, refer to Annex 8. |
| Waki stream | E: 326797 N: 178097 H: 1061 | This stream seperates Hoima and Masindi districts. Sample was taken at a point that is between Bineneza village (Masindi) and Mbarara village (Hoima). River originates from Kimanya II village via Bineneza and joins river waki which finally drains in lake Albert. Water from this stream is used for both cooking and other domestic purposes. | The sample showed satisfactory physical-chemical characteristics of the source except with higher clour (due to turbidity, iron content & suspended solids) & faecal coliform count which failed to meet the National Standards for for portable water quality. For details of the water quality results, refer to Annex 8. |
| Nyabikonko stream | E: 314228 N: 173029 | This is a small stream which is said to originate in Kiryangobe village and drains into Lake Albert via Tesukura, Kisiramu, and Buhamba villages. Stream is used for washing motorccles and other minor irrigation activities in nurseries. Water in this stream is not used for domestic purposes. | The sample showed satisfactory physical-chemical characteristics of the source except with higher clour (due to turbidity, iron content & suspended solids) & faecal coliform count which failed to meet the National Standards for for portable water quality. For details of the water quality results, refer to Annex 8. |

4.2.6.3 Mammals

A total of 14 mammalian species belonging to five orders, six families and 14 genera (i.e. each genus with only one species) were recorded in only five of the sites where vertebrate species were recorded (Fig. 4.8, Appendix 5).

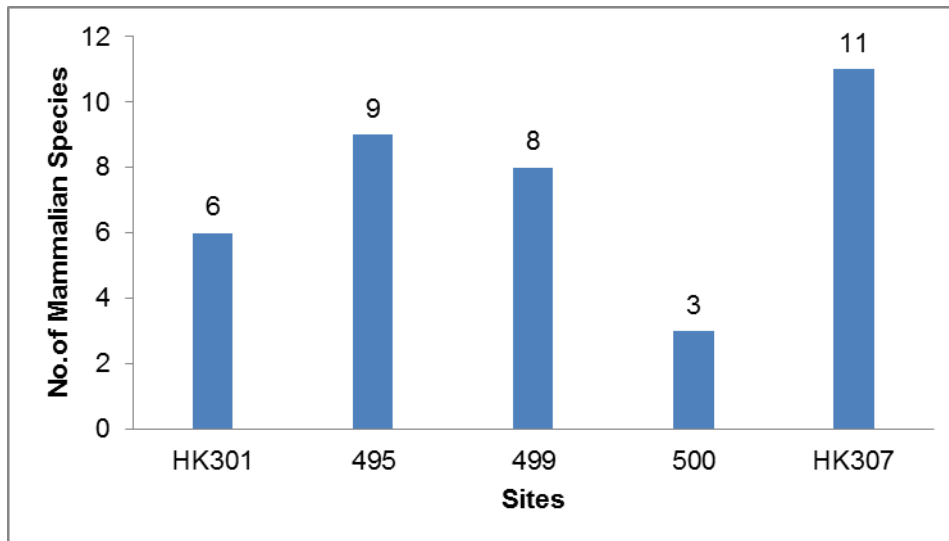


Figure 4.8: Mammalian diversity in the sampled sites

The project is implemented in an area near the Budongo Central Forest Reserve which 6km away, and the possibility of encountering the large primates in in the area was investigated. Using field investigations as described in section 4.2.5.2, as well as interviews with communities around the area and the Uganda Wildlife Authority (UWA), it was established that the large primates such as chimpanzees have no habitats around the area. However, it is recognised that there may be instances when some primates may wander away from the natural habitats and stray in areas the proposed transmission line corridor. The strategy to deal with stray animals in conservation areas is discussed in Section 8.2.2.5

4.2.6.4 Birds (Avifauna)

A total of 105 bird species were recorded during the bird surveys. A full list of species and their occurrence across the survey sites is given in Annex 4. The most common specie was the Common Bulbul *Pycnonotus barbatus* which was recorded on almost all the transects. In addition, open habitat birds accounted for the highest proportion of bird species, followed by forest generalists and lastly wetland or marshy vegetation bird species (Figure 4.9). Only four species of conservation concern were recorded during the bird surveys: Papyrus Gonolek, Grey Parrot, Crowned Eagle and Brown snake Eagle, all these species are very sensitive to habitat changes (Annex 4).

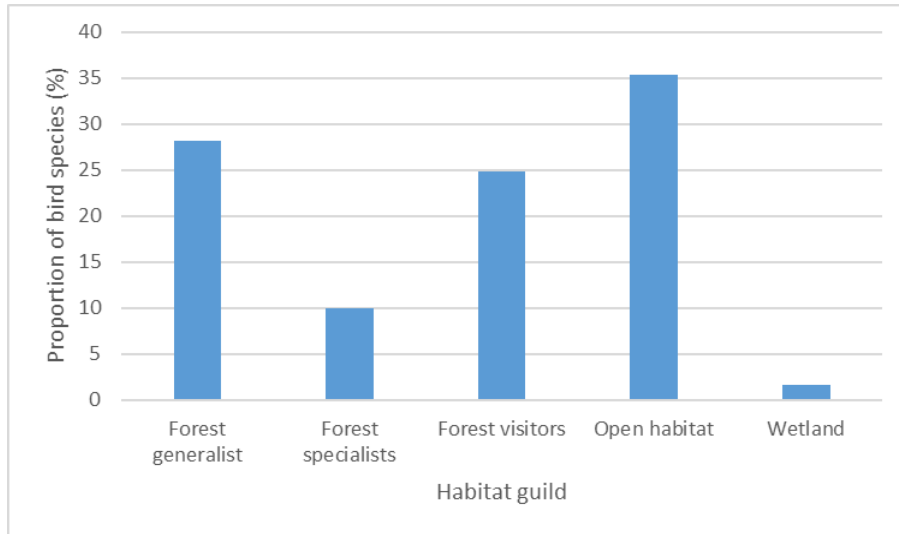


Figure 4.9: Proportion of bird species in the different habitat categories

The high proportion of open habitat birds recorded was due to the fact the proposed transmission line will pass through areas which are already under human occupation, that is, farmlands and settlements. However, for most subsistence farmlands in Hoima and Masindi, scattered trees and shrubs were observed. It was also observed that some of the farmlands were originally private forests which have been converted for small scale agriculture and it is common practice for people to leave standing trees within the farm and along the rivers, hence riverine forests. The standing trees in farmlands and remnant riverine forests account for relatively high proportion of forest generalists and forest visitors. This is an indicator that these riverine forests act as corridors and migratory routes to some of the main central forest reserves such as Kasongore and Budongo forest reserves, thus enhancing overall bird diversity in the Albertine region. Some of the forest specialists were recorded in the remnant riverine forests but majority were recorded near Kasongore forest reserve as expected. But equally some of the forest specialists such as the Grey Parrot and the forest generalists are able to utilize open habitats as long as there is woody vegetation where they can perch and this explains why there were few bird records in the Kinyara sugar cane plantation, apart from the transect which was bordering a eucalyptus plantation. Research has shown that low intensity farming (with scattered trees) as opposed to intensive farming (clearing all woody vegetation) influences the existence of forest related bird species on farmlands (Chamberlain et al., 2009) besides other factors such as distance to the main forest.

The surveys were conducted in June 2016, when most of the migratory bird species have returned to Europe and this explains why no migratory bird species was recorded. Otherwise, the proposed project area is within the migratory route or the fly zone for migratory bird species due to its proximal location to Lake Albert and its associated wetlands.

Conservation Issues

- Majority of the bird species recorded during this survey (96%) are listed as 'Least Concern' according to the IUCN status and only 4% are listed as threatened. This was mainly due to the low sampling effort and the fact that such species are rare and shy, otherwise with extensive sampling, it is possible to record more bird species of conservation concern which are known to exist in this area (Fishpool et al., 2001).
- The riverine forest remnants and other natural vegetation in the vicinity of the project area provide a migratory route for birds and other animals as they connect to the main central forest reserves. Most forest related bird species are very sensitive to open habitats and therefore their movements are likely to be hindered if an area is void of vegetation especially tall trees and other vegetation which doesn't expose them to predation. Equally, the remnant tall trees in farmlands provide perching habitats for birds either when they are flying long distances or as they feed.
- Loss of bird diversity is mainly attributed to habitat loss and fragmentation which might be due to increase in human population and land use change. The proposed project area is largely inhabited by humans, hence the low bird diversity. However, there are some patches of natural vegetation and forest fragments and the presence of a relatively good number of forest related species suggest some resilience to disturbance. Eventually as the human population increases, the savanna woodlands may be converted to farmlands just like the neighbouring land use types. Hence, in the long-run, the increase in human population and land use change to agriculture may lead to bird diversity loss. Therefore, even small forest patches retain biodiversity value, although their size and sometimes isolation from other patches is likely to enhance the vulnerability of forest species in these patches to local extinction.
- Most of Uganda's forest cover is found on private land (64%) and the level of deforestation in Uganda is proceeding at an alarming rate (1.9%), which is the highest in East Africa (Obua et al., 2010) mainly due to increased population growth (3.4%) and development (Uganda Bureau of Statistics, 2002). Although the bird species recorded in this survey are wide spread in the surrounding areas, every existing natural habitat contributes significantly to the overall bird diversity in the Albertine region and Uganda as a whole. Therefore, it is important that all development projects exercise minimum damage to the existing natural vegetation as the environment is conserved for the future generations.

4.2.6.5 Herpetiles (Amphibians and Reptiles)

4.3 Herpetofauna

a. Amphibians

A total of fourteen amphibian species belonging to one order (Anura), six families and seven genera were recorded in seven of the sites in which vertebrate species were recorded (Figure 4.9, Annex 7(a)).

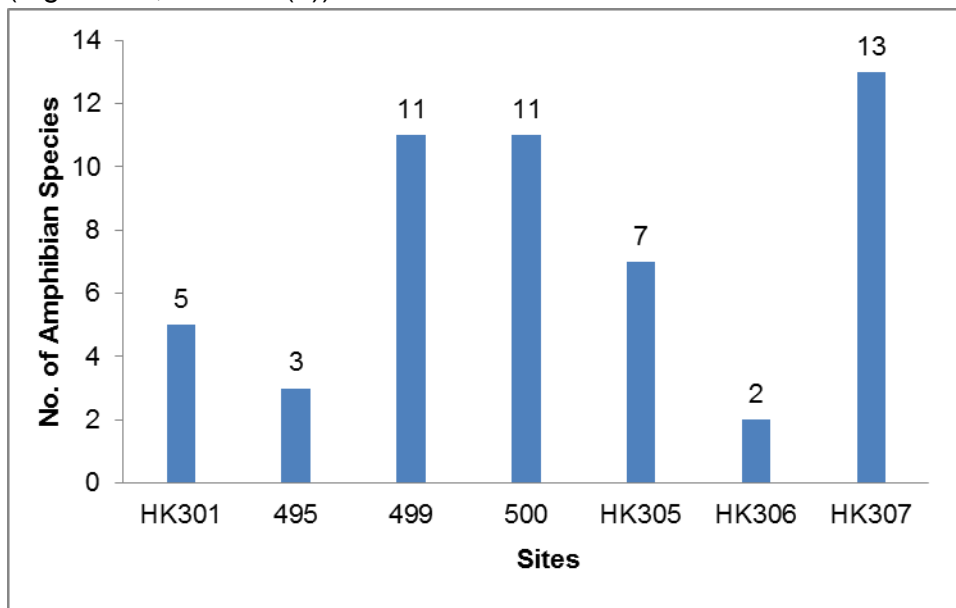


Figure 4.9: Amphibian diversity in the sampled sites

All the amphibian species recorded are of Least Concern (LC) according to the IUCN red listing (<http://www.redlist.org>).

b. Reptiles

A total of 15 reptilian species belonging to two orders (Sauria and Serpentes), nine families and 11 genera were recorded in the eight sites for which vertebrate fauna were recorded as presented in (Figure 4.10, Annex 7(b)). All the reptiles have a 'Not Evaluated' IUCN status.

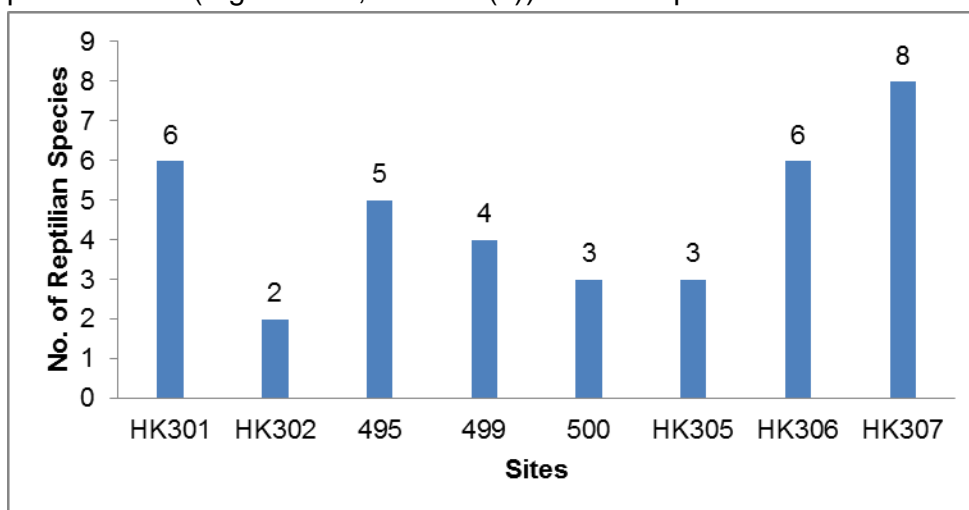


Figure 4.10: Reptilian diversity in the sampled sites

Powerline line construction and its effect on herpetiles

The power line will have great impacts on the herpetofauna through the following ways:

Land conversation: This will be the major negative impact especially on amphibians and their habitats. This can be mitigated by limiting the disturbance during construction of the power line pylon base.

Access roads construction: This will be another major negative impact on both amphibian and reptilian fauna. This can also be mitigated by minimum road construction and usage of already existing roads

Direct slashing of vegetation: This will be a temporal negative impact that will be faced by both herpetofauna and their habitats. However, if a large area is not slashed, the vegetation should recover fast enough to provide shelter to the amphibian and reptilian fauna. Other concerns related to the transmission line will include direct death by trampling by human beings and the machinery and though vegetation thrashing.

4.3.1.1 Insects (Butterflies)

A total of 81 species of butterflies were recorded from the selected points along the proposed Hoima–Kinyara transmission line. This total comprised all the five super-families known to occur across Africa including Uganda. Details of species distribution and diversity within the different sites are shown in (Annex 6).

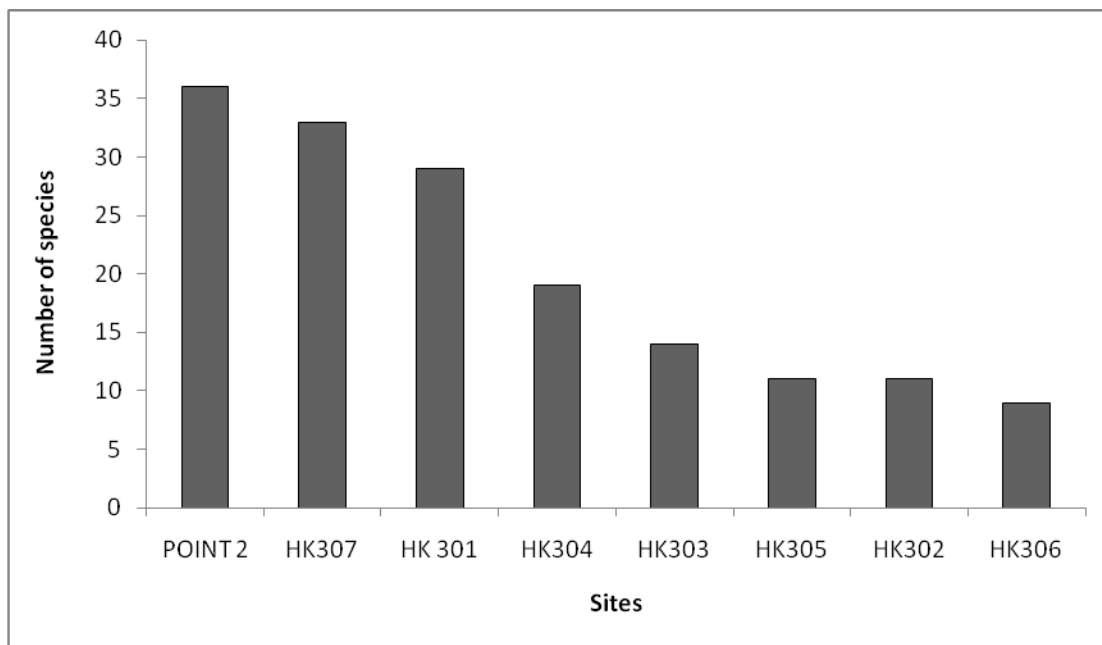


Figure 4.11: Number of species recorded from different sites sampled

Point 2 and HK 307 recorded the highest number of species, HK 301 and HK 304 had intermediate number of species, and the rest of the sites recorded fewer number of species (Figure 4.11).

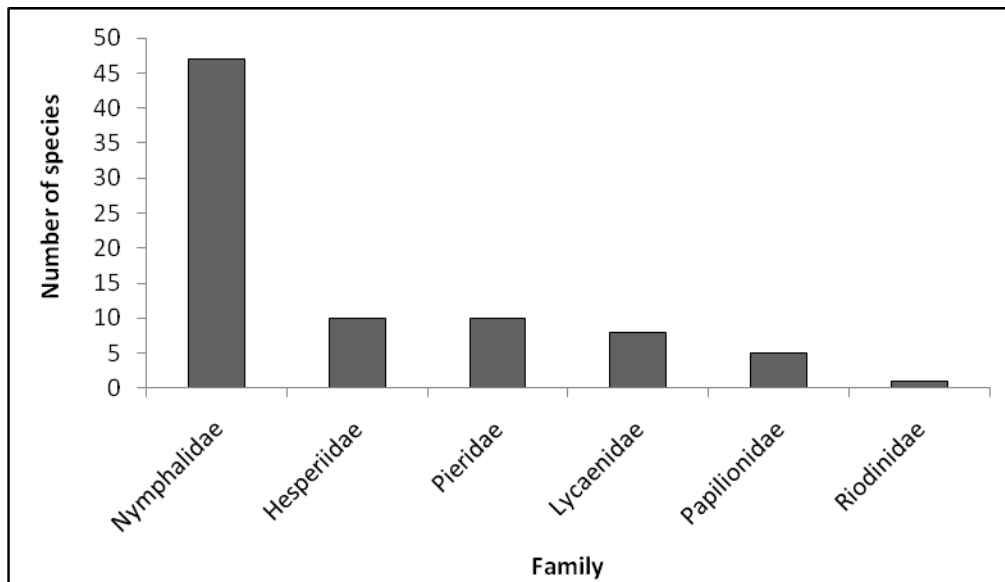


Figure 4.12: Distribution of butterfly families along the proposed transmission line

The distribution of species within the families varied considerably during the survey. Family Nymphalidae had the highest number of species, Papilionidae having the least number of species recorded and the other three super families with moderate number of species (Figure 4.12). Family Riodinidae only has one Afrotropical species that was present along the proposed transmission line. The species distribution within each family per sites also varied. List of butterfly species encountered are presented in Annex 6.

The majority of species recorded within the selected points were widespread species. The forest edge/woodland, forest-dependent species and species with migratory tendencies were fairly moderate in number. The forest-dependent and forest edge/woodland were mainly recorded from only two sites (point 2 and HK 307). Only one wetland species was recorded along the survey points (Figure 4.13).

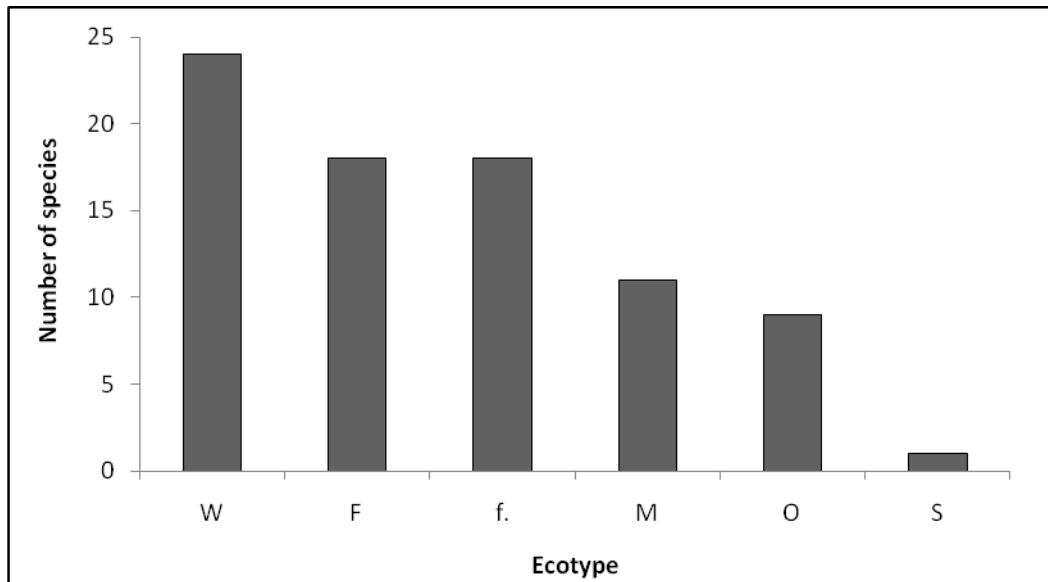


Figure 4.13: Distribution of species of different ecotypes along the proposed transmission line.

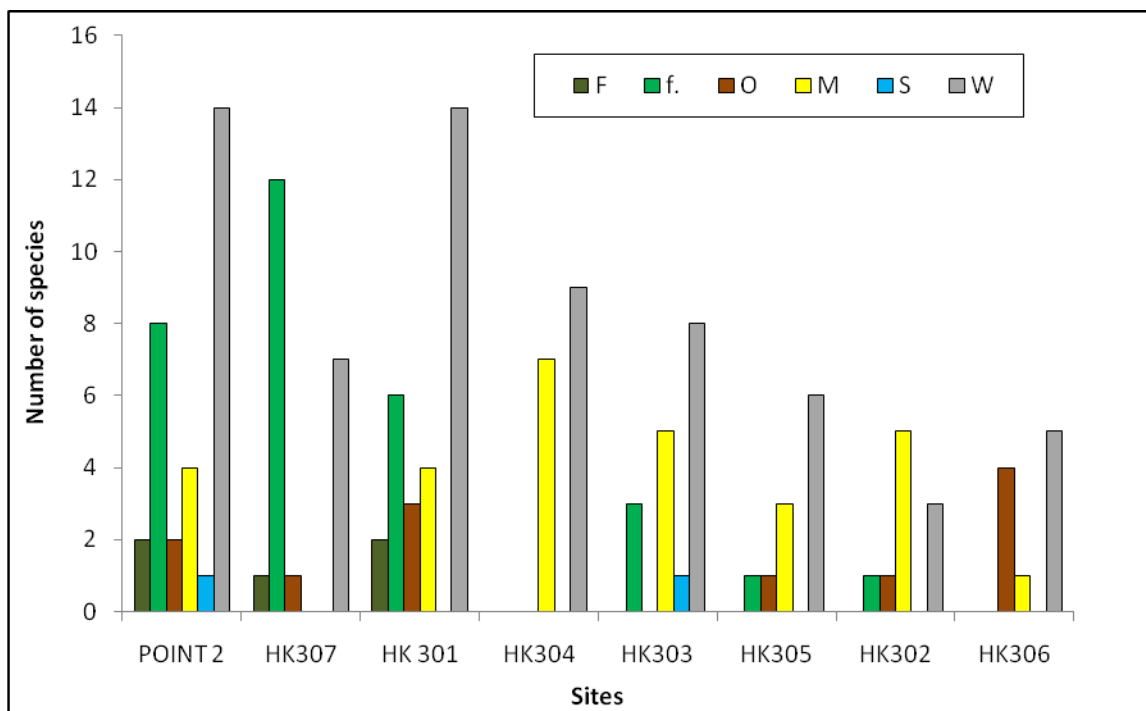


Figure 4.14: Distribution of different ecotypes in the various sites along the proposed transmission line.

Across all the sites, the majority of species recorded were mostly widespread species (Figure 4.13). Forest dependent species were only present at Point 2, HK 307 and HK 301. Forest edge/woodland species were mostly found in site HK 307, while none of these were

recorded in site HK 306 (Figure 10). Only one swamp/wetland species was present along the transmission line route and was found only at point 2 and site HK 303.

Looking at individual abundance data, 48 species were considered to be very rare with less than five individuals sighted across all the sites, eight species were rare, six species were generally many, seven species were relatively abundant and 12 species were generally very abundant.

Important explanations and considerations from the results

The conservation value of natural habitats, semi natural habitats and agricultural lands along the proposed transmission line is worth considering. Clearing native vegetation to establish structures to support construction of 220Kv transmission line and Kinyara substation would be an inappropriate land use practice given the well-documented negative impacts of land clearing on biodiversity.

From the results, it can be noted that the ecological habitat of sampled sites supports more widespread species, open habitat species and woodland species that are more of generalists and few migratory species. However, the abundance, distribution and species richness is low with exception to the forest-dependent and forest edge species that were recorded only from two points as they requires undisturbed habitats for their survival. Sites with natural vegetation recorded more species due to presence of several micro habitats that supports a high diversity of butterfly fauna.

In general, the area is relatively low in species abundance and richness as compared to other similar habitats in Uganda. However, the negative impacts of the project is assumed to have great effect on specialist species since are often lost out when their habitats are disturbed or become less habitable. Therefore any change in butterfly fauna attributable to the new development activities should be done through well panned monitoring program.

4.4 Physical cultural resources

4.4.1 Introduction

An assessment of the physical cultural resources along the entire Hoima-Kinyara corridor was conducted. The aim was to determine the presence or not of heritage resources such as archaeological and historical sites and features, graves and places of religious and cultural significance, and to submit appropriate recommendations with regard to the cultural resources management measures that may be required at affected sites/features. The report thus provides an overview of the heritage resources that may occur in the demarcated area where development is intended. The significance of the heritage resources was assessed in terms of criteria defined in the methodology section. The impact of the proposed development on these resources is indicated and the report recommends mitigation measures that should be implemented to minimize the adverse impact of the proposed development of Hoima-Kinyara power line on these heritage resources.

4.4.2 Description of the Affected Terrain

The proposed Hoima- Kinyara power line area is situated on farms, which are still in production, mainly concerned with animal, plants and forestry activities. The terrain is less mountainous, with rocky cliffs sloping toward the valley at the start of the project area. Vegetation consists of forest, interspersed with acacia woodlands, large sugar cane farms. Grasslands dominate large areas of the terrain.

4.4.2.1 Historical Background

Cultural heritage in the project area is predominantly that of the Banyoro formally called the Abakitara, Bagungu and Luo ethnic people. The Luo is a cluster of the Lou ethnicity and is the group that settled in the area around 1856 when the Lou ancestors conquered the Chwezi and settled in the area. Bunyoro or Kitara was such a big Kingdom which extended as far as Madi and Bukidi in the north, Kavirondo in the east, Kiziba, Karagwe, Rwanda, and Kigezi in the south, and to the west it covered Ituri forests in the now DRC. It is believed that the Bunyoro-Kitara was ruled under three main dynasties; the Batembuzi, Abachwezi and the Ababiito.

The Batembuzi Dynasty

The first Kings were of the Batembuzi dynasty. Batembuzi means harbingers or pioneers. The Batembuzi and their reign are not well documented, and they are surrounded by a lot of myths and oral legends. There is very little concurrence, among scholars, regarding the Batembuzi time period in history, even the names and successive order of individual Kings. It is believed that their reign dates back to the time of Africa's Bronze Age (J.W. Nyakatura; 1999).

The Bachwezi Dynasty

The Bachwezi dynasty was followed by the Babiito dynasty of the current *Omukama* (King) of Bunyoro-Kitara. The Bachwezi are credited with the founding of the ancient empire of Kitara; which included areas of present-day central, western, and southern Uganda; northern Tanzania, western Kenya, and eastern Congo. Very little is documented about them. Their entire reign was shrouded in mystery, so much so that they were accorded the status of demi-gods and worshipped by various clans. Many traditional gods in Tooro, Bunyoro and Buganda have typical *Kichwezi* (adjective) names like Ndahura, Mulindwa, Wamara, Kagoro, etc. The Bachwezi dynasty must have been very short, as supported by only three names of Kings documented by historians. The Bachwezi Kings were Ndahura, Mulindwa and Wamara in this order. In addition to founding the empire of Kitara, the Bachwezi are further credited with the introduction of the unique, long-horned Ankole cattle, coffee growing, iron smelting, and the first semblance of organized and centralized government, under the King. No one knows what happened to the Bachwezi. About their disappearance, there is no shortage of colourful legends. One legend claims that they migrated westward and disappeared into Lake Mwitanzige (Lake Albert).

The Babiito Dynasty

Any attempt to pinpoint the dates of this, or any other dynasty before it, is pure conjecture; as there were no written records at the time. Modern-day-historians place the beginning of the Babiito dynasty at around the time of the invasion of Banyoro by the Lou from the North. The first Mubiito (singular) King was IsingomaMpugaRukidi I, whose reign is placed around the 14th century.

4.4.3 Cultural Values and Institutions

The most important cultural institution in the project area is the Bunyoro Kingdom. The Kingdom is of diverse ethnicities that live along the mother inhabitants, the Banyoro thus the people there do not bear homogeneous cultural practice. This also implies that there is a low degree of allegiance to the institution punctuated by wrangles and disobedience among the King's subjects and regiments. The major cultural activity in the area is the King's coronation day celebrated every year.

4.4.4 Assessment Methodology

4.4.4.1 Overview

A baseline study was conducted to compile a comprehensive inventory of all sites of archaeological and cultural heritage interest within and in the environs of the project area. This report details the result of the survey.

4.4.4.2 Desk-Based Research

Several documentary sources were searched to review recorded archaeological sites and cultural resources in the project area. These include the Museums and Monuments Office,

published and unpublished papers and studies, publications on relevant historical, anthropological and other cultural studies. Other documents reviewed include unpublished archival papers and records, collections and libraries of tertiary institutions, historical documents held in the Public Records Office, Lands Registry, District Lands Office, District Office and Museum of History, cartographic and pictorial documentation, and geotechnical information.

4.4.4.3 Site Visit/Surveys

A pedestrian survey of selected areas and a drive through by vehicle of the demarcated area was undertaken to assess any changes which may have taken place in the last four years since the assessment, during which standard methods of observation were applied. As most archaeological material occur in single or multiple stratified layers beneath the soil surface, special attention was given to disturbances, both man-made such as roads and clearings, as well as those made by natural agents such as burrowing animals and erosion.

4.4.4.4 Meetings and Interviews

Meetings and interviews with the local people were a major source of information about the current socio-cultural lives of the people living in and around the project area. In such discussions members were made to have a better understanding of different heritage properties, with the hope that they will in turn inform the working team of such properties in the area.

4.4.4.5 Documentation

Documentation of heritage remains were recorded by means of a GPS (Garmin 60), record books, cameras, tape measures, artefact bags and other relevant equipments for proper documentation.

4.4.4.6 Limitations

The rapid survey was throughout the project area, but limitations were experienced due to the fact that archaeological sites are subterranean and only visible when disturbed. Vegetation was dense and visibility limited. It is thus possible that some sites could have been missed.

4.4.4.7 Categories of significance

The significance of archaeological sites is ranked into the following categories.

- No significance: sites that do not require mitigation.
- Low significance: sites, which *may* require mitigation.
- Medium significance: sites, which require mitigation.
- High significance: sites, which must not be disturbed at all.

The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions.

4.4.5 Findings

4.4.5.1 Historical Sites

a) *Fort Katasiha*

Fort Katasiha, an old fort and hiding/planning ditch used by Kabalega in 1893 was noted 3km on the road to the proposed substation in Hoima. In all probability, it is related to the old Kabalege ditches found in most parts of the former Bunyoro- Kitara region. The site is located at GPS; 36N 0315212, 0166707, elevation: 1106m.

b) *OmukamaKabalega's Monument at Mparo*

The Mparo monuments still remains an important site in the project area although will not be affected by the transmission line (more than 7 miles away from the line). The site is characterized by burials (tombs) some in built houses while others are in open space. There is a monument built to memorize the place and time when Omukama Chwa Kabalega received Dr. Emin Pasha on the 22nd of September 1877.



Plate 4.8: Kabalega's Monument

c) *The Board Game Site*

The Board Game (Mweso) site is yet another fascinating cultural and historical site located about 1km away from the Hoima-Masindi road. The site is characterized by three game boards and some stone piles in a line at GPS; 36N 0323747, 0160228. This area is linked to a small path crossing the project road. Oral history has it that, the site was used by OmukamaKabalega of Bunyoro and his forces as a place for planning and laying strategies for fighting invaders of the Kingdom. It was during their leisure times that they used to play the mweso game. However the site has adopted a cultural usage as it has been turned into a shrine where people go for different kinds of spiritual interventions. On the second visit, it was noted that, this site has been destroyed by and the game board could not be seen, which reduces the significance of the site.



Plate 4.9: Game Board Site

4.4.6 Archaeological Sites

a) *Iron Smelting*

A number of iron smelting sites belonging probably to Early Iron Working were noted on the terrain mostly exposed by human activities and animals. Iron smelting sites evidenced by

scatters of pieces of iron slag was noted at GPS; 36N; 0316479, 0162937, elevation; 1221m.



Plate 4.10: Pieces of Slag

b) Pottery Sites

These sites are not anymore relevant to the project as they are far from the power line section to be constructed. However the resent survey recorded a few new archaeological sites which are located at; 36 N; 0315932, 0169137, elevation 1111m, 36 N 0314285, 0164198, elevation; 1124m , 36 N 0343292, 0179710, elevation 1072m. The few archaeological sites recorded were characterised by single pottery shards and iron slag pieces badly destroyed and of very low archaeological values.



Plate 4.11: Scatters of Roulette Potsherds

4.4.6.1 Burial Sites

A number of informal and formal graves were noted with the major significant being the Mparo Tombs, a burial ground of Bunyoro Kingdom. Initially the Kingdom was at Kinogozi along Kampala road 7milles away from Hoima town where Kamurasi the King Father of Kabalega was buried. But because of its good strategic location, Kabalega through his parish chief called Mparo selected to stay at Mparo and named the place Mparo basing on the name of the parish chief who used to head this place. Up to date it is used as the burial place for the Kings' clan. Apart from King Kabalega, the place also houses King Sir TittoOwinyi, the heir to Kabalega as well as his mother. In 2010, the mother of the current King, Queen Komworu was also buried here. Many other people have been buried here including the princes and princess of Kabalega such as RukidiMpuuga who was a son of King Sir TittoWinyi and a brother to the current King Iguru. HK 303, may directly impact on a burial at location 36 N 0313922, 0170990, elevation 1092. The burial site is characterised by a cemented grave and one other not cemented, the burial are very close to two houses.

HK 306 will also fall within a home stead with about nine burials at the home of Mr. Alileo in Lwepisi village. The burials are located at GPS location; 36 N 0334973, 0176755. These cultural sites need to be avoided during the constructions and if the owners are to be relocated then they may need to relocate the burials as well.



Plate 4.12: Burial at Mparo Tombs and Local Burial Sites at the Proposed Power Line



Plate 4.13: Burial site at HK 303

4.4.6.2 Places of Worshipping

A good number of religious worship places belonging to different sects like the Catholics, Church of Uganda, Islam and Adventist Churches were noted. None of the sites will be touched by the project.

4.4.7 Impact Assessment

4.4.7.1 Overview

As already noted above, the proposed project will insert positive and negative, direct and indirect impacts on the cultural assets. The purpose of the ESIA was to enhance the positive impacts and minimise or remove the negative impacts.

4.4.7.2 Archaeological Sites

The major archaeological sites/assets that will be impacted upon by this project directly include; A number of iron smelting sites belonging probably to Early Iron Working which were noted on the terrain mostly exposed by human activities and animals as evidenced by scatters of pieces of iron slag at GPS; 36N; 0314285, 0164198, elevation 1124m 36 N

0315931, 0169137, elevation; 1111m, 36 N 0343292, 0179710, elevation ; 1072m. Burial sites at location 36 N 0313922, 0170990, elevation; 1092 and 36 N 0334973, 0176755. The few potsherds recorded this time had no decorations and were in poor state of conservation. The construction of the power line will involve digging down soil, this leads to exposure and destruction of cultural artifacts such as pottery, lithic, bones and iron slag among others. This may occur majorly at the above identified sites

Impact enhancement: It is important that the project implementers work hand in hand with archaeologists so that rescue excavations may be done on some sites that will be impacted directly. In this case, the recovered artifacts may be preserved in the National Museum for further studies. In addition the contractors must be trained in basic skills in site identification and preservation measures that will help them act responsively and avoid unwarranted destruction of cultural materials.

.Impact evaluation: It is true that destruction of such artefacts is a great loss to the community and the entire nation because they are irreplaceable and priceless. But if professional rescue excavations are done on the sites, the artefacts can be collected and preserved in the Uganda National Museum and hence its research value can still be maintained.

Impact severity: It is generally assumed that impacts caused by linear developments such as power line on heritage sites, may be less severe than impacts which occur as a result of more drastic kinds of development such as mining, town establishment or dam building operations where major effects on the environment, including heritage resources, are brought about. Therefore the severity on affected archaeological property is medium because most of the identified pottery and iron slag scatters in the project area can be rescued when the line is deemed to be touching them directly. Therefore impact significance is medium.

4.4.7.3 Historical Sites

The major historical sites/assets in the project area is Fort Katsiha located at GPS; 36N 0315212, 0166707, elevation: 1106m, OmukamaKabalega's Monument at Mparo and the Board Game Site located at GPS; 36N 0323747, 0160228. The above mentioned sites have been and are still very important historical research sites attracting students from primary, secondary and higher institutions of learning as well as other researchers from all walks of life. Secondly it is one of the potential tourist sites in the region. However, these sites will not be affected by the Hoima-Kinyara T-line.

Impact severity: The severity on affected historical property is low because the identified sites and their components are in their proper location and will not be affected in any way.

4.4.7.4 Burial Sites

The project will encounter informal burial sites. The project may directly demand the relocation of some burials within the power line. It is imperative enough for the concerned officials to accord their relatives necessary assistance for the relocation of the remains when required. To avoid clashes with the community, all the valued traditional requirements must be followed.

Impact evaluation: It should be noted that in the context of culture, things to do with spirits are very important and whether informal or formal burial sites, all carry the same cultural/spiritual value. Africans are also said to believe that human beings don't die but only rest. This implies that should the project touch any of the graves, appropriate appeasement cultural rituals must be done as a measure of appeasing the resting souls. This should be done in accordance with the requirements put forward by the caretakers of the site.

Impact severity.: The severity of this project on the burial sites may be medium because most of the sites are designated. But the methods used to handle the situation whether in the designated or those in the different homes will determine how big the severity is. This is because matters to do with burials are culturally sacred and sensitive.

4.4.8 General impact enhancement and mitigation measures for physical cultural resources

- Construction workers and managers should be trained in basic skills of how to identify and handle archaeological materials/artifacts before commencement of work. Such training should be administered by a qualified/or registered archaeologist.
- It is likely that sub-surface archaeological materials may be exposed during excavations, and site clearing. If such materials are found, the contractor must report to the National Museum which will sanction professional investigation following the "chance finds procedure".
- All historical cemeteries associated with the Bunyoro Kingdom should be appropriately mapped in consultation with the Kingdom Authorities and Local Community and as such be designated no construction areas. Other undesignated burials in the area of alignment should be relocated following the traditions and customs of the local people. Care should be taken not to marginalise and overlook the traditions and customs of minority groups.
- The contractor should appoint an archaeologist to oversee the day to day excavations including clearing vegetation so that archaeological materials can be identified, protected and documented.

4.4.9 Conclusions

The study area contains archaeological remains associated with early to late iron-age and period of occupation of Bunyoro Kitara. These sites may be of medium to high archaeological significance. The power line alignments will not affect archaeological sites

much. It is the burials which are within the project area that may be negatively affected. According to the RAP studies done along the line, 54 graves were identified.

It is therefore clear that, negative impacts of the project are far outweighed by the positive impacts. However, various mitigation measures, such as the involvement of archaeologists to recover any archaeological or cultural material that may be unearthed during construction, need to be implemented effectively.

4.4.10 Recommendations

- All excavations and ground breaking activities including vegetation clearing should be supervised by an archaeologist appointed by the contractor.
- All chance finds must be reported to the National Museum and should be processed according to the chance find procedures presented in section 9.11.

5. SOCIO - ECONOMIC CHARACTERISTICS OF THE PROJECT AREA

10.1 PROJECT AREA

The Hoima Kinyara transmission will be located partly in Hoima and Masindi districts as illustrated in figure 5.1 below.

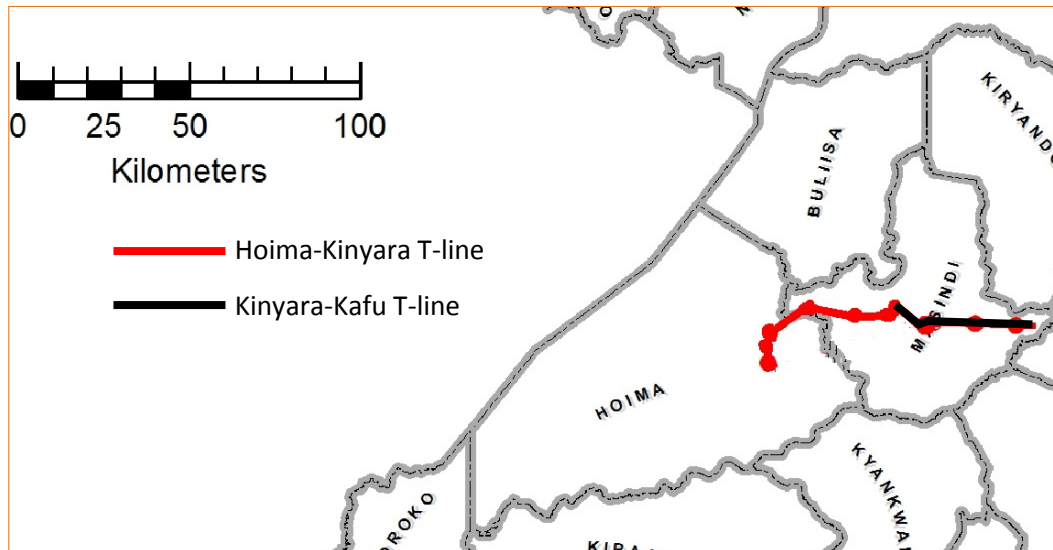


Figure 5.1: Over view of project area

10.2 HOIMA DISTRICT

5.2.1 Location

Hoima District is in the mid-western part of Uganda and it shares borders with Masindi and Buliisa Districts in the North, Kyankwazi District in the East, and Kibale District in the South. Hoima District stretches to the national boundary of the Democratic Republic of Congo in the West. The district has a total area of 5735.3 square kilometers with a land area of 3612.17 square kilometres. The western borders are completely covered by Lake Albert amounting to 2123.13 square kilometres of water. The proposed Hoima-Kinyara transmission line traverses Bujumbura division in Hoima Municipality, Kyabigambire, Kitoba and Kigoroby sub counties in Hoima district.

5.2.2 Population and demographic characteristics

5.2.2.1 Overview

According to population and housing census 2014 provisional results, Hoima District is among the most populated districts in Uganda, with total population was 573,903 persons, comprising of 49.95% males (286,705) and 50.04% females (287,198). Hoima district population was 1.6 percent of the National population (34,856,813 persons). The last inter-

censal period (September 2002 to August 2014), the population increased by 224,699 persons over a period of about 12 years.

5.2.2.2 Population Distribution

The distribution of the Population by Sub County in 2014 Census is shown in Table 5.1. The findings show that the distribution of the population by Sub County is uneven. Among the rural sub counties, Kyangwali is the most populated with a population of 97,366 persons, followed by Kigorobyia with 68,402 persons and Kabwoya with 63,118 persons. Kahoora Division, in Hoima Municipality, was most populous among the Urban Divisions. On the other hand, Kigorobyia Town Council had the smallest population of 5,867 persons.

Table 5.1: Census Population by sex and sub county

| County | Sub county | Total Male | Total Females | Total Population |
|--|-------------------------|----------------|----------------|------------------|
| Bugahya | Buhanika | 7,338 | 6,961 | 14,299 |
| | Buseruka | 22,105 | 20,913 | 43,018 |
| | Kitoba | 17,646 | 17,694 | 35,340 |
| | Kyabigambire | 20,972 | 20,152 | 41,124 |
| Bugahya Sub Total | | 68,061 | 65,720 | 133,781 |
| Kigorobyia | Kigorobyia | 33,772 | 34,630 | 68,402 |
| | Kigorobyia Town Council | 2,732 | 3,135 | 5,867 |
| Kigorobyia Sub Total | | 36,504 | 37,765 | 74,269 |
| Buhaguzi | Bugambe | 15,284 | 14,831 | 30,115 |
| | Buhimba | 19,635 | 19,404 | 39,039 |
| | Kabwoya | 32,239 | 30,879 | 63,118 |
| | Kiziranfumbi | 17,832 | 17,758 | 35,590 |
| | Kyangwali | 49,598 | 47,768 | 97,366 |
| Buhaguzi Sub Total | | 134,588 | 130,640 | 265,228 |
| Hoima District LG | | 239,153 | 234,125 | 473,278 |
| Hoima Municipality | Bujumbura Division | 10,850 | 11,954 | 22,804 |
| | Busiisi Division | 9,511 | 9,750 | 19,261 |
| | Kahoora Division | 15,824 | 19,244 | 35,068 |
| | Mparo Division | 11,367 | 12,125 | 23,492 |
| Hoima Municipal Council Sub Council | | 47,552 | 53,073 | 100,625 |
| District Total | | 286,705 | 287,198 | 573,903 |

Source: National Housing and Census 2014, Provisional Results

Sex ratio

In 2014, the sex ratio for Hoima District was 99.8 as compared to 95.4 at national level and 104.7, 97.5 and 102.5 for the neighbouring districts of Buliisa, Kibaale and Masindi respectively. The overall sex ratio in Hoima shows a declining trend between 1991 and 2014. Sex Ratio is defined as the number of males per 100 females. Sex composition is also valuable in understanding gender issues in development. Table 5.2 below presents trends in sex ratios for the last 3 census years.

Table 5.2: Trends in Sex Ratios in Hoima, 1991 – 2014

| Census Year | Hoima | Uganda |
|-------------|-------|--------|
| 1991 | 101.3 | 96.5 |
| 2002 | 100 | 95.3 |
| 2014 | 99.8 | 94.5 |

Source: Source: Population and Housing Census, 2014, provisional results

Population Density

The Population Density of Hoima was only 69 persons per square kilometer in 1969, but has since increased to 158.9 persons per square kilometer according to the 2014 Census. The population density for the District has increased overtime from 69 persons per square kilometre in 1969 to 72 in 1980, 74 in 1991 and 95.4 in 2002.

Table 5.3: Population Density by Sub County

| County | Sub County | Total Male | Total – Females | Total Population | Land Area | Pop Density |
|--------------------------------|------------------------|----------------|-----------------|------------------|-----------------|--------------|
| Bugahya | Buhanika | 7,338 | 6,961 | 14,299 | 61.8 | 231.4 |
| | Buseruka | 22,105 | 20,913 | 43,018 | 368.7 | 116.7 |
| | Kitoba | 17,646 | 17,694 | 35,340 | 235.3 | 150.2 |
| | Kyabigambire | 20,972 | 20,152 | 41,124 | 314.1 | 130.9 |
| Bugahya County | | 68,061 | 65,720 | 133,781 | 979.9 | 136.5 |
| Kigorobya | Kigorobya Town Council | 2,732 | 3,135 | 5,867 | 2.5 | 2346.8 |
| | Kigorobya | 33,772 | 34,630 | 68,402 | 328.3 | 208.4 |
| Kigorobya County | | 36,504 | 37,765 | 74,269 | 330.8 | 224.5 |
| Buhaguzi | Bugambe | 15,284 | 14,831 | 30,115 | 244.9 | 123.0 |
| | Buhimba | 19,635 | 19,404 | 39,039 | 273.5 | 142.7 |
| | Kabwoya | 32,239 | 30,879 | 63,118 | 689 | 91.6 |
| | Kiziranfumbi | 17,832 | 17,758 | 35,590 | 242.9 | 146.5 |
| | Kyangwali | 49,598 | 47,768 | 97,366 | 648.2 | 150.2 |
| Buhaguzi County | | 134,588 | 130,640 | 265,228 | 2,098.5 | 126.4 |
| Hoima District LG | | 239,153 | 234,125 | 473,278 | 3,409.2 | 138.8 |
| Hoima Municipality | Bujumbura Division | 10,850 | 11,954 | 22,804 | | |
| | Busiisi Division | 9,511 | 9,750 | 19,261 | | |
| | Kahooro Division | 15,824 | 19,244 | 35,068 | | |
| | Mparo Division | 11,367 | 12,125 | 23,492 | | |
| Hoima Municipal Council | | 47,552 | 53,073 | 100,625 | 202.97 | 495.8 |
| District Total | | 286,705 | 287,198 | 573,903 | 3,612.17 | 158.9 |

Source: Population and Housing Census, 2014, Provisional Results

Household Population

In 2014, the total number of enumerated households was 125,907 district-wide. The Mean Household size in Hoima is 4.5 persons and this gives a total household population of 565,189. The non-household population in Hoima District constitutes a very small component (1.5%) of the total Population, which is the case at National level. The non-household population is predominantly male dominated with 61 percent being males, giving a Sex Ratio of 159 males per 100 females, compared to 99 percent for the household population.

Table 5.4: Census Household Population by sex and sub county

| County | Sub County | No. of House holds | Males – Households Pop | Females – House holds | Total Pop - Households | Av. House Hold Size |
|------------------------------------|--------------------|--------------------|------------------------|-----------------------|------------------------|---------------------|
| Bugahya | Buhanika | 3,332 | 7,247 | 6,836 | 14,083 | 4.2 |
| | Buseruka | 8,896 | 20,525 | 20,498 | 41,023 | 4.6 |
| | Kitoba | 7,476 | 17,560 | 17,642 | 35,202 | 4.7 |
| | Kyabigam bire | 8,908 | 20,808 | 20,055 | 40,863 | 4.6 |
| Bugahya Sub Total | | 28,612 | 66,140 | 65,031 | 131,171 | 4.8 |
| Kigorobya | Kigorobya TC | 1,285 | 2,613 | 3,033 | 5,646 | 4.4 |
| | Kigorobya | 12,889 | 33,749 | 34,607 | 68,356 | 5.3 |
| Kigorobya Sub Total | | 14,174 | 36,362 | 37,640 | 74,002 | 4.9 |
| Buhaguzi | Bugambe | 6,827 | 15,269 | 14,820 | 30,089 | 4.4 |
| | Buhimba | 8,729 | 19,535 | 19,256 | 38,791 | 4.4 |
| | Kabwoya | 13,761 | 32,168 | 30,846 | 63,014 | 4.6 |
| | Kiziranfum bi | 7,563 | 17,660 | 17,591 | 35,251 | 4.7 |
| | Kyangwali | 20,911 | 48,384 | 47,634 | 96,018 | 4.6 |
| Buhaguzi Sub Total | | 57,791 | 133,016 | 130,147 | 263,163 | 4.6 |
| Hoima District LG Sub Total | | 100,577 | 235,518 | 232,818 | 468,336 | 4.7 |
| Hoima Municipal Council | Bujumbura Division | 5,295 | 10,611 | 11,740 | 22,351 | 4.2 |
| | Busiisi Division | 4,469 | 9,420 | 9,605 | 19,025 | 4.3 |
| | Kahoora Division | 9,871 | 14,921 | 18,204 | 33,125 | 3.4 |
| | Mparo Division | 5,695 | 10,883 | 11,469 | 22,352 | 3.9 |
| Hoima Municipal Council | | 25,330 | 45,835 | 51,018 | 96,853 | 3.8 |
| District Total | | 125,907 | 281,353 | 283,836 | 565,189 | 4.5 |

Source: Population and Housing Census, 2014, Provisional Results

Population Growth, Fertility Rate and Mortality Rate

During the period 2002 - 2014, the population of Hoima increased from 343,480 to 573,903, an increase of 230,423 over a period of 12 years. This gives a growth rate of 4.27 percent, which is slight decline from the rate of 4.73 observed between 1991 and 2002. Hoima's high rate of population growth is mainly due to the high fertility levels (over six children per woman) that have been observed for the past four decades, combined with a faster decline in mortality levels, reflected by a decline in Infant and Childhood Mortality Rates as revealed by the Uganda Demographic and Health Surveys (UDHS) of 2006 and 2011. The total fertility rate (TFR) for Hoima District has remained high at an average of about 7 children per woman, which is the same at national level. This is mainly due to high birth rates amongst the reproductive population. 21.6% (123,963) of the population are women of childbearing age (15 – 49 years).

Mortality is measured by three major indicators i.e. Infant Mortality Rate, Maternal Mortality Rate and under five mortality rate. These rates have continued to decline over the years. The Infant Mortality Rate declined from 121 to 76 deaths per 1,000 live births between 2006 and 2014 while under 5 mortality rate declined from 91 to 85 deaths per 1,000 live births over the same period (District Health Officer's Office). These indicators could be further improved with the high levels of immunization for BCG (95%), Polio 3 (88%), DPT 3 (85%) and measles (80%). The maternal mortality ratio as of 2006 was 510 deaths per 100,000 live births. This has declined to 437 deaths per 100,000 live births in 2014. The improved mortality indicators are a result of improved social service delivery.

Life expectancy

The overall life expectancy at birth from 2002 census for Hoima District was 54.7 years for both sexes as compared to 57.2 for Uganda.

5.2.3 Main Economic Activities

5.2.3.1 Overview

Hoima district like all other districts in the country relies on agriculture for livelihood and as a main source of household income. Crops such as maize, beans cassava, ground nuts and of recent upland rice are sold to generate income. The district also carries out fishing on Lake Albert and aquiculture and apiculture are also taking root in the district as ways of enhancing income. Kitoba, Kigorobya and Kyabigambire Sub Counties being in rural setting experience economic activities general to the district. The main economic activities in Hoima Municipality include trade-whole sale and retail, bricklaying, artisans, transport, farming and formal employment. It is from these economic activities that people earn their livelihood. With the oil industry taking root, the economic landscape has changed to adapt to the emerging business demands like accommodation, foods and beverages, transport and poultry keeping. If the proposed road projects of Hoima – Kaiso- Toonya, Hoima-Buliisa – Wanseko and Kigumba – Masindi – Hoima – Kyenjojo are undertaken and

completed there is no doubt that Hoima Municipality will realise sustainable, rapid and high levels of development.

5.2.3.2 Agriculture

Agriculture is the main source of livelihood for about 90% of the population, both in terms of basic nutritional needs, income generating activities and social organization. It is the most critical sector in the district's economies as it provides employment for over 85% of its labour force and it accounts for about 71% of the district GDP. Hoima District comprises different physical landscapes, climatic conditions and soils which in turn significantly influence land use systems in the district including agriculture. Because of its location in the rain shadow, the Rift Valley zone is mostly dry and hot and hence the area has serious moisture deficiency problems for agricultural activities especially during critical crop growth periods. The largest proportion of the Rift Valley area therefore is of low agricultural potential. This partly explains the current major use of the area as a conservation area.

However, the other areas of the district receive moderate to high rainfall, largely due to orographic factors, which increase with altitude. Agriculture in the district is both large scale and small scale, but more of small scale. The dominant crops grown on the small scale farms include tobacco, rice, cotton, coffee, maize, beans, and bananas. Tea plantation in Bugambe sub county and sugar cane plantations for Kinyara sugar works out growers are the dominant large scale crops.

The district grows both food and cash crops. The traditional cash crops include coffee, cotton, tea and cocoa. The rest of the crops have turned into nontraditional cash crops. More of use today is upland rice, which has become very popular to lead in earning income to many households in the district. However, due to high demand for food in the local and regional markets virtually all food crops are equally income earners in the households. NAADS interventions have boosted production levels of these crops especially upland rice to more than three fold. Nevertheless, the productivity of major and many other crops is still below average as indicated in Table 5.1 below.

Table 5.1: Agricultural productivity for selected crops in Hoima district

| Selected Enterprise | Present productivity (kg/acre) | Mean/average productivity (kg/acre) | Ideal productivity (kg/acre) | Target productivity for next 5 years (kg/acre) |
|---------------------|--------------------------------|-------------------------------------|------------------------------|--|
| Rice | 1,646 | 1,275 | 2,550 | 2,000 |
| Maize | 681 | 800 | 1,600 | 1,500 |
| Cassava | 2,000 | 5,000 | 10,000 | 2,700 |
| Pineapples | 3145 | 3,145 | 10,000 | 4,423 |
| Bananas | 500 | 3,000 | 6,000 | 862 |
| Beans | 350 | 450 | 900 | 550 |

| Selected Enterprise | Present productivity (kg/acre) | Mean/average productivity (kg/acre) | Ideal productivity (kg/acre) | Target productivity for next 5 years (kg/acre) |
|---------------------|--------------------------------|-------------------------------------|------------------------------|--|
| Groundnuts | 450 | 500 | 1,000 | 700 |
| Sweet potatoes | 2,100 | 2,500 | 5,000 | 3,000 |
| Millet | 600 | 900 | 1,800 | 1,000 |
| Coffee | 1,500 | 1,000 | 2,000 | 2,000 |
| Cocoa | 400 | 450 | 900 | 550 |
| Cotton | 1,200 | 750 | 1,500 | 1,500 |
| Total | 14,572 | 19,770 | 43,250 | 20,785 |

Source: Production and Marketing Department, Hoima, 2011

5.2.4 Education

The standards of education in the district are below the national standards. This is as a result of lack of collective responsibility by all the stakeholders in the education sectors. The development challenges for the education sector include;

- A negative attitude towards education by many parents and children;
- High rates of illiteracy and low education levels of the populace;
- High school children dropout rates;
- Early pregnancies and early marriages

Table 5.2 below shows school coverage within the district.

Table 5.2: School coverage in Hoima district

| Sub county | Primary | | | Secondary | | |
|------------------------|-----------|----------------|-----------|-----------|----------------|-----------|
| | Permanent | Semi-Permanent | Temporary | Permanent | Semi-Permanent | Temporary |
| Buhanika | 1 | 6 | 1 | 1 | 0 | 0 |
| Buseruka | 4 | 4 | 0 | 0 | 1 | 0 |
| Kigorobyia | 5 | 10 | 2 | 0 | 1 | 0 |
| Kitoba | 5 | 6 | 0 | 0 | 0 | 0 |
| Kyabigambire | 4 | 13 | 4 | 2 | 0 | 0 |
| Bugahya County | 19 | 39 | 7 | 3 | 2 | 0 |
| Bugambe | 2 | 8 | 0 | 0 | 1 | 0 |
| Buhimba | 2 | 17 | 2 | 0 | 1 | 0 |
| Kabwoya | 0 | 9 | 3 | 0 | 1 | 0 |
| Kiziranfumbi | 2 | 11 | 0 | 0 | 2 | 0 |
| Kyangwali | 1 | 11 | 1 | 0 | 1 | 0 |
| Buhaguzi County | 7 | 56 | 6 | 0 | 6 | 0 |
| Municipality | 23 | 6 | 0 | 2 | 2 | 0 |
| District Total | 49 | 101 | 13 | 5 | 9 | 0 |

Source DEO's Office

Hoima district has a total of 163 primary schools and 9 secondary schools. Of these, 29 are in the municipality, 11 in Kitoba, 17 in Kigorobyia and 21 primary schools are in Kyabigambire sub-county respectively. The municipality has 4 secondary schools where as kyabigambire has 2, Kigorobyia has 1 while Kitoba does not have any secondary schools according to the Hoima district development plan. In spite of a steady increase of pupils and students in primary and secondary schools, the challenge is that children have steadily dropped out of school. The toll has particularly been on the girl child who has persistently been vulnerable to early pregnancies and marriages. Across the district, children have dropped out at the rate of 1:270 pupils in primary schools and 1:25 in secondary schools; the most incisive cause of these dropouts have evidently revolved around poverty given that most families are devastated by this economic evil. It has not been uncommon for a parent to give away a daughter in exchange with a few shillings of money for some survival.

5.2.4.1 Water and Sanitation

The presence of diarrhoea disease in the top ten disorders at the peripheral level and amongst admitted cases in the hospital points to serious water and sanitation related problems. The current rural water supply coverage is 74.1%. Therefore it is assumed that the percentage safe water coverage in the district only reaches approximately 74.1%, but with wide disparities between the different sub-counties. Most of the sub counties have insufficient resources, financial and know how, to improve their existing water supply, construct new ones and set up acceptable sanitary facilities.

Some areas with nearby unsafe alternative sources need focused sensitisation to abandon unsanitary practices and a lot of awareness is still required to link health improvement with safe water and sanitation. The hydro geological conditions in some areas such as those along the Lake Albert shoreline, the Kafu basin, Kapapi parish, covering about 20% of the district, do not allow simple low cost water supply using spring catchment or dug wells, and boreholes remain the only effective means to meet the water requirements in these parts of the district. At Lake Albert shore area, water supply and sanitation are extremely poor. Most villages use the water of the lake as the main drinking water supply. Collapsible sandy soils and difficult access are part of the explanation for this situation. Intensive sensitisation campaigns are required for any improvement to be reasonably expected.

5.2.4.2 Land use and land tenure systems

The district covers a total land area of 3,612.17 square kilometers. Out of this 2,853.48 kilometers (79.1%) is under agriculture, settlement and other miscellaneous land uses. The remaining 758 square kilometers (20.9%) are under protected areas form of land use. Protected areas include forest reserves and wild life conservation areas.

The district therefore has four main types of land uses namely; agriculture, settlements, forest conservation and wildlife conservation with protected areas occupying a significant proportion of the total land area, i.e. 20.9%, which has important implications on available land for agriculture and other activities. However, oil development could disrupt conservation efforts if not well planned. The major land tenure systems in the district include customary, freehold, leasehold and public land. All protected forests and wildlife conservation areas are under public land form of tenure, in addition to areas accommodating government institutions and infrastructure.

On private land, customary land tenure (both individual and communal) is the most widely practiced system. The lack of a uniform land tenure system, however, presents management challenges particularly with regard to land speculation that has been exacerbated by the discovery of oil in the district. This is threatening to cause land use conflicts and landless households and communities in the district, as land purchases and delineation form previously communally owned land continue to take place. This challenge is further exacerbated by the lack of a comprehensive land use plan.

5.2.4.3 Roads

District and access roads are the responsibility of the District Local Government and lower echelons of local government. Exclusively the District, sub counties and communities, handle routine and periodic maintenance and spot improvement. In many cases maintenance is sporadic due to insufficient funds and districts typically achieve only a part of their annual target of works. Lack of commitment and application by local people often limits the effectiveness of such maintenance; in other cases, particularly where the road concerned serves as an important marketing channel, maintenance is usually satisfactory. Hoima district has a favourable basic natural resource endowment for development but her remoteness from markets and population centres and its difficult terrain are primary constraints to productivity and economic growth. Roads and tracks that enable access for transportation and marketing have proven to be a necessary and most effective intervention for development. The evidence of the impact of improved is anecdotal rather than quantified, but consistent and undoubtedly real. Furthermore, road and track improvement activities need a high degree of community cooperation and input, which carries through to operating and maintenance. Bujumbura division has a total of 272.2 km of road network throughout the entire division.

5.2.5 Communication

Hoima Municipal Headquarters is connected to the rest of the World on an international telephone exchange through UTL. It is also connected to the mobile telephone networks through MTN-Uganda, Airtel, UTL, Orange and WARID. At the Municipality headquarters, internet and e-mail services are available. The major communication challenge that is posed to the Municipality now is to extend the service to the Divisions and other major institutions. For courier services, the Municipality has 1 post office in Hoima Municipal Council. In addition to the post office, there are also private courier operators that extend their services to the district and Municipality through local agents or Sub-branches. Other forms of Communication Hoima Municipality can be reached on SW, MW and 4 FM radio stations within the Municipality i.e. Radio Hoima, Liberty FM, Radio Maria and Spice FM. The listener ship of the FM radio stations is quite high especially those with programmes in the main local dialect Runyoro. In Kitoba, Kyabigambire and Kigorobya sub-counties, communication is by radio media. Others include post office at Bulindi posters, public notices, workshop places, churches, schools and burial places. There is a telephone land line between Kakindo and Kibaire although not in use at the moment. The road from Hoima to Buliisa will be of great importance in easing accessibility during the construction of the proposed power line. Hoima-Masindi road is of great importance and other feeder roads within the traversed Sub Counties of Kitoba, Kigorobya and Kyabigambire. MTN, AIRTEL, UTL and WARID communication is available in the all the Sub Counties with coverage of at least 40% and at least 85% of the households own radios.

5.2.5.1 Gender

Gender is an important aspect that enhances the understanding of how development intervention may affect different sections of society. Gender is socially constituted differences, which reflect each society's interpretation of biological differences. Unfortunately gender has been used to perpetuate inequality between men and women e.g most cultures in Uganda assign the heavy work load of food production and family care to women. Women are reported to be working more than men, irrespective of whether they are in a progressive or poor community. Much work tends to leave women with no time for social interaction, implying less access to information about development issues. At the same time men control most of the major cash crops and do not allow their wives to sell especially where prices are favorable. However, women do have access and control over food crops for home consumption and sale.

5.2.6 Health

The basic demographic and health data for the district are provided in the **Table 5.3** below. The socio-economic indicators, such as infant, under - five and maternal mortality rates of health services indicate very weak social and economic development of the area and probably low effectiveness of health services. In the absence of a functional Health Management Information System and birth and death registration, there is no reliable information on mortality. The limited information available suggests that the highest

mortality in Hoima is caused by malaria, followed by respiratory infections, anaemia, AIDS, meningitis and dysentery in that order.

Table 5.3: Basic Demographic and Health Data for Hoima (2010)

| Indicators | Hoima | Uganda |
|--------------------------------------|--------|--------|
| Infant Mortality Rate (per 1000) | 88 | 88 |
| Child Mortality (under 5 years/1000) | 85 | 120 |
| Maternal Mortality (per 100 000) | 437 | 505 |
| Stunting (%) | 26.5 | 39 |
| Wasting (%) | 8.5 | 4 |
| Under weight (%) | 19.5 | 24.5 |
| Total goitre rate (%) | 27.9 | 33.8 |
| Fertility rate (%) | 6.9 | 6.9 |
| HIV Prevalence rate | 6.4% | 6.1% |
| Population per doctor | 49,920 | 15,678 |
| Population per nurse | 33,280 | |
| Life expectancy at birth (years) | 54.7 | 57.3 |

Source: DDP, 2012

AIDS though not reported in the top ten disorders from the health units is the sixth most condition amongst admitted cases; and the fourth most common cause of death amongst these cases, indicating the extent of the condition with the prevalence rate of 6.4%. The prevalence of iodine deficiency at 27.9%; and wasting at 7.7% justify specific attention. In Kitoba, Kigorobyia and Kyabigambire sub counties' Health Units, majority of the patient's attended too are women and children. In instances where they are children, they are accompanied by their mothers. It is possible that the rate of illness amongst women is common given the reproductive role and nursing the sick as well as the type of work they do, they are exposed to many causes of illness.

5.2.7 Energy

About 97 per cent of the total energy used in the district is derived from biomass. This is in the form of firewood, charcoal, shrubs, grasses, forest and agricultural crop waste and agro-industrial residues such as coffee and rice husks as major sources of energy in both the rural and the urban settings in Hoima District. Whereas these resources are widely used for energy generation, most of the traditional biomass energy technologies which include wood and charcoal stoves, ovens, and kilns used in Hoima are inefficient. Kerosene or paraffin is used for lighting and less than 3% of all households have access to electricity supply. At the moment most of the district is not connected to the national grid.

5.2.8 Status and impact of HIV/AIDS on the population

HIV/AIDS is one of the killer diseases common in the district and high rate is amongst women of age 20-29 and girls aged 15-19. The rate is said to be six times more likely to be sero-positive than boys of the same age for women, an important risk fact in controlling HIV is being marked, coupled with the social economic situation, in which the women are predominantly dependent on men. Situations of domestic violence have made it difficult for the women to seek safer sexual practice, thereby making them more vulnerable.

There are a number of interventions aimed at mitigating the social and economic impact of HIV/AIDS scourge in Kyabigambire Sub-county. NGOs like Little Hospice have given assistance in terms of drugs to help people with too much pain with in the community. They offer guidance and counseling services to the positive living.

5.3 MASINDI DISTRICT

5.3.1 Location

Masindi District is located in the Mid-western part of Uganda, with its headquarters 216 Kms away from Kampala. It boarded by Nwoya to the North, Kiryandongo to the North East and East, Nakasongola and Nakaseke to the South East, Kyankwanzi to the South, Hoima to the South West and Buliisa to the West. The District is at an average altitude of 1295 meters above sea level, situated between 1^o 22' and 2^o 20' North of the Equator, longitude 31^o 22' and 32^o 23' East of Greenwich. Masindi District covers an area of 7,443.0 Sq kms of which 456 Sq kms is open water; 197.5 sq. km is permanent/seasonal wet lands, 6446 sq. km is land 6332 sq km of which is arable land. The District Perimeter is 378 kms.

5.3.2 Administrative and political status

The District consists of 02 Counties, namely Buruli and Bujenje and 1 Municipal Council with no Town Council and three town boards; Kabango, Bulima and Kyatiri. It has 5 rural Sub Counties of which Kimengo, Pakanyi and Miirya form Buruli County. Bujenje County is made up of Bwijanga, Nyangahya and Budongo Sub Counties. There are 22 Administrative Parishes and 382 villages in the entire district of Masindi. The proposed Hoima-Kinyara transmission line passes only through Budongo subcounty.

5.3.3 Population and major demographic characteristics

Basing on the Population and Housing Census of 2014 provisional results, Masindi has an annual growth rate of 2.84 percent with a population of 292,951 of which 148,264 are males and 144,687 are females. The population density stands at 81 persons per square Km. The sex ratio is 102.5, the mean household size is 4.4 and number of households is 65,090. The total fertility rate for the district is 6.4. A total of 94,622 people live in urban areas.

Table 5.4: Estimated distribution of population by sex per sub-county

| County/ | Sub-county/ | 2014 Population and Housing Census | 2020 Population Projections |
|---------|-------------|------------------------------------|-----------------------------|
|---------|-------------|------------------------------------|-----------------------------|

| Municipality | Division | Male | Female | Total | Population Density | Male | Female | Total |
|----------------------|------------------|----------------|----------------|----------------|--------------------|----------------|----------------|----------------|
| Bujenje | Budongo | 26,023 | 25,797 | 51,820 | 114 | 30,500 | 30,300 | 60,800 |
| | Bwijanga | 26,579 | 25,417 | 51,996 | 87 | 31,200 | 29,800 | 61,000 |
| | Sub Total | 52,602 | 51,214 | 103,816 | | 61,700 | 60,100 | 121,800 |
| Buruli | Kimengo | 7,648 | 6,308 | 13,956 | 14 | 9,000 | 7,400 | 16,400 |
| | Miirya | 10,719 | 9,676 | 20,395 | 72 | 12,600 | 11,300 | 23,900 |
| | Pakanyi | 30,003 | 30,159 | 60,162 | 88 | 35,200 | 35,600 | 70,800 |
| | Sub Total | 48,370 | 46,143 | 94,513 | | 56,800 | 54,300 | 111,100 |
| Masindi Municipality | Central | 19,406 | 21,641 | 41,047 | 1,415 | 22,300 | 24,900 | 47,200 |
| | Karujubu | 14,948 | 12,862 | 27,810 | 160 | 17,600 | 15,100 | 32,700 |
| | Kigulya | 6,311 | 6,419 | 12,719 | 72 | 7,550 | 7,550 | 15,100 |
| | Nyangahya | 6,627 | 6,419 | 13,046 | 70 | 8,000 | 7,000 | 15,500 |
| | Sub Total | 47,292 | 47,341 | 94,622 | | 55,450 | 55,050 | 110,500 |
| | Total | 148,264 | 144,687 | 292,951 | 81 | 173,950 | 169,450 | 343,400 |

Source: 2014 Population and Housing Census.

Table 5.5: Distribution of population by age group

| Age bracket | Year 2014 | | | | Projections 2020 | | | |
|-------------------|-----------|---------|---------|------------|------------------|---------|---------|--------------------------------|
| | Males | Females | Total | Percentage | Males | Females | Total | Percentage to Total Population |
| Under 1 | 6,445 | 6,445 | 12,890 | 4.4 | 7,655 | 7,454 | 15,109 | 4.4 |
| Under 5 | 28,531 | 28,302 | 56,832 | 19.4 | 33,751 | 32,869 | 66,620 | 19.4 |
| 6-12 years | 31,660 | 31,324 | 62,984 | 21.5 | 37,578 | 36,596 | 74,174 | 21.6 |
| Below 15 years | 72,612 | 71,813 | 144,425 | 49.3 | 85,769 | 83,527 | 169,296 | 49.3 |
| Below 18 years | 82,399 | 81,068 | 163,467 | 55.8 | 97,078 | 94,539 | 191,617 | 55.8 |
| Adults 18+ | 66,514 | 65,021 | 131,535 | 44.9 | 76,497 | 77,689 | 154,186 | 44.9 |
| Youth 18-30 years | 32,496 | 34,592 | 67,088 | 22.9 | 39,840 | 38,798 | 78,638 | 22.9 |
| Elderly 60+ | 6,589 | 6,007 | 12,597 | 4.3 | 7,481 | 7,285 | 14,766 | 4.3 |

Source: 2014 Population and Housing Census and District Planning Unit Population and Housing analytical report

Bwijanga and Budongo which are crossed by the proposed power line are the most populated sub counties. Kimengo is the least populated of the traversed sub counties in Masindi district. Nyangakha which is one of Masindi municipal wards traversed by the proposed future extension of the line to Kafu had a population of 13,046 according to the 2014 population and housing census.

5.3.4 Main economic activity

The main source of income for Masindi District population is subsistence farming which consist of 64% this is followed by employment income 13.1% Trade 11.2%, family support 7.7%, Commercial farming 2.4 and others 51.6%. Agriculture is the main economic activity in the district with cash crops like sugar cane, tobacco and tea are the most dominant. Main food crops grown are presented in the table below.

Table 5.5: Major crops grown in Masindi district

| | |
|--|---|
| <ul style="list-style-type: none"> • Millet • Sorghum • Sunflower • Simsim • Sweet potatoes • Irish potatoes • Cassava • Maize | <ul style="list-style-type: none"> • Cotton • Coffee • Tobacco • Cabbage • Tomatoes • Onions • Soybeans • Peas • Bananas |
|--|---|

Fishing is practiced in the rivers and on Lake Albert. Fish farming is an important economic activity with over 250 ponds in the district. Bee keeping for honey production is also an increasing practice in the district. Tourism is also recording increase with a steady stream of visitors to Murchison Falls National Park (formerly Kabalega Falls National Park). About 73.1% of the population in the district is engaged in smallholder agricultural activities and about 6.2% of the total farmland is under large scale commercial farming. The district is the leading producer of maize in the region. In Uganda, only Iganga District and Kapchorwa Districts produce more maize than Masindi District.

Agriculture is the main activity in all the Sub Counties with over 95.32% of the population engaged and beans being the most popular crop grown. Trade covers 3.59% and manufacturing and cottage industry engages 0.31% of the total population in the sub county of Bwijanga. Most people live a peasantry life and practice mixed farming, productivity but production is still low due to poor farming methods, vermin destruction, and land shortage. Crops mainly grown include maize, beans, groundnuts, cassava tobacco and sugarcane growing which is still being done on a small scale by a few individuals.

Livestock is another main activity in the district and there is fairly enough land for grazing and livestock breeds are mainly local. The common ones include cattle, goats, pigs, sheep, and local birds. There is also bee keeping in various areas though on a small scale.

5.3.5 Education

5.3.5.1 Overview

The overall literacy rate is at 60% and Adult Literacy rate is 68.5%. The 2009 Education Census data indicate that 52,508 (80%) out of 41911 primary school age population are enrolled in schools. Pupil teacher ratio is at 1:51. Masindi district has a total of 80 primary schools of which 69 are Government Grant Aided, while 11 are privately owned. There are 31 known Nursery & Pre-primary schools, 5 of which are officially registered/recognised. In addition, there are 06 coded non formal schools in the district. Bwijanga which is one of the subcounties traversed by the line has a total of 28 primary schools, 3 of which are privately owned and the 25 are government aided. Since the introduction of UPE program in (1997) Primary school enrolment has risen from 23,054 pupils to 42,508 pupils (100%). On the other hand, Secondary school enrollment stands at 2,506 and that of tertiary is not known. Masindi Municipal Council has a total of 52 primary schools of which 29 are Government Grant Aided, while the rest 23 are privately owned. There are 08 known Nursery schools, 14 Nursery & primary schools, 14 of which are officially registered/recognised. Nyangakha has a total of 6 primary schools of which 5 are government aided and 1 is privately owned. There is 1 secondary school and one tertiary institution both of which are government aided.

Secondary education

Out of the 11 Secondary Schools in the district, 5 are government aided and all the 5 are USE schools. On the other hand, 6 are private or community owned; and none of the private community schools is offering USE services. There are four secondary schools in Bwijanga sub county and only one is government aided and has an enrollment of 328 students. Out of the 20 Secondary Schools in the Municipal Council, 05 are government aided, while the remaining 15 are privately owned.

Tertiary Education

This is a central government function/domain with no delegated or decentralised aspects to the Local Government. There is 01 Tertiary Institution- Nyabyeya Forestry College. It is a Central Government domain with no delegated or decentralised aspects to the Local Government. There are 11 Tertiary Institutions in the district of which six are government owned namely Kamurasi Primary Teachers college, Kabalye Police training school, Kabalye Youth Training School, Kabalye Vocational Institute, Uganda Technical College-Kyema and Adolf Kolping Technical School while 05 operate as a Private Tertiary Institution and these include Kabalega College- Masindi, St. Kizito vocational institute, Freeline Vocational institute(Nyangahya Tse-tse), Kirunganwa Nursery Teachers School, Kyema Vocational institute etc.

5.3.6 Water and sanitation

The current district safe water supply coverage is estimated at 61.3%. This is expected to increase to 63.1% after implementation of all planned activities for the financial year

2010/2011. The percentage of households with acceptable latrines is **68%** as reported by the Masindi District Health Inspector. The district has four functional piped water supply systems serving the rural growth centres of Kabango, Kyatiri, Bikonzi, and Bwijanga. Out of **40,357** households in the district, **28,380** are located less than 5kms to the nearest water facility and **11,977** are located more than 5kms to the nearest water point. Table 5.6 presents status of water sources by type.

Table 5.6: Status of water sources by type

| Category | Functioning | Non Functioning | % Functioning | % Non-Functioning |
|---------------------|-------------|-----------------|---------------|-------------------|
| Boreholes | 132 | 60 | 69 | 31 |
| Protected Springs | 280 | 20 | 94 | 6 |
| Shallow Wells | 225 | 77 | 75 | 25 |
| Valley Tanks | 39 | 5 | 89.2 | 10.8 |
| Piped Water Schemes | 3 | 1 | 75 | 25 |
| Total Facilities | 677 | 165 | 80.44 | 19.56 |

Source: Department of Water March 2009

Bwijanga Sub County has registered a remarkable improvement in provision of safe water especially with the establishment of Bikonzi and Bwijanga water projects and the safe water coverage for the sub county now stands at 46%. However, sanitation remains a problem in the sub county with many villages having inadequate water facilities especially in Ntooma parish. Poor sanitation is evidenced by low latrine coverage, lack of rubbish pits, drying racks and poor environmental and health concerns in most households with in the sub county. However, with increased emphasis on sanitation as a condition for benefiting from any government program, sanitation standards have relatively improved.

5.3.7 Roads

Currently the total road network in the District is 1004.9 km. of these 341.4 kilometers are classified as national roads and 64km are tarmacked and 60km are of gravel. 387.9km are classified as District roads of which 63% are in good/fair motorable condition. The length of community roads is 377.km. It is anticipated that by the end of FY 2010/2012 the percentage of district roads in motor able state will be 71. %. The total road network in the Municipal council where Nyangakha ward lies is 130 Kms. About 11 kilometers are classified as national roads of which 8 km are tarmacked and 5 km are of gravel About 4 km are classified as District roads of which 70% are in good/fair motorable condition. About 115 km are Town Council roads with 60 % motorability. The biggest challenge in this sub-sector is both maintenance and opening up of more roads at community level to enable the increasing population to access social services such as Education facilities, Health centers and markets among others. Table 5.7 below presents the status of road Network in Masindi district

Table 5.7: Status of road Network in Masindi district

| 1 Category | 2 Kilometres of Road Status | | | 3 Total Length Km | Motarable % |
|------------------|-----------------------------|-------|-------|-------------------|-------------|
| | Good | Fair | Poor | | |
| National roads | 250 | 71 | 20 | 341.4 | 94 |
| District roads | 114.9 | 160.3 | 112.7 | 317.6 | 64.5 |
| Sub-county roads | 30 | 83 | 264 | 377 | 30 |

5.3.8 Health Situation of Masindi district

Masindi District comprises two counties that constitute the Health Sub-districts of Buruli and Bujenje respectively. It consists of one municipal council, 5 sub counties, 29 parishes and 312 villages. There are 40 health Units and two NGO Health Centres. The Doctor patient ratio which is at 1:83,550 is still low and calls for the recruitment of more Doctors. Masindi Municipal Council has one health centre III headed by a clinical officer and five health centre II's headed by enrolled nurses.

Access to health services remains low in Masindi Municipal Council. The Municipality is yet to achieve the government target of the health center in every ward and existing facilities need extra improvement. Special health problems in Masindi include; river blindness, leprosy, iodine deficiency and the rise of HIV cases among the married couples among others. There are six doctors in total of whom four are employed by government while the two are privately employed.

The Health situation in Bwijanga, Budongo and othe sub counties still demands a lot. Given the long distances covered by patients to reach a health unit, the common killer diseases are malaria, HIV/ AIDS and Diarrhea. Bwijanga Sub County has 10 health facilities with at least each parish having a heath unit. The common services provided by the existing health services in the district include; Curative services for common diseases, health education and promotion, specialized services such as eye care, Dental, X-ray, scan, ultra sound among others. Preventive services offered include: HIV/AIDS Voluntary Counselling and Testing (VCT), PMTCT, Family Planning, immunisation, Antenatal services, Home Based Management of fevers, maternal and child health services, care for chronic illnesses.

On the other hand there are services, which are still lacking or being under taken at a very low scale and these include: Eye care services, occupational therapy, nutritional services, rehabilitation of the disabled, ear nose and throat surgery and operative dentistry. Services offered by gynaecologists are also rarely conducted in the district. The nearest referral hospital for Masindi district is Hoima hospital, which is 56 kms away from Masindi hospital.

Overall access to health service remains low in Masindi. The District is yet to achieve the government target of a Health center in every Parish. The existing facilities need extra improvement. There are many health-related problems in the District which are attributed to

the inadequate health services and these include malaria, STIs, cholera epidemic among others.

5.3.9 Social and Cultural structure

The District has several clusters of almost every tribe in Uganda. The population of Masindi District is quite heterogeneous with over 56 tribes. Most predominant tribes are Banyoro (consisting of Bagungu, Baruli Bachope, Basindi, Bagangaizi and Bagahya), Alur, Lugbara, Acholi and Langi. Many people from across International boundaries, have also permanently settled in the District. Among these are Rwandese, Congolese, Kenyans, Somalies and Sudanese.

5.3.10 Gender concerns

Across the sectors and institutions, gender gap has continued to exist. Main gaps between the girl child and women can be sighted in unequal participation in development programs, low levels of literacy, disparities in employment; high dropout rates, limited ownership, access and control of resources especially land. This implies that women are exploited and lag behind in development. During the implementation of the power transmission line project the identified gaps will be reduced for example by encouraging women to take up employment opportunities that will arise especially during the construction phase.

5.3.11 HIV/AIDS

HIV/AIDS was declared a development and security crises in the country in the year 2000, and it still remains an issue that threatens to undermine the development goals of all sectors of Masindi District local government. Like any other district in Uganda HIV/AIDS scourge and has evolved from a health burden to a serious development crisis with visible social and economic effects on the entire community. Mainly it has affected the Youth aged between 15-35 years. The epidemic has adversely affected agricultural production, increased dependency ratio, increased government spending and decreased household incomes a situation which has resulted into a vicious cycle of poverty. At household level HIV/AIDS aggravates the poverty situation by reducing the productivity of employed people and subsequently claiming their lives. The Disease has also reduced the capacity and ability to engage in agricultural and other economic productive work which threatens food security, depleting resources to medicine and health care for those affected.

Various factors have contributed to the rapid spread of HIV/AIDS in Masindi district and these include; poverty, gender inequalities, untreated sexually transmitted diseases, sexual abuse, lack of faithfulness among married partners, reckless sexual behavior especially among the youths, rampant use of unsterilised shaving equipment in many barber shops, lack of information, negative social norms and social challenges including migration.

The designed HIV/AIDS interventions that are considered to address the situation include Orphan support in the area of providing school fees, uniforms, scholastic materials, food, beddings & clothing. The other interventions include access to VCT, Prevention of Mother

to Child Transmission (PMTCT), promoting contraceptive use (condoms), Community mobilization and sensitization and dissemination of relevant information such as Young straight talk offered to adolescents in schools. Other strategies to use also include gender mainstreaming in health that aims at advocating against all forms of discriminations such as sex, age, and race among others.

5.3.12 Tourism Industry

The District is endowed with tourism potentials, which include: Murchison falls National Park, Busingiro Ecotourism site in Budongo Forest. These potentials have not been fully developed and utilized optimally to attract sizeable tourists to the district. However for some tourism potentials such as the National Park and Budongo Forests, greater proceeds accruing from such facilities are channeled directly to the Central Government and Management is by other authorities and not Masindi District Local Government. The proposed Hoima-Kinyara transmission line will not traverse through any protected area in Masindi district.

5.3.13 Hydroelectric power

The district is connected to the main hydroelectric power grid. This should attract more heavy, medium and small-scale industries in addition to the existing industries namely Kinyara Sugar Works Ltd., and Maize Mills. This grid should further be extended to rural areas under rural electrification program to enhance cottage industry sector. There are also undeveloped power generation points which include Karuma falls which the government is trying to develop. The proposed Hoima-Kinyara power line will at a later stage add power to the national grid and this will facilitate the government program of rural electrification.

5.3.14 Communication and transport

Communication in the district continues to improve through installation of more Masts by MTN, AIRTEL UTL and the coming of WARID into the district. The number of FM radio stations has increased from three to four. These include Bunyoro Broadcasting Services (BBS), Masindi Broadcasting Services -Radio Kitara (MBS), Radio Uganda FM and Kings Broad casting services.

5.3.15 Poverty

Though there is no recent studies carried out, poverty levels in Masindi District still remain high. The percentage of population below the poverty line in Masindi district is estimated at 60% basing on material and non-material things possessed by individuals as well as the community. Different categories of people in Masindi perceive poverty differently. Poverty to some people is perceived in the context of perpetual lack of income to support a family with basic needs and services such as food, clothing, beddings, shelter, basic health care and education. The major factors which have contributed to high poverty levels in Masindi District include: Ignorance, high illiteracy levels, lack of awareness, powerlessness, influx of IDPs and Refugees, HIV/AIDS, lack of productive assets, lack of market, disability, orphans and dependants. In Urban areas poverty is perceived as lack of technical skills, employment

opportunities, residential houses, good health and acquisition of businesses. In Bwijanga Sub County the poverty situation is aggravated by the low agriculture yields due to unreliable climatic conditions.

6 PUBLIC CONSULTATION AND DISCLOSURE

6.2 Introduction

The World Bank and NEMA guidelines require the people likely to be affected by a development project to be consulted so that their views and fears are incorporated in planning. Community perspectives are important for project planning and implementation. Knowledge of what the community perceives will go a long way to help during the compensation and resettlement action plan. Therefore, during the EIA process, consultations needed to be conducted with relevant stakeholders, including potential beneficiaries, affected groups, Civil Society Organizations (CSOs) and local authorities about the project's environment and social aspects and their views considered.

To meet this requirement, the EIA team held public consultations in areas that were considered hot spots (areas with high settlements) along the proposed power line corridor. These included Bulemwa, Wagaisa, Bwendero, Dwoli west and Kiswero which centrally had a meeting at Kitoba sub county headquarters. The villages of Kaburungi, Kigomba, Kyamucumbe and Kyabasengye held a meeting at Birungo Trading center. A meeting was held at Abangi trading centre for the villages of Enjinga, Abangi, Nyakabale, Inino and Mbarara. Another meeting was held at Kimanya Primary School for the villages of Kimanya, Bineneza 1& 2 and Rwempiisi. In these areas, 2-4 villages were combined for which a consultative meeting was held at point chosen by the local leaders of the affected villages. For details of all the villages consulted, refer to table 6.1. Consultations of this nature were first undertaken in 2013 and were then redone in June 2016 as part of the ESIA update process to take care of the time lag since then.

During the field study, the EIA team was interested in gathering views about community perceptions and fears about the proposed transmission line project in order to build consensus and support for the project. The main issues of socio-economic concern were cultural and communal property, cultural and social cohesion, and community mobilization for the project, community participation in identification of resettlement alternatives and identification and protection of the interests of vulnerable groups. During the consultation meetings, issues discussed included socio-economic impacts that might arise due to the project, how to minimize these impacts and compensation modalities.

6.3 Stakeholder Analysis

6.3.1 Stakeholders Consulted

Stakeholders are groups of people connected to one another through formal or informal ties, which have something to gain or lose from a proposed development initiative. Stakeholders in any project will include various social groups, formal and informal agencies in public and private sectors and NGOs/CBOs. NGOs/CBOs are particularly beneficial for the development plans when they work together in coalitions, pooling their resources and lobbying efforts.

A number of key stakeholders were involved in the community participation component of the EIA baseline study. Consultations were done through Village meetings, focus group discussions, key informant interviews and socio-economic surveys.

Consultations were carried out with three groups of stakeholders, namely;

- Directly affected persons
- Indirectly affected persons
- Government Agencies



Plate 6.1: Some of the community members present during a consultative meetings held at various villages, along the proposed Hoima-Kinyara Power line-(June 2016)

Directly Affected Persons

The directly affected persons are the people who reside in or derive their livelihood from the zone of direct impact (ROW & Way Leaves). The directly affected persons were consulted about relocation, livelihood and income restoration possibilities. The directly affected persons were the core target of the socio-economic census during RAP studies.

Indirectly affected Persons

This group included persons who reside near the project area or rely on resources (such as water, pasture land, wetlands etc.) likely to be affected by the project. This group of stakeholders will have to change or adjust their living patterns when the construction of the transmission line starts.

Government Agencies

Under the present arrangement of decentralized system of governance, power belongs to the people and therefore, the role of the local communities in decision-making is critical. Most importantly, the Local Council II now best handles land issues. The LC system will facilitate easy identification of genuine owners of property likely to be affected.

The Local leaders, mainly LCIs, LCIIIs, LCIIIIs and LCVs of the districts of Hoima and Masindi were consulted. Other officials consulted were District Environment Officers, RDCs, District planners, District Natural Resources Officers, Community Development Officers (CDOs), District Land Boards and Chief Administrative Officers.

Central, Local government and private agencies responsible for ensuring a healthy environment were also consulted. The agencies consulted were;

- National Environment Management Authority
- Local Government Departments
- Ministry of gender Labour and Social Development
- Wetlands Inspection Division
- Ministry of Energy and Mineral Development
- Electricity Regulatory Authority
- National Forestry Authority
- Uganda Museum

6.4 Stakeholder Engagement

Project stakeholders include communities, groups, individuals and organizations likely to be affected directly or indirectly or may exert positive or negative influence on the project. The community perspectives study was done using Focus Group Discussions (FGDs) with men, women, the elderly, youth, widows/orphans and disabled persons along the transmission line corridor in the two districts.

Other methods used by the EIA team include key informant interviews/meetings held with key stakeholders throughout the transmission line corridor and household survey questionnaires with a sample of household heads of the directly affected households.

Before the meetings were convened, members of the EIA team visited a Local Council I leader to introduce the subject and assist to mobilize the community, who own land along the transmission line corridor, and those with interest for a meeting. Letters of introduction

for the purpose were issued by UETCL to all Local Councils and District authorities. Others in attendance include Local Council executives, the community affected persons, local councilors, opinion leaders, and other residents of the area who may be interested. **Annex 2b** of the report gives a full list of people consulted.

6.5 Approach and Thematic Areas

6.5.1 Overview

Community consultation and sensitization involved a participatory approach in which the EIA team described the pre-, during, and post- construction activities planned and informed the community about the compensation and resettlement issues as well the schedule of activities. Then the community was given opportunity to respond by asking questions or making comments about the planned project activities.

The following emerged as key themes of the consultations;

- Compensation and Resettlement Alternatives
- Community sensitizations
- Cultural and Communal Property
- Community Participation in the Project
- Entitlement Cut-Off
- Vulnerability
- Grievance Redress
- Sanitation facilities for the workers
- Workers' accommodation
- Interrelations between workers and the host community
- Employment of the locals

6.5.2 Community Sensitizations

6.5.3 Overview

Consultations were held along the approximately 50km power line corridor from Bulemwa village in Hoima district to Main quarter's village at Kinayara sugar factory in Masindi district near the substation. A total of 6 community meetings were held in the transmission line corridor in which 2-4 villages were combined for a consultative meeting at a location convenient to them. Project Affected Persons from 22 affected villages were met during these consultative meetings. Approximately 213 people were consulted of which 192 were males and 21 females. The big disparity in the number of males to females that attended the consultative meetings is due to the fact that compensation issues are usually handled by household heads who are mainly males in the project area. Three villages (Main quarters, Kingo campa and Kisagura were consulted under Kinyara Sugar Works Ltd management because on the ground, these villages are actually sugarcane plantations owned by Kinyara Sugar Works Ltd. Although the village map of Uganda indicates that 27 villages are affected by the line, Nyakabale and Kijwenge villages were not consulted

because they are not affected by the line on the ground making a net of 25 villages affected by the Hoima-Kinyara Transmission line. It appears that due to political and social cultural changes on the ground overtime, some villages boundaries have been shifted and or are not recognised or well understood by the local residents in these places.

6.5.4 Mobilisation of Project Affected Persons

Project Affected Persons were mobilised by their respective area Local Council leaders in which a central location was chosen as the meeting venue. On average, the meetings comprised all affected persons from the affected villages as mobilised by their local leaders for that particular meeting. Attendance was good (between 70-95% of the potentially affected persons) and in certain instances; between 3-4 villages converged at one central location in some places. Several local leaders and public servants attended these consultative meetings in each case as affected individuals or as public leaders (annex 2b for full list of people consulted).

6.5.5 Villages consulted

People from up to 26 villages were consulted for their comments, complaints, questions and views as regards the Hoima-Kinyara high voltage power line. Details of public consultations are presented in **Annex 1**. A summary of these villages is presented in the Table below;

Table 6.1: List of villages from which project affected persons were consulted

| No | Village | Sub-County | District |
|----|---------------|--------------------|----------|
| 1 | Bulemwa | Bujumbura Division | Hoima |
| 2 | Wagaisa Kiizi | Kitoba | Hoima |
| 3 | Dwoli West | Kitoba | Hoima |
| 4 | Bwendero | Kitoba | Hoima |
| 5 | Birungu | Kitoba | Hoima |
| 6 | Kyamucumba | Kitoba | Hoima |
| 7 | Kiswero | Kitoba | Hoima |
| 8 | Mpunda | Kitoba | Hoima |
| 9 | Kitesukura | Kitoba | Hoima |
| 10 | Kigomba | Kitoba | Hoima |
| 11 | Kabarungi | Kitoba | Hoima |
| 12 | Kabarole | kitoba | Hoima |
| 13 | Nyakabale | Kitoba | Hoima |
| 14 | Mbarara | Kitoba | Hoima |
| 15 | Inino | Budongo | Masindi |
| 16 | Enjinga | Budongo | Masindi |
| 17 | Abangi | Budongo | Masindi |
| 18 | Kimaanya | Budongo | Masindi |
| 19 | Bineneza 1 | Budongo | Masindi |
| 20 | Rwempiisi | Budongo | Masindi |
| 21 | Waipachu | Budongo | Masindi |

| | | | |
|----|---------------|--------------|---------|
| 22 | Main quarters | Budongo | Masindi |
| 23 | Kingo Campa | Budongo | Masindi |
| 24 | Kisagura | Budongo | Masindi |
| 25 | Bineneza 2 | Kyabigambire | Hoima |

6.5.6 Summary of Key Public concerns about the project

6.5.6.1 Project affect persons

During public consultations in the above areas, **a number of concerns were raised in 2013 most of which were common and repetitive in all areas.** Among the concerns raised include but not limited to the following;

- The commonest concern during all meeting was about the wide nature of the corridor that is 40meters. During all community meetings held most members expressed fear for losing large chunks of land to UETCL for the proposed development.
- During all consultative meetings held, community members wanted to know the kind of property that will be compensated. Whether only land is to be compensated or only property on the land or both.
- The time lag that is likely to elapse before they are compensated since there is a tendency of government projects being delayed. They stated that this would in turn lead to loss of livelihood and property since they would be denied/limited access to their property.
- The uncertainty of valuation process and whether the valuation exercise will be fair enough to meet their financial expectations. Most of the community members are not conversant with the valuation procedures and several of them expressed fear of losing their property to UETCL with no or inadequate compensation.
- The community members also wanted to know the extent of the proposed 40 meters corridor (how wide it is). In addition they wanted to know exactly where the line passes since this was not yet clearly marked.
- They also needed to know when the RAP team that will carry out the valuation and land surveying was to come.
- The mode of payment of compensation. The affected persons also needed to know how payments will be effected. Most of them preferred cash compensation although didn't know how much to expect and how this money would be delivered to them.
- People were interested in knowing how they will be compensated for inconveniences caused. During the public consultative meetings, the affected persons questioned the credibility of the valuation exercise. They noted that the valuers sometimes undervalue property and there is a likelihood of documenting wrong property owners as has been the case in some instances with similar projects.

During the meetings, community members were informed that this activity (EIA process) was mandatory and a legal requirement by the laws of Uganda. They were informed that projects of this magnitude had great impact on their livelihood therefore their views were vital.

In all the meetings, a majority of the participants were not aware of the project since the meeting held were the first about the project in all villages they were held. Participants emphasized that proper community consultation by professionals should be carried out if this project is to progress with minimum interruption to the community. The quotations below summarize the concerns of some of the potentially affected persons;

Examples of issues and questions raised by the Project Affected Persons (quoted verbatim)

1. If I live and derive my livelihood within the 40 meter corridor how will I be compensated satisfactorily?
2. Are the 40meters going to be paid for?
3. Supposing I have a plan for my area can I still go ahead and implement it since they have not yet valued?
4. The 40meters corridor provided for is only for the power line yet the line does not run along the road as is the case with most lines. Does it mean that they will acquire more land for access roads?
5. There are people who own just plots of land supposing the whole plot is taken up, is there an arrangement of getting land for such a person to relocate?
6. Can you measure and demonstrate exactly the extent of 40 meters that the corridor will cover so that we estimate how much of our land will be affected?
7. My land seems to be within the 40 meters and I have just put building materials what should I do?
8. What is the role of local leaders because some are not supportive of people when they complain about developers and instead label them as saboteurs of development?
9. Some companies value and take long to effect the compensation how will the lost time be paid for?
10. What happens if an affected person refuses any form of compensation?
11. Supposing there is no structure or plants within the area where the corridor is will the land be compensated?
12. Will crops and trees be compensated since this is a village and much of the land that will be traversed is farm land?
13. How long will the program take before commencement so that we prepare for what is coming?
14. Will power just pass through the village or people will benefit in some way?
15. How can I use my Land before the project is implemented?
16. How will we know that the Valuer has already valued?
17. After signing the valuation acknowledgment forms are we given a specific period within which to be compensated so that we can complain in case they delay?
18. Do you agree with the property owner on how much to compensate or you give a value you feel is appropriate?

19. Next time make better publicity so that most members can attend the meeting.
20. As the consultants, don't you know when Peoples compensation fees are going to be paid?
21. We have no time limit concerning death. Don't you think this will affect our children if we die before being compensated who will help them?
22. After compensation where shall we live before we construct new houses after we are evacuated?
23. Some people have grave yards in the area how will they be compensated?
24. Since it is not us selling our land and property why don't they allow us to attach a price to our assets instead of valuing them for us?
25. Shall the land owners participate in the valuation process?
26. Why doesn't UETCL do the valuation because these district values will be too low as has been witnessed in other areas?
27. How shall we be compensated because some of us are not land owners?
28. Who will put in place the arbitrator and how shall we access them?
29. When the project commences will there be a liaison office where we can take our complaints?
30. If most of my land is affected and the portion left is too small for any productive use what happens?
31. We bought plots of land but we were not aware that the power line corridor would pass through. What should we do?
32. If I build 40m near the line won't there be any impacts from Electromagnetic Radiations?
33. Should the area chairperson be part of the local committee?
34. Government Valuers sometimes under value property how will this be dealt with?
35. I had a plan of putting up a school on my land and yet Valuers only attach a price on what is there on ground. How will this be catered for?
36. Is it true that after establishing the power line part of the land can still be used by the current owner?
37. How accessible is the Arbitrator (Independent NGO) and can one hire a private lawyer?
38. If it is only one person who has complaints, will he or she stop the project from ongoing or it will continue?
39. During the buseruka road construction and the current power line under construction affected persons were not compensated. Isn't this scenario likely to happen again during this project?
40. How will the community benefit from such high voltage power?
41. Will there be employment opportunities during construction?
42. Is there a possibility of the developer putting in place an activity that will benefit the community since this power line is just passing through our land?
43. There are some affected persons who do not have land titles but when all the people around the Village know that the land belongs to them won't the surveyors want to see the titles. How can the grievance redress committee help in this?
44. There are similar projects such as roads and power lines that have taken place in some areas and people's property undervalued. How sure are we that this will not be the case with this project?

As highlighted from the questions above, the affected communities seem to be concerned most about the extent of land to be acquired for the project and the nature of property that is to be compensated. These concerns were highly brought out in all the meetings. The affected communities are not aware of the valuation procedures and consequently the compensation criteria. The consultants attempted to respond to their concerns although further sensitization is needed especially before compensation exercise begins. Details of minutes for each meeting are attached (**Annex 1**).

Emerging issues during the 2016 consultative meetings

Although all the meetings held were peaceful, most of the PAPs are already disgruntled due to the time lag which has elapsed since valuation was done. The PAPs concerns in all the meetings are similar and were repetitive in all the meetings and rotate mainly on the quality of the RAP studies that were conducted in 2013. Below are some of the needs and concerns of most of the PAPs consulted.

- All the PAPs are urgently in need of adequate compensation to relocate and find alternatives to livelihood lost.
- The RAP was conducted using oppressive rates which were not commensurate with the market rates by then.
- Notwithstanding the fact that the rates used in 2013 were very low, the PAPs request that the RAP should be upgraded and current market rates used to compensate for the loss in livelihoods due to the time lapse since then.
- The RAP consultant especially the valuers and surveyors were not sensitive to the needs and plight of the PAPs. For example certain properties were not valued and yet when they were notified, they did not take such concerns seriously.
- Some PAPs allege that the valuers and surveyors were rude and uncooperative in several aspects.
- Some PAPs were not enumerated at all and others were partially valued.
- The disclosure exercise for the PAPs entitlements was not transparent and most PAPs allege that they were 'forced' to sign valuation forms with threats that if they do not sign, they would simply be ignored and the line would still be constructed.
- All PAPs don't have any copies of the valuation forms and to them; this confirms that the disclosure exercise was not transparent. They therefore demand copies of valuation forms for each PAP to scrutinise and understand how their entitlements were arrived at.
- The PAPs were not well sensitized on how valuation of various properties is carried out and their level of interaction with the RAP consultant was not adequate to address their concerns and fears.
- Some PAPs have never seen their valuation files and hence don't know their entitlements.

- Some valuation files have several errors such as poorly spelt names, properties valued under wrong owners, files registered under more than one owner, PAPs who do not exist in the project area and others.
- There is no grievance redress committee in place and they are greatly worried that they will be cheated since they don't have any system to advocate for their rights.

Examples of issues and questions raised by the Project Affected Persons (quoted verbatim)

- The valuation process took place around 2013 and files containing our valuation reports were brought back to us for signing. However, some of us signed the evaluation reports while others me inclusive refused to sign due to what I can term as undervaluation and other irregularities because the money in the valuation forms was much less than the net worth of my property.
- For example all my property sited on land close to an acre were valued at 9M Uganda shillings and yet I even I have to shift and resettle in some other area. I found out that with only 9M, there is nowhere around you can buy land equivalent to mine at the same time to construct a house using the same money hence I refused to sign the evaluation report. I therefore request UETCL to come in and settle our grievances

Consultant: *Your concern has been noted and all measures are being made to revalue all PAPs with complaints especially when the RAP Implementation consultant comes on board.*

- Also valuation was carried out in 2013 and up to now they have not effected the payments even to those who are comfortable with the valuation reports and there are changes in value of land and properties and also inflation rates. Therefore how will UETCL handle that scenario?

Consultant: *Concerning the time lag from the time of evaluation, it is actually one of the major reasons for updating the ESIA and RAP reports. UETCL and World Bank appreciate the fact that there has be a relatively big time gap when these processes were carried out and understands the changes in the value of property as well as inflation issue. Therefore after updating these reports your files are supposed to be revised to address the concerns raised in this meeting.*

- During the valuation process, some property was left out and even others which were valued never appeared in the valuation reports. So what are we going to do some of us with such cases?

Response: *As I said earlier, UETCL will always address such issues provided they are raised through proper channels simply because the government brings such projects to leave people better than they were before.*

- Should we start using our land since the process has delayed so much?

Response: *I wouldn't advise you to use the land simply because since the ESIA and the RAP are being updated, all losses incurred due to delay in paying the PAPs are going to be taken care of in the updated valuation report and also by the RAP implementation consultant who is soon coming on board.*

- When are they going to compensate because they stopped me from utilizing my land of about 10 acres. Are they to pay after 10 years, 20 years; what is the exact time when compensation will be effected?

Response: *Concerning the exact time of payment, I cannot tell that it is today or tomorrow but what am*

sure of is that you will be paid and all the lost time will be catered for. Also since the update of these documents has been commissioned then the government is now sure that it has the funds to work on the line up to Kinyara and pay you as soon as all the documentation has been completed.

- vii. They said that they will compensate 100% for the 5 Meters in the centre of the corridor (Right of Way) and the rest (Way Leave) they compensate 30%. They added that the portion where they compensate 30%, that it will be used by both parties where by we will be allowed to plant short crops. Therefore my question is, how can land be in ownership of two different parties? Because there are cases I may want to use it as mortgage and get a loan in the bank.

Response: *For the case of 30% paid for the way leaf is not for ownership but on restricted usage. Therefore you still continue to own the land but you will be restricted on what to use it for.*

- viii. Some of us our land touches the main road and we had bought it for other purposes like putting buildings but not planting short crops like beans and ground nuts, so how do you restrict me from using my land for the planned purposes by just giving me 30%?

Response: *I think the 30% compensation for the Way Leave is not uniform along the entire line. In some areas, UETCL pays 50% or even 100%. However, if you are not satisfied with how valuation was done, you have a right to a fair hearing. You can lodge a complaint to UETCL and you will be heard.*

Detailed consultations and all concerns of PAPs and other key Stakeholders are presented in Annex 1.

Overview of issues raised by the PAPS

Valuation

- How will unfinished affected structures be valued for compensation? *The PAPs were informed that all structures are valued whether unfinished or finished based on the CGV recommendations.*
- The communities requested that in case of delayed compensation, their property should be revalued. *They were informed that what happens under such circumstances is that the current inflation rate is factored into the compensation packages.*
- Communities inquired if the structures built or crops grown after the RAP exercise will be eligible for payment. *On this note they were informed about the cut-off date (the date of property valuation i.e RAP study completion) and anything after the cut-off date will not be eligible for compensation. In addition, they were informed that they will be given up to six months to harvest their crops and remove any other infrastructure that might not be eligible for payment.*
- PAPs inquired whether they will be given time to harvest mature crops. *They were informed that they will be given time to harvest mature seasonal crops.*
- PAPs inquired whether they will be paid for crops planted after the valuation stage. *The PAPs were informed that any crops planted after the stock inventory will not be considered for payment but time will be given to enable them harvest. For that*

matter the PAPs were encouraged to only plant seasonal crops in the area earmarked for the project.

- *PAPs wanted know what would happen to them if they did not agree with the valuers' results because some people were not around during the valuer's visit. They were informed that it's very important for them to be present during the counting of affected property so that they concur with the valuer's list. They were told to ensure that everything affected was included on the valuation forms before appending their signatures onto them. They were further informed that the current District Compensation rates approved by the Chief Government Valuer would be used to compute the compensation packages.*
- *The PAPs wanted to know if the project was going to pay for the future income that would have been generated from the affected piece of land. They were informed that the project will only pay for the property as found at the present state and that the guidelines used do not cover future income to be generated.*
- *The community members were worried that properties like houses and land would be undervalued. They were informed that the current District Compensation rates and values approved by the Chief Government Valuer would be used to compute and value the affected properties.*
- *The community members sought to know whether different types of houses are valued the same way i.e. permanent and semi-permanent. They were informed that houses are valued according to the construction materials.*
- *The community appeals to UETCL not to involve the district officials in the valuation process because they believe the officials will deprive them of the right amount for their properties. The communities were assured that the valuation is being done by a competent valuation team whose final report would be approved by the CGV as the overall valuer.*
- *The community wanted to know whether fruit trees like mangoes and oranges are valued the same way. They were informed that the valuation of crops and trees are based on the district compensation rates as reflected in the approved district property rates*
- *The PAPs sought to know why the chief government valuer was involved. The team informed them that the role of the chief government valuer is to verify and approve the values that have been attached to their assets.*

Relocation

- *Some people said that generally in the project area relocating graves is not a common phenomenon but in case this happens every affected person with graves should be asked what they prefer. This is because those with cemented graves do so for remembrance and these are likely to prefer relocation of graves. Others feel that if graves are in the corridor and will not be tampered with then they can stay.*

The people were informed that culture will be considered and respected as the work is being done and the graves will be valued.

- The community wanted to know whether the compensation will be enough to enable people relocate. *The people were assured that the compensation will be enough and it will include payment for the inconveniences.*
- The community wanted to know whether the PAPs will be given time to relocate before the project begins. *They were assured that they would be given time to relocate.*
- The community wanted to know whether PAPs are helped to look for better areas for resettlement. *The community was assured that the PAPs are helped to resettle in the new places.* The community wanted to know whether people are given chance to relocate to areas of their choice. *The people were informed that they had a chance to choose a place of their choice provided it is accessible and affordable.*
- The PAPs wondered where they would relocate to. *It was made clear that there are relocation guidelines that would be followed in the relocation of all PAPs.*

Disputed land

The community wanted to know what happens in case the affected piece of land is disputed or even the case in court. *The community was reliably informed that disputed land is not valued and is referred for future valuation and surveying once all the conflicts have been resolved.*

Employment

The community wanted to know whether the locals will be employed especially as casual labourers. *Recommendation made in the ESIA is for the communities to be given first priority for jobs available during construction.*

Grievance redress

- The communities wanted to know where people should go for redress in case they don't agree with the compensation package or in case they have any complaint. *The communities were advised to form grievance committees that will be presenting grievances and complaints directly to UETCL.*
- The community wanted to know the address of UETCL in case they had any complaint. *They were referred to the information brochures that give both UETCLs and the consultant's addresses.*

Safety issues

- The community wanted to know whether it will be safe to walk under the lines after construction. *They were assured that it was totally safe to walk and work under the lines.*

- The community wanted to know whether people (for example the children) in the project area will not be electrocuted in case they touched the pylons. *The community was assured that the pylons are totally safe because they are bad conductors of electricity, However they were cautioned to control the children so as not to play on the pylons much as they are safe.*

Land take

The community wanted to know how much land would be taken because similar projects like Kaiso-Tonya road encroached on people's land which was not compensated for. *The team informed the community that the way leave is 40m wide of which 5m will be completely acquired and remaining 35 m will be partially acquired and allowed for utilization by the community but under restrictions from UETCL*

Community social responsibility

The PAPs sought to know whether UETCL would do anything else for the community apart from compensation. *The ESMP prepared as part of the ESIA represents a commitment for UETCL to implement the proposed mitigation and compensation measures. The planned environmental and social surveillance and monitoring to be conducted will ensure compliance of the works with commitments and obligations listed in the ESMP, and due application of all mitigation measures.*

Community benefit

- The community wanted to know whether community access roads will be constructed as part of the project activities. *The team informed the community that the project will, as much as possible, use the already existing roads and the way leave.*
- Communities requested the project to consider supplying them with electricity so that they benefit from the project. *They were told that The Government of Uganda, through the Rural Electrification Agency, will be carrying out an electrification program in some areas of the project area. Additionally, UETCL has committed to contact REA to ensure joint coordination of electricity distribution activities as part of the Project.*

Absentee landlords

Community members inquired on how properties of absentee landlords will be handled. *They were informed that the team will look for all the landlords. In addition, they were requested to submit all contact details of the absentee landlords.*

Refusal to surrender land

Some PAPs asked what would happen if some homesteads refused the line from passing through their land. *The question was put across to community members to respond and they said that two or three homesteads would not deter development. In this case, the Government's principle of "Eminent Domain", where the government has the powers to acquire land for public use but has to satisfy the acquisition requirement, must be applied.*

Where there is disagreement, land can be used and funds put in the Escrow Account until the case is resolved and the affected person paid.

Vulnerable people

The communities wanted to know what would happen to old people whose structures will be affected and yet they no longer had the energy to construct new ones. *They were informed that the government will help all vulnerable people to relocate.*

6.5.6.2 District officials

The district officials also emphasized the need for clear and proper information dissemination because most rural community members are illiterate. They emphasised the need to continuously sensitize the people especially the PAPs in the affected areas about the project procedures and its associated activities. They added that local leaders should be involved so that the communities identify with the project. Sensitizations could take the form of workshops for local leadership and radio talk shows and spot messages for the general communities. The district leaders however pledged to help in the mobilization and sensitization of the communities.

All district officials consulted observed that the compensation value should include a rate that covers the cost of inflation. They added that people in Hoima value their land highly and look at it as a potential for investment since the discovery of oil in the district so the valuers should put this under consideration when valuing land. The rest of the other district officials (CAOs, LC5 Chairpersons, District Technocrats) in both Hoima and Masindi consulted expressed that UETCL should ensure that the compensation exercise is transparent, quick and commensurate with the damages caused. They noted that land has become very precious in the affected districts and that any development involving land take should be conducted judiciously. Detailed discussions in form of minutes for particular district officials are attached (**Annex 1**).

6.5.6.3 Electricity Regulatory Authority

The main concern that was raised by the Senior Environment Officer of ERA was to do with the wide nature of the corridor this being a very high voltage line. He expressed that there is a lot of property that is bound to be affected and as such comprehensive assessment and collection of issues concerning structures and property within the way leaf & ROW should be made before construction commences. The ERA environment officer also stated that people adjacent to the way leaf should be sensitized about the need for a wider buffer area because they are likely to encroach on it after the project has been established. *“There should be a continuous sensitisation programme for the communities along the line before the project is commissioned”*, said the senior environment Officer of ERA. He also added that a monitoring team should be put in place including local people so that they develop a sense of ownership for the project and can police themselves concerning the corridor

boundaries after the project has been established. Details are attached in minutes attached in Annex 1

6.5.6.4 Uganda Museum

The Commissioner Uganda Museum noted that this is a good project and being a transmission line it will not have many excavations like other projects such as roads. She hence noted that the effect of the project on Historical, archaeological or paleontological sites will not be very much although this does not mean there will not be any. She added that Bunyoro sub region was an iron smelting and pottery area so it is likely that there are such sites of historical importance that need to be preserved. *“There are definitely other sites such as burial grounds and shrines that need to be preserved”*, said the Commissioner Uganda Museum. She noted that features that are underneath and cannot easily be identified are of major concern. These will require specialised people (archaeologist) to ascertain their existence and importance and also give suitable advice to the ESIA team to guide decision making. Details are attached in minutes attached in Annex 1

6.5.6.5 Wetlands Department

The Principal Wetlands officer at Wetlands Department stated that 40 meters is a wide area which will be cleared of vegetation along the entire stretch of the proposed power line before construction. *Construction of transmission towers will lead to siltation of affected wetlands as there will be excavation to make a firm foundation*, said the Principal Wetlands Officer. He added that during construction, there is a tendency by developers to leave loose soil and concrete in wet lands as has been observed with many developments that cut across wetlands. He noted that there will be loss in biodiversity and ecological functions of the areas that will be traversed by the line. For example invasive species like lantana camara could colonise the area as trees that tend to suppress it will not be in this 40 meter stretch any more. The wetland officer suggested that the developer puts in place measures that will minimise the flow of loose soil to affected wetlands. He noted that since this is a high voltage line, there is a possibility of having a road beneath the line for maintenance purposes. So the contractors should ensure that there are sufficient culverts for the stream (wetland) to continue flowing without much interruption. The Wetlands Officer said the developer should compensate for biodiversity loss for example by encouraging the community to plant trees or by planting short trees along the 17.5 stretch that will be under restricted use by the community. Details are attached in minutes attached in Annex 1

6.5.6.6 Ministry of Gender, Labour and Social Development

Concerns raised by the Safety Inspector, Ministry of Gender Labour and Social Development were to do with the safety of workers during the construction phase of the project. He stated that ‘during construction, the developer should ensure that existing acts are put into consideration such as the Employment Act, Compensation Act, Labour Unions Act and the Occupational Safety and Health Act among others. He also noted that in addition, the developer should carry out a risk and hazard assessment before construction

so that an appropriate safety and environmental management plan is put in place'. He also added that the safety department should be formally informed a month before commencement of the project. The other major issue that was raised in the Ministry of Gender was need for gender mainstreaming and sensitivity. *Women should be encouraged to take up jobs and child labourer should not be engaged for any project activity at any stage*, said the Safety Inspector. He also added that project affected persons should be prioritised for employment opportunities that will emerge. The commissioner Gender emphasized the need for project implementers to take care of gender concerns in all phases of project implementation. She noted that there should be zero tolerance to gender based violence especially on the side of the contractor. She mentioned that the women should also be given equal opportunities in providing goods and services and that sanitation facilities at construction sites should be adequate catering for both sexes. She also advised that all consultations should be made in local languages to take care of the illiterate and semi-illiterate in both local governments and that compensation issues should be transparent in the household rather than being left out to the household heads which normally ends in conflicts. Details are attached in minutes attached in Annex 1

6.5.6.7 Ministry of Energy and Mineral Development

The Environment Officer at Ministry of energy sited impacts that might arise from opening up new areas since the proposed transmission line is not linear to the road. The environment officer expressed that areas such as wetlands and forests once opened up could lead to an increment in illegal activities by adjacent communities. She also expressed concern with compensation issues that might arise from the proposed project by stating that all PAP should be compensated and resettled before the project commences and a sufficient buffer zone should be left to ensure safety of the communities living along the line. The transmission line constructors should respect local people's norms and traditions and users of resources within the project area so that the community does not reject the project, said the petroleum/Environment Officer Petroleum department at Ministry of Energy and Mineral Development. Details are attached in minutes attached in Annex 1

6.5.6.8 Uganda Wild Life Authority (UWA)

The Environmental Impact Assessment and Planning Officer at UWA noted that although the project area has some wild life especially the Masindi segment, she pointed out that it's not a protected area. She however advised the UETCL and contractor to be careful and avoid hurting or killing animals during the construction phase. She also noted that although the Kafu area will not be gazzeted into a protected area, UWA is proposing to start protecting some of the scattered wild life in this zone as provided for in the Strategic Plan of 2013-2018. However, the Hoima-Kinyara segment under consideration in this ESIA study is about 25km away from this zone. In terms of conservation importance and status of the project area, there are no obstacles to deter construction of the line as proposed in the Hoima-Kinyara route (Option 3). Details are attached in minutes attached in Annex 1.

6.5.6.9 Kinyara Sugar Ltd

Kinyara Sugar Ltd had been earlier consulted by UETCL (**see Annex 9**) in respect of access through the sugar cane estate and substation land. At the time of updating this ESIA report, Kinyara Sugar had granted all the requests of UETCL (**see Annex 10**). In its response, Kinyara Sugar Ltd granted UETCL to use company land measuring 24.71 acres (a stretch of 20km) as way leaves for the Hoima-Kinyara 220kV transmission line and extra 6.4 acres as substation land. Kinyara Sugar Ltd also promised to provide all necessary access to the construction crew and later operation and maintenance personnel involved in the project as long as it pertains to Hoima-Kinyara transmission line and associated substations.

6.6 Compensation and management of complaints

The EIA team highlighted to the community the available compensation packages and stated that part of the corridor would be 100% compensated for whereas the area lying within the 17.5 meters on either side would attract compensation between 30-80% of the total land value. The land for land compensation and the cash for land options were discussed. They were further informed that the World Bank compensation guidelines require the former to be used as well as helping the affected persons with resettlement. The option of paying land for land was discussed with the community and it was found out that it is associated with looking for land, negotiating for a price with willing sellers, before it can be transferred to the affected persons. In order to achieve this requirement, it was agreed that a third party will review the disputes that the parties will encounter during the actual compensation process.

Moreover, to ensure cash compensation paid is not wasted, they were also informed that a local Non-Governmental Organization will be engaged to sensitize them on how to gainfully utilize the money paid to them. This is so because in most cases community members tend to misuse the money only to end up being in worse situation than before the project was implemented.

Another issue of contention is the timing of compensation. Communities expressed unhappiness with the way compensation is handled in Uganda and stated that there is a tendency of delaying compensation and yet no value is added to cater for the lost time.

The community members were further informed that during the compensation exercise, agreements will be signed between the two parties to ensure smooth compensation process, which is transparent. Each of the landowners shall sign on the verification form and witnessed by the LC1 Chairperson of the respective village. The LC1 Chairperson shall counter sign a certificate of completion. It should be noted that other than compensation issues, other complaints are likely to emerge which need to be addressed as well. Such complaints may be related to the other aspects of the working environment such as labour,

noise, dust, unsafe excavation, unsocial behaviour of workers, sexual harassment, defilement, elopement with people's wives and others. All complaints shall be resolved following the grievance redress procedure presented in section 9.12.

6.7 Vulnerability

Community members, local leaders and district technocrats expressed concerns about what would be done to people who may be affected more by the project see detailed consultations of stakeholders in annex1. From the discussions, the potentially vulnerable in the project area include the elderly, widows/widowers, single mothers, disabled persons, and child headed families. The number of the vulnerable groups will be fully identified during the RAP. The concern of this group of PAPs is getting in-kind compensation since they may not have the energy to establish new homes by themselves.

6.8 Cultural and Communal Property

The communities were requested to assist the RAP team to identify cultural and community properties (such as cultural sites, water sources and graves) in or near the transmission line corridor that could be affected by the project. From the meetings it emerged that some graves are located within the transmission line corridor. Some of the graves are cemented therefore are easily visible. Other properties may be cultural sites used for cultural ceremonies and traditional healing although these were not identified during the EIA. The communities were informed that they will be asked to relocate these sites to places of their choice and the costs involved will be determined in a detailed RAP study that is in separate document.

6.9 Community Participation in the Project

The EIA team outlined to the community the procedures on how they will participate and get involved in the proposed project. They were informed that at each stage of the project, the community would be informed through their Local Council leaders. They were further informed that in the detailed RAP to be carried out and that there would be more consultations, identification and valuation of property.

Community members were requested to participate in the RAP study since it is from that study that the basis of compensation and other issues will be addressed. The findings of the RAP study would be disclosed to them through subsequent community meetings.

The communities proposed that when the project starts, they should be given the first opportunity and priority to work as semi-skilled or non-skilled labourers. Local Council (LC) officials in the project area also emphasized the need for the Contractor to recruit unskilled labour from the communities along the transmission line routing. Communities expressed concern that project implementers import even unskilled labour, which the locals could provide.

6.10 Public Disclosure Plan

The Ugandan laws and Development Partner guidelines within which this EIA was done require communities consulted to be informed of the decisions made from the study. The views gathered during the EIA process were analysed and incorporated in this EIA report. The project sponsor (UETCL) will distribute copies of the report to the relevant stakeholders and the communities consulted. Any issues that may have been omitted will be incorporated and dealt with accordingly.

6.11 Need for continuous consultation and future community engagement

It is expected that more consultations with affected persons regarding relocation and other future impacts during construction be carried out throughout the implementation of the project. According to the concerns raised in Annex 1, the PAPs raised a lot of issues and some go beyond corridor acquisition especially when future impacts are as a result of contractors activities that were not captured in the RAP. In summary, the PAPs are desperately in need of reasonable compensation to find alternative sources of livelihoods. They are not happy with the way UETCL has delayed to effect their entitlements yet they think valuation was conducted using very low and oppressive rates. The PAPs want to be sensitized on the way their entitlements were arrived at and given time to consult or get a second opinion on such matters. RAP implementation also requires several stages of stakeholder consultations to ensure all PAPs concerns are addressed in a transparent manner. It is therefore recommended that UETCL develops a communication engagement plan that will ensure that all PAPs are effectively reached. Similarly, the plan should also ensure that all PAPs reach UETCL wherever and where ever. The starting point to ensuring a transparent process is for UETCL to establish liaison offices in the project area preferably in each affected subcounty and or as agreed upon by the PAPs. It is through such offices that the grievance redress committee can submit their complaints for further action by UETCL. All future communications can then be discussed with the PAPs or PAPs representatives and a communication plan distributed to all PAPs through their leaders and or media (especially local radio stations).

6.12 Conclusion

The community discussions and stakeholder interviews showed that the community along the proposed transmission line corridor will support the project if the compensation exercise is implemented in a professional and fair manner. The community and the key stakeholders have expressed support for the project since they see it as a way of enhancing electricity reliability in the region in order to promote development as well as employment creation for themselves or their children during construction. It is also anticipated that reliable electricity supply will attract investors to the region.

Notwithstanding the anticipated benefits, the project will lead to negative social and economic impacts. It is recommended that the developer implements all the mitigation

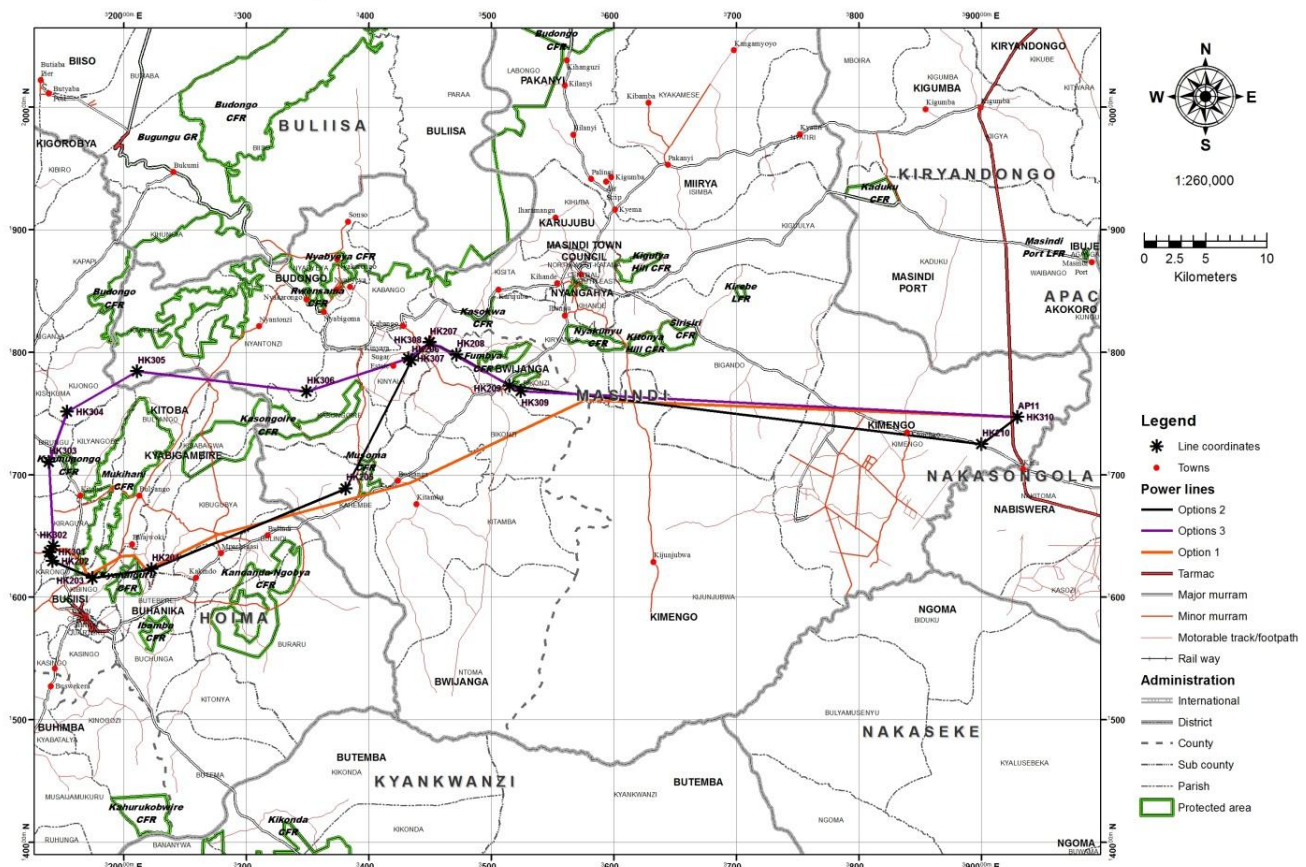
measures suggested in the EIA report especially by ensuring that all anomalies in the RAP study are well addressed by the RAP implementation consultant. To ensure that the project is managed perfectly to a logical conclusion, the developer should make the necessary budgetary provisions to ensure that mitigation commitments in the EIA as well as in the RAP and monitoring programs stated herein are effectively implemented. In addition, public consultation and sensitization shall continue during the disclosure period in order to capture any other issues that could have been left out during the consultation exercise.

7 ANALYSIS OF PROJECT ALTERNATIVES

7.2 Introduction

The feasibility study for the Hoima-Kinyara 220KV power line was finalised by another independent consultant (SMEC International Pty Ltd). In this respect, 3 route options were considered as presented in figure 7.1 below. These include option 1 (red line), option 2 (black line) and option 3 purple line. Option 3 has been regarded as project option.

Hoima Kafu Proposed Transmission lines: - Administration



7.3 Option 1 & 2

Option 1 had been designed initially by the UETCL planning team and had been provided to the ESIA consultant for consideration and further assessment. However, it was later realised by UETCL that the line had to pass via Kinyara Sugar Factory to tap the proposed 30 mega watts from co-generation into the main grid. Therefore UETCL decided that any power line option from Hoima to kafu must pass via Kinyara. After some studies along along option 1, the feasibility study team decided to modify option 1 and came up with option 2. The merits of option 2 were that it had few angle points and was able to pass through kinyara sugar works factory.

7.4 Option 3

Although option 2 had fewer angle points compared to option 1, a ground verification exercise along option 2 revealed that this option was going to affect several homesteads and some central forest reserves. Therefore the social economic impacts associated with compensation and resettlement were immense hence the desire for a third option for comparative purposes. Option 3 was then designed and compared with option 2.

7.5 Deciding between option 2 and 3

7.5.1 Overview

Deciding between option 2 and 3 required that decision makers take into consideration the following;

- 1) length of the line
- 2) Displacement impacts associated with each option
- 3) Ease of construction
- 4) Impact on protected areas and sensitive ecosystems
- 5) Opinion of key stakeholders
- 6) Overall cost of each option
- 7) Susceptibility to vandalism
- 8) Consultants visual and intellectual judgement

7.5.2 Length of line

In terms of total length, Option 2 is about 40km while while Option 3 is about 43.5km. Holding other factors constant and using length as the only criteria for selecting the best option, then Option 2 would be the best alternative.

7.5.3 Displacement impacts associated with each option

The scoping survey revealed that option 2 would displace a significantly bigger number of homesteads compared to option 3. Option 2 will displace at least 20-25 homesteads compared to 7-10 homes that will be displaced by option 3. Therefore considering the loss in livelihood, social displacement and psychological impacts associated with relocating 20-25 families, option 3 would be the best alternative. However if the cost of relocating the 20-25 homesteads is less than the cost incurred to construct an extra 4.6km line in option 3, then its better to relocate these families and still retain option 2 as the best alternative since its more accessible compared to option 3.

7.5.4 Ease of construction (proximity to access roads)

In this context, ease of construction as a criterion for selecting the best option has been based on the number of access roads that criss cross or that are in close proximity to either option. There are other technical considerations like gradient, angles and soil characteristics but are not implied in this criteria. During scoping and detailed ESIA studies, option 3 was evidently observed to be poorly supplied with access roads although all the angle points are

accessible. The highly affected segment of option 3 is between HK304 and HK305. This may ultimately result into higher costs associated with constructing new access roads. Therefore holding other factors constant, a contractor would prefer option 2.

7.5.5 Impact on protected areas

Most of the affected forest reserves are degraded natural forests but are slowly recovering. Option 2 crosses 5 protected areas (Central Forest Reserves-CFR). The Hoima-Kinyara segment of option 3 does not affect any central forest reserve. Option 2 crosses Fumbya (263m), Nsekuro Hill (303m), Mukihani (516m), Musoma (333), Kyahaiguru (1,003m) Central Forest Reserves. The total length of option 2 under protected area is 2,421 (Approximately 2.4km) compared to 0 meters under option 3. In this regard, option 3 is the best alternative.

7.5.6 Opinion of stakeholders

During consultation, most of the district officials prefer that the option to be considered should be that which will give electricity to the local people. Most of the stakeholders insist that the project should benefit the people of Hoima and Masindi. As stated by the District Planner Masindi, "It is not important where the line passes but rather where the power ends up". Option 3 was criticized by some stakeholders because it traverses areas with out people and although its rationale was well explained. Some stakeholders do not differentiate the electricity transmission procedure for high voltage (220kV) lines and low voltage lines (33kV). The opinion of district leaders was that the line should pass in areas where there are homesteads, markets, trading centres and other users so that they can be able to tap power from the line although this is not possible. Therefore basing on the opinion of stakeholders, non of the options in best.

7.5.7 Cost of each option

Preliminary projections have shown Option 3 to be cheaper than option 2. In this report, total cost for constructing option 2 is approximately 30.8 million dollars compared to 27.2 million dollars for option 3. For details, see Preliminary Route Selection report (Report number 5116012.003) produced by SMEC International

7.5.8 Susceptibility to vandalism

Susceptibility to vandalism is a complex factor that cannot be assessed superficially. Some factors may affect the attitude of people towards the transmission line such as culture, extent of awareness and poverty among others. However, other factors could be political or simply malice. It is therefore not possible to predict or establish which option may be more susceptible to vandalism than the other. Adequate sensitization of the surrounding community and constant monitoring of the line may contribute to the reduction of this vice. However, vandalism can be reduced further if the communities living around the transmission line appreciate the benefit of the line. In this respect, a community that does not have access to electricity may be redundant to undertake any measures that protect the line from being vandalised.

7.5.9 Consultants visual and Intellectual Judgement

In deciding the best line, it is important that the consultant's visual and technical judgement be considered. This criteria buffers and answers questions that are difficult to quantitatively evaluate. Such questions include the nature and worthiness of structures under the 2 line options, the validity of proximity to access roads, terrain and susceptibility to vandalism. To rate the best alternative, the following matrix has been used and it is based on the detailed ESIA report findings, preliminary cost estimations generated by SMEC, consultants knowledge of the field conditions under the 2 options and the consultant's intellectual judgement. Therefore, using a score of 1 to 5, each option was rated. In this matrix, a score of 1 represents that the Transmission Line option is highly acceptable while a score of 5 indicates that the Transmission Line option is highly unacceptable as presented in Table 7.0 below.

Table 7.0: Line option assessment matrix

| | | | | | |
|--------------------------|-------------------|------------|-----------------|--------------|---------------------|
| Rating scale | 1 | 2 | 3 | 4 | 5 |
| Rating definition | Highly acceptable | Acceptable | Tolerable | Unacceptable | Highly Unacceptable |
| Route ranking | Option 3 | | Option 2 | | |

7.6 Deciding Optimal Option

Using the Consultant's field data and observations and applying the 1 to 5 scoring system, it was possible to rate the above criteria for the two line options as shown in Table 7.1. To be able to rank the two line options, the Consultant used weighting 0% to 100% of the above criteria where 0% indicates that the criterion doesn't have any impact and 100% has very high impact. The Consultant used his own judgement to give the weighting to above criteria. Table 7.1 below presents the evaluation criteria rating for the 2 line options against the above 8 environmental and social criteria and their ranking.

Table 7.1: Criteria score for option 2 and option 3

| No | Criteria | Score for Option 2 | Score for Option 3 | Weights | Final score for option 2 | Final score for option 3 |
|----|-------------------------------------|--------------------|--------------------|---------|--------------------------|--------------------------|
| 1 | length of the line | 1 | 1 | 5% | 0.05 | 0.05 |
| 2 | Displacement impacts | 5 | 2 | 20% | 1 | 0.4 |
| 3 | Proximity to access roads | 1 | 2 | 12% | 0.12 | 0.24 |
| 4 | Impact on protected areas (CFRs and | 5 | 1 | 20% | 1 | 0.2 |

| | | | | | | |
|---|---|---|--------------|-------------|------------|-------------|
| | wetlands) | | | | | |
| 5 | Opinion of key stakeholders | 1 | 1 | 5% | 0.05 | 0.05 |
| 6 | Overall cost of each option | 2 | 1 | 10% | 0.2 | 0.1 |
| 7 | Susceptibility to vandalism | 1 | 1 | 8% | 0.08 | 0.08 |
| 8 | Consultants visual and intellectual judgement | 3 | 1 | 20% | 0.6 | 0.2 |
| | Total score | | Total | 100% | 3.1 | 1.32 |

Therefore basing on the criteria considered, option 3 is the best option.

7.7 Option 2: Project option

The project option in consideration entails the current approximately 50km route as it was designed by SMEC International and UETCL planning team. The line has been designed to avoid crossing most of the trading centres along Hoima-Kinyara making it even a much better alternative in terms of social economic impacts anticipated. This project option has incorporated in several design considerations to maximise technical, environmental and financial benefits. For example the route has been designed to avoid almost all Central Forest Reserves an attribute that makes it a good option. Other aspects of the wider section of the environment impacted by the power line are basically subsistence farm lands which can be acquired without any significant conflicts along the corridor if the PAPs are well consulted, sensitised and compensated adequately. Therefore judging from an environmental, social and economic dimension, the project option is practical and feasible.

7.8 Option 4: Action and no action (Do nothing and leave the status quo as it is)

Action means constructing the proposed power line and enhancing UETCLs services for the end user of electricity. No Action means forfeiting all positive impacts that the proposed transmission line would provide to the Network users in Hoima, Bulisa, Masindi, and the surrounding districts. In the absence of the proposed project, there would be benefits lost as well as negative impacts averted. Notwithstanding the identified negative impacts that can be mitigated, the action alternative should be supported to enhance electricity coverage around the country. Uganda needs electricity to develop and reduce on biomass energy use which is rated at 90% (Ministry of Energy 20101). Hydro-electricity coverage was at 5% for the entire country but of recent, it has risen to 10% due to the establishment of Rural Electrification Scheme under the Ministry of Energy and Mineral development. The above figures reveal a great need for the construction of the proposed transmission line and therefore all effort towards the establishment of the proposed Hoima-Kinyara power line should be greatly supported. In this respect, the Action alternative should be supported.

8 IMPACT IDENTIFICATION, MANAGEMENT AND MONITORING

8.1 Criteria for Impact Assessment

To assess the significance of negative environmental and socio-economic impacts, the ESIA team used defined criteria for impact severity and significance of the planned project activities on baseline environmental and socio-economic aspects in the project area. The significance of the risk posed by potential environmental impacts were assessed using the severity criteria developed to determine the scale of the impact and the likelihood of the event. The impact would have a high (H), medium (M), or low (L) significance (Table 8.1).

Health and Safety assessments were done taking into consideration external hazards (e.g. weather), man-made hazards (security, terrorist activity), normal process hazards (e.g. hot surfaces), accidental hazards (e.g. equipment failure, fire and explosion, contingency planning), maintenance hazards (heavy lifting, access requirements), and occupational health risks (exposure to chemicals, noise and heat)

Table 8.1: Criteria for Impact Assessment

| Criteria | Significance Definition | Rating |
|------------|--|--------|
| Compliance | Continuous non-compliance with regulations or WB OP 4.12 | H |
| | Potential for non-compliance with regulations and WB OP 4.12 | M |
| | In compliance at all times, or no regulations apply | L |
| Ecosystem | Disturbance of >10% of bio-geographic population of animal species in areas of importance for their breeding, feeding or other parts of the life cycle with no expectation of recovery within 5 years (or 2 generations for long lived animal species). Impairment of the function of 2 hectares or more in an area of critical importance to the life cycle of endangered species, or of 100 hectares or more in other areas, with no expectation of recovery within 5 years. Impairment of forest ecosystem with no expectation of recovery within 20 years. Effect contrary to the objectives of management plans for internationally or nationally protected populations, habitats or sites with no expectation of recovery within 5 years. Environmental changes giving rise to issues of public or international concern. Impacts that harm human health, or damage a site of historic, cultural or archaeological value | H |
| | Disturbance of populations of species in areas of importance for their breeding, feeding or other parts of the life cycle with expectation of recovery within 1-5 years. Impairment of the function of 2 hectares or more in an area of critical importance to the life cycle of endangered species, or of 100 hectares or more in other | M |

| Criteria | Significance Definition | Rating |
|----------------|--|--------|
| | areas, with no expectation of recovery within 1-5 years. Impairment of Forest ecosystem with expectation of recovery beginning within 10 years. Effect contrary to the objectives of management plans for internationally or nationally protected populations, habitats or sites with expectation of recovery within 1-5 years | |
| | Effects will only cause limited public or international concern. Effects are unlikely to harm human health or damage a site of historic or archaeological value. Impaired function of forest ecosystem with expectation of recovery within 5 years. Ecosystem change is within the range of natural variation, but may be detectable; or ecosystem change that is unlikely to be noticed; or change resulting in positive, desirable or beneficial effects on an ecosystem | L |
| Socio-Economic | Damage to social, cultural or economic activity considerably beyond programme lifetime. Long term or life threatening health effects. Activity raises issues of public concern, may affect human health or may damage a site of cultural importance | H |
| | May adversely affect the economic and social well being of residents for the duration of the programme. May cause short-term interference with business. Raises issues of limited public concern. Minor damage to site with cultural importance. | M |
| | Beneficial changes to the well being of residents. Negative effect within existing fluctuation of the society or economy | L |

The combined grade for the impact was then defined by combining significance grades with the likelihood of the impact happening (Table 8.2).

Table 8.2: Definition of Likelihood for Unplanned Events

| Rating | Frequency | Description |
|--------|--------------------|--|
| <<1 | Low frequency | Type of event that would require a freak combination of factors or that is almost unknown in Electricity Transmission Projects |
| <1 | Unlikely to happen | Type of event that happens occasionally in Electricity Transmission projects despite the implementation of mitigation measures |
| 1 | Could happen | Type of event that occurs when things that often go wrong during some Electricity Transmission Projects do go wrong |
| 1+ | Likely to happen | Type of unplanned event that occurs during most Electricity Transmission Projects |

The combined grades were then rated for severity of impact using guidelines in Table 8.3. The severity of an impact is defined in terms of harm to people, damage to assets and damage to UETCL's reputation as defined in Table 8.3

Table 8.3: Severity definitions

| Ecosystem and Socio Economic Criteria Definitions | Rating |
|---|---------------|
| <p>Incident typically requires mobilization of international response - Disturbance of >10% of bio-geographic population of animal species in areas of importance for their breeding, feeding or other parts of the life cycle with no expectation of recovery within 5 years (or 2 generations for long lived animal species). Impairment of the function of 2 hectares or more in an area of critical importance to the life cycle of endangered species, or of 100 hectares or more in other areas, with no expectation of recovery within 5 years. Impairment of forest ecosystem with no expectation of recovery within 20 years. Effect contrary to the objectives of management plans for internationally or nationally protected populations, habitats or sites with no expectation of recovery within 5 years. Environmental changes giving rise to issues of public or international concern. Impacts that harm human health, or damage a site of historic, cultural or archaeological value. Damage to social, cultural or economic activity considerably beyond program lifetime. Long term or life threatening health effects</p> | 4 |
| <p>Incident typically requires mobilization of in-country response equipment - Disturbance of populations of species in areas of importance for their breeding, feeding or other parts of the life cycle with expectation of recovery within 1-5 years. Impairment of the function of 2 hectares or more in an area of critical importance to the life cycle of endangered species, or of 100 hectares or more in other areas, with no expectation of recovery within 1-5 years. Impairment of Forest ecosystem with expectation of recovery beginning within 10 years. Effect contrary to the objectives of management plans for internationally or nationally protected populations, habitats or sites with expectation of recovery within 1-5 years. May adversely affect the economic and social well being of residents for the duration of the program. May cause short-term interference with business. Raises issues of limited public concern. Minor damage to site with cultural importance</p> | 3 |
| <p>Incident can be dealt with using equipment on-site – Impaired function of forest ecosystem with expectation of recovery within 5 years. Ecosystem change is within the range of natural variation, but may be detectable; or go unnoticed. Negative effect within existing fluctuation of the society or economy</p> | 2 |

| Ecosystem and Socio Economic Criteria Definitions | Rating |
|---|---------------|
| No detectable effects or changes resulting in positive beneficial effects on an ecosystem, or generating useful data. Change resulting in positive, desirable or beneficial effects on an ecosystem | 1 |

Table 8.4: Criteria for Severity definitions

| Criteria | Significance Definition | Rating |
|-----------------|---|---------------|
| Harm to People | Potential to cause multiple fatalities or widespread chronic health problems for many people | 4 |
| | Potential; to cause fatalities, mutilations or serious chronic health problems for up to 3 people | 3 |
| | Potential to cause Lost Time Incidents | 2 |
| | Not likely to result in Lost Time Incidents | 1 |
| Assets | Extensive damage to infrastructure, possibly including off-site structures | 4 |
| | Major damage to on-site infrastructure, halting operations and incurring substantial delay to supply replacement equipment | 3 |
| | Minor damage to individual item of equipment for which a spare part or replacement can be quickly mobilized to the development | 2 |
| | Damage resolved by on-site reserves, maintenance equipment and on-site personnel | 1 |
| Reputation | Incident attracting international negative press coverage causing lasting harm to corporate reputation, or for which the company could be prosecuted and fined a large amount of money | 4 |
| | Incident attracting critical reporting requiring the company to take measures to maintain its reputation, or for which the company could be prosecuted and receive a token fine or be required to pay compensation to third parties | 3 |
| | Incident attracting local news coverage and complaints, and which involves expense in engaging local communities to apologize, clarify issues and make amends | 2 |
| | Incident that does not provoke complaints | 1 |

The overall rating of an impact was determined by combining the likelihood of occurrence and severity using the risk assessment matrix shown in Table 8.5.

Table 8.5: Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|----|---|----|
| | | <<1 | <1 | 1 | 1+ |
| Impact Severity | 4 | M | M | H | H |
| | 3 | L | M | M | M |
| | 2 | L | L | L | L |
| | 1 | L | L | L | L |

8.2 PROJECT IMPACTS

8.2.1 POSITIVE IMPACTS ON ENVIRONMENT

8.2.1.1 Improvement in Power supply

There will be improved electricity supply to the people within the districts of Hoima, Masindi, Bulisa and the neighboring areas. This will boost rural community access to hydroelectricity energy which is still limited to 2% country wide. This will positively impact on the population's development through support to both economic activities and social development in sectors such as agriculture and manufacturing. This will consequently improve production in such sectors since electricity is a major in-put and people's welfare, health and social amenities will considerably be transformed in the long run. Additionally, through Rural Electrification Agency, the government of Uganda plans to intensify and improve the existing electricity connections in the project area. Currently, parts of the project subcounties including Budongo, Kitoba, Kigorobyia are connected to the national grid. Under the Electricity for Rural Transformation (ERT), government of Uganda has set aside funds to extend electricity to several parts of the country including the subcounties affected by the Hoima-Kinyara.

8.2.1.2 Improvement in Reliability of Power supply

The proposed Hoima-Kinyara transmission line will considerably improve electricity supply within the districts of Masindi, Hoima and the several parts of both western and northern region. This is because the power line will increase transmission capacity and reduce load shedding often encountered due to high demand. This will reduce losses incurred by the business community in such areas.

8.2.1.3 Creation of Employment Opportunities

During construction, more than 100 people are expected to be recruited as workers along this Hoima-Kinyara power line. These will constitute skilled, semi-skilled and unskilled workers. Skilled personnel will be employed as Managers, Supervisors, and in other Technical positions whereas unskilled laborers will be support staff and perform non-technical work. The income accruing from such activities will obviously change their standards of living. More employment will be created to the local proprietors who will be providing services like food, accommodation, medical care, among other services. This is because most staff will be housed near the places of work. Generally, Trading centres and townships along the transmission line corridor will benefit from the sale of commodities to the laborers working on the construction of Hoima-Kinyara transmission line. Food vendors and other local traders will also find market for their goods thus increasing incomes among residents of the villages. The hotels in the nearby towns will house the people working on the project and this will increase revenue for the hotels in towns along the transmission line corridor. During operation phase, several people will be employed permanently as way leaf officers, substation manages and several other jobs associated with monitoring and maintenance of the transmission line on a monthly basis.

8.2.1.4 Increased Revenue to the government

This power supply will generate revenue to the districts and the country in general. This will be in form of VAT on electricity, levy on transmission bulk purchases of electricity, license fees and royalties and even foreign exchange earnings where power is exported.

8.2.1.5 Improvement in social services

The construction of Hoima-Kinyara power line will lead to establishment and improvement of some social services like feeder roads and recreation centres. This is because some of these services especially roads may directly be used by the construction team during the power line establishment. These have to be maintained in order to be used for future operation and maintenance works. Other services like recreation on the other hand, come into effect as part of social development resulting from energy supply to an area. Such services directly or indirectly benefit the communities and increase service delivery.

8.2.1.6 Alternative source of energy

The current fuel wood consumption in Uganda according to the Ministry of Water, Lands and Environment (2002), is estimated at 20 million tones, where fuel wood accounts for 16 million tones and charcoal accounts for 4 million tones. The trend of fuel-wood consumption therefore calls for serious concern and action by every Ugandan. Baseline results revealed that the rural population in the areas of project influence solely depend on fuel wood as source of their energy without any complement. Thus, the proposed project is anticipated to compliment on the extensive usage of fuel wood hence contributing to averting the rate of environmental degradation in the country.

8.2.2 NEGATIVE IMPACTS OF THE TRANSMISSION LINE (BIOPHYSICAL ENVIRONMENT)

PRE-CONSTRUCTION/CONSTRUCTION PHASE

8.2.2.1 Loss of Crops along the Corridor

The proposed construction of the Hoima-Kinyara power line project will lead to destruction of crops that are within and besides the entire corridor. The contractor together with the crew and equipment such as vehicles will cause considerable destruction of crops during tower and access road construction, stringing and tensioning of conductors and movements.

The proposed power line traverses a series of maize, beans, cassava, bananas, coffee, sugar canes (HK 301 HK 309) and several other crops in the affected districts of Hoima and Masindi. Damage to subsistence farmlands is expected to be severe between HK 301 HK 309. Between HK309 and HK 310, minimal damage to crops is expected since this area is savannah woodland and grassland monopolised by cattle ranches.



Plate 8.1: A cassava garden along the power line corridor in Bulemwa village, Hoima district

The proposed power line whose right of way is 5 metres with 17.5 metres of Wayleave on either side for working space will lead to total destruction of crops along its passage.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures proposed

- Before carrying out valuation of the affected properties and crops, adequate sensitization meetings should be conducted among all the affected persons to prepare them psychologically and to address any concerns at hand.

- UETCL must conduct a thorough Resettlement Action Plan (RAP) to assess the quantity and nature of land under cultivation that will be affected. The RAP must be subjected to NEMA and Chief Government Valuer, affected owners and other stakeholders for review before it can be fully approved for implementation. All affected villages and parishes need to establish committees at village and parish levels to work along with the government Valuers and assess the magnitude of damage during the preparation of RAP and during construction.
- A comprehensive property impact survey should be conducted which should indicate all affected properties within the ROW, their owners and the replacement costs. Valuation of such property should be conducted by experienced valuers in association with the district land board and local leaders.
- A separate land survey should be carried out for the permanently and temporary affected land. All forms of compensation pertinent to loss of land should be conducted in line with the provision of the Land Act.
- In addition, a comprehensive Resettlement Action Plan (RAP) should be prepared to ensure that project affected persons are appropriately compensated and resettled.
- Prior to compensating the affected persons, adequate community sensitization meetings should be carried out to ensure that the PAPs are aware of the entire program including visitation schedule per village, parish and or sub-county and how each PAP will be contacted and approached for payment.
- Prior to the compensation process, the Project Affected Persons (PAPs) should be individually notified about the compensation amount to be paid. The PAPs may accept or refuse the compensation proposed depending on their expectations and damages incurred.
- The construction of the proposed Hoima-Kinyara power line should only commence when all the affected farmers have been fully sensitized of the pending activities. Prior to the construction phase, farmers should be sensitized on the pending project at least 6 months in advance such that cultivation under the line and within the Wayleaves is stopped or reduced. This will give affected farmers ample time to plan in advance so as to avoid going into several negotiations with UETCL at later stage when the contractors have come in to implement the project.
- The contractor must be instructed to move in a definite order and the pattern of movement must follow the established corridor as agreed upon by the local government authorities and UETCL. Movement of equipment (vehicles, contractors and the entire construction crew) must follow designated path ways or agreed upon access roads. This must be followed to avoid further destruction of crops by the contractor after compensation has already been effected.

Principles for Compensation and Resettlement

Resettlement and compensation of Project-Affected People will be carried out in compliance with Ugandan legislation and WB OP 4.12.

A majority of Project-Affected People (PAP) derive their livelihood from agriculture. Where farmers are physically or economically displaced, they will be offered a resettlement option including the provision of agricultural land of potential equivalent to that of the land they have lost.

UETCL will assist PAPs' in restoring their affected livelihoods, and will provide transitional assistance, as necessary, as long as livelihoods are not restored to their previous level.

The RCDAP implementation and outcomes will be monitored and evaluated as part of a transparent process; and, PAPs and host communities will be informed and consulted during the whole course of RCDAP development, implementation and evaluation.

Additional Mitigation measures to address emerging issues in the 2016 ESIA studies

Although the RAP for the transmission line and Hoima substation were carried out in 2013, the current ESIA update in 2016 revealed several anomalies that are associated with its quality. These anomalies could be true or they could be allegations based on speculation. To address some of the PAPs complaints (Annex 1) on all affected crops and trees, the following should be done in addition to the above mitigation measures;

- Due to the time lag that has passed since crops and trees was valued in 2013, a general re-valuation of all crops and trees affected by the line should be done and current market rates of all plants used in consultation with the Chief Government Valuer.
- All complaints raised in respect of all crops and trees such as undervaluation and missed valuations should be addressed immediately by the RAP implementation consultant through a consultative process and transparent manner.
- As part of ensuring that all PAPs emerging disputes on crops and trees are settled, all valuation forms that were signed should be brought back and all PAPs given copies to enable them scrutinize and understand the extent of damage to their property before compensation can actually be effected.
- The RAP implementation consultant in collaboration with the existing village committee, local leaders at the district and sub-counties should formalize and operationalize the grievance redress committee.
- All crops destroyed by the contractor after the general compensation process has been finalised shall be compensated for again.

8.2.2.2 Spot alteration of land use on agriculture, savanna grassland and wetlands by tower construction

Tower establishment comes along with a new site plan. Tower construction involves clearing of vegetation, excavation of soil and establishment of a concrete foundation of about 8 x 8m hence covering an area of about 70square meters. The construction of hundreds of towers along the approximately 50km corridor will cause permanent spot alteration of land use at various tower sites. Such areas will comprise the new Right of Way

(ROW) and will have to be acquired permanently by UETCL. Therefore establishment of towers need to be well assessed by the contractor to avoid permanent destruction of sensitive ecosystems and areas of strong cultural significance.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation Measures

- Depending on the topography and obstacles beneath the line, the tower sites should be as far as the maximum span length is reached. Normal span is usually 350-385m while maximum normal span is usually 525m. Tower foundation construction should be done in consultation with district and local authorities to ensure that they are established in non-controversial areas.
- Tower shifting should be used to minimize adverse impacts on certain sites. Access to tower sites and stringing of lines should be done with due care to avoid damage to fruit trees, crops and nearby homesteads.
- All lost or damaged crops or properties at tower sites must be compensated for in accordance with the land law and the World Bank Safeguard Policies.
- Since most of the few permanent streams crossed by the power line such as Twanga and Waki small are (length crossed not more than 70 meters), its strongly recommended that all towers be spotted outside the streams through proper adjustment of the various spans to be considered.

8.2.2.3 Loss of Land to the Power Corridor

The 220kV power line from Hoima to Kinyara will necessitate the acquisition of a power corridor worth 40 meters in width for a distance of Approx 50km. Total land take will be approx. 2,000,000 m² (494.2 acres) of which 1,750,000 m² (432.4 acres) will be under the Way leaf and 250,000m² (61.77 acres) will be permanently acquired under the Right of Way. Almost all of the land along the corridor is privately owned with the exception of road reserves, and some wetland patches which are government owned. This impact will thus necessitate the resettlement of several families from the corridor and in other cases lead to temporary or permanent abandonment of activities that were being carried out in this corridor, depending on the nature of the activity. This impact will be more pronounced in Hoima district where a lot of substance farm land and a few homesteads will be affected. Furthermore, there will be temporary and permanent land take owing from the construction of workers camps and access roads to the borrow pits, specific sites and also during

transportation of construction materials. Therefore approaches to land acquisition in such areas need to be followed and administered cautiously.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- Before carrying out valuation of the affected property and land, adequate sensitization meetings should be conducted among all the affected persons to prepare them psychologically and to address any concerns at hand.
- UETCL must work with local council committees, sub-county committees, district land boards, CAOs, RDCs, Politicians and other local leaders to sensitize all people to be affected on the intentions of land acquisition. This must be done at least 6 months before the project is implemented to give people enough time for planning and proper assessment.
- UETCL must conduct a thorough Resettlement Action Plan (RAP) in accordance with World Bank Group and its Safeguard Policies. Land evaluation and Valuation must be done with a Registered Valuer and a Land Surveyor to negotiate with land owners in compliance with local market prices and government rates so as to establish rational figures for compensation and subsequent resettlement.
- The Project Affected Persons (PAPs) should be individually notified about the compensation amount to be paid. The PAPs may accept or refuse the compensation proposed depending on the damages incurred.
- Once the affected communities have been compensated accordingly, they should be given a period of least 6 months to vacate the power line corridor before construction can commence.

Additional mitigation measures to address emerging issues in the 2016 ESIA studies

Although the RAP for the transmission line and Hoima substation were carried out in 2013, the current ESIA update in 2016 revealed several anomalies that are associated with its quality. These anomalies could be true or they could be allegations based on speculation. To address some of the PAPs complaints on land (Annex 1), the following should be done in addition to the above mitigation measures;

- Due to the time lag that has passed since land was valued in 2013, a general re-valuation of all land affected should be done and current market rates of land used in consultation with the Chief Government Valuer.

- All complaints raised in respect of land matters such as misrepresentations and errors in land sizes affected, names of PAPs, customary land versus leased hold issues, under valuation, land which was not valued among others should be addressed immediately by the RAP implementation consultant through a consultative process and transparent manner.
- As part of ensuring that all PAPs emerging disputes on land are settled, all valuation forms that were signed should be brought back and all PAPs given copies to enable them scrutinize and understand the extent of damage to their property before compensation can actually be effected.
- The RAP implementation consultant in consultation with the existing village committee, local leaders at the district and sub-counties should formalize and operationalize the grievance redress committee.
- All land destroyed or encroached on by the contractor either permanently or temporarily after the general compensation process has been finalised shall be compensated for again.

8.2.2.4 Displacement of Built up Structures

The proposed acquisition of the 220KV power line corridor for approximately 50km will not only pass through private land, but will also encroach on the built up environment. Several structures were observed to be within the proposed ROW and Wayleave of which majority are homesteads. Some structures were identified and they include permanent and semi permanent residential homes, latrines and temporary structures. These structures will have to be demolished and owners compensated. This impact will be greatly felt in Hoima district where substance farm land will be affected. Therefore such encumbered areas need to be approached with due care and compensation issues handled well in accordance with the law.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | | | | | |
| | 1 | Low | Low | Low | Low |

Mitigation measures

1. UETCL must work with local council committees, sub-county committees, Councillors, district land boards, CAOs, RDCs, Politicians and other local leaders to sensitize all people to be affected on the intentions of land acquisition.
2. UETCL must conduct a thorough Resettlement Action Plan (RAP) in accordance with World Bank Group and its Safeguard Policies.

3. UETCL must send a Valuer and a Land Surveyor to negotiate with land and structural owners in compliance with local market prices and government rates so as to establish rational figures for compensation and resettlement.
4. All sorts of compensation and settlements must be done at least 6 months before structures are demolished.
5. All physically or economically displaced people should be offered an option between either a full resettlement package, including the provision of replacement residential land and a house, or cash compensation.

Past experience in Uganda has shown that cash compensation, although very sought after by many household heads, could be detrimental in the medium term, to other household members, particularly the females and children. The Project Implementers (UETCL & Funders) should make every effort to promote resettlement rather than cash compensation.

Additional mitigation measures to address emerging issues in the 2016 ESIA studies

Although the RAP for the transmission line and Hoima substation were carried out in 2013, the current ESIA update in 2016 revealed several anomalies that are associated with its quality. These anomalies could be true or they could be allegations based on speculation. To address some of the PAPs complaints on all affected properties especially built up structures (Annex 1), the following should be done in addition to the above mitigation measures;

- Due to the time lag that has passed since all affected properties especially built up structures was valued in 2013, a general re-valuation of all affected properties especially built up structures affected should be done and current market rates of all affected properties used in consultation with the Chief Government Valuer.
- All complaints raised in respect of all affected homesteads and built up structures such as undervaluation and missed valuations should be addressed immediately by the RAP implementation consultant through a consultative process and transparent manner.
- As part of ensuring that all PAPs emerging disputes on built up structures are settled, all valuation forms that were signed should be brought back and all PAPs given copies to enable them scrutinize and understand the extent of damage to their property before compensation can actually be effected.
- The RAP implementation consultant in partnership with the existing village committee, local leaders at the district and sub-counties should formalize and operationalize the grievance redress committee.



Transmission Line across Hoima & Masindi districts



Plate 8.2: Some of the houses identified to be in the power corridor are likely to be demolished

8.2.2.5 Loss of Vegetation and Animal habitats

The construction of access roads, movement of equipment, clearing of corridor, movement of contractor staff and erection of towers will lead to destruction of vegetation in some segments especially where land is under fallow. Biodiversity surveys carried out along the entire proposed transmission corridor show that the project area is heavily degraded and comprises mainly subsistence farmlands. At the time of the survey, about 60-70% of the power line segment has been turned into farmland of beans, maize, bananas, cassava, sweet potatoes and sugar cane plantations. The rest of the corridor is either land under fallow or savannah woodlands and grasslands which are being used for grazing cattle and goats. Except for the Bunyoro Rabbit (*Pronolagus majorita*) which is locally endemic, there were no endangered species encountered in the proposed power line corridor. Therefore although the systematic clearing of the 40 meter corridor will result into clearing of significant chunk of vegetation, the impact of the power line on the conservation status of the affected forest & vegetation ecosystems is expected to be Low. Detailed biodiversity surveys are presented in section 4.2 and Appendices 3, 4, 5, 6 and 7. However, movements of the contractor and the entire crew may spread invasive species from one locality to another. Such species include paper mulberry, Lantana camara and others. Therefore the impact of construction activities on the vegetation and animal habitats is expected to be low to medium.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

The common natural species of the area are: *Hyparrhennia filipendula*, *Hyparrhenia rufa*, *Hyparrhenia dissoluta*, *Pennisetum purpureum*, *Leersia hexandra*, *Setaria sphacelata*, *Cymbopogon narduus*, *Imperata cylindrica*, *Panicum maximum*, *Sporobolus pyramidalis* and *Loudetia simplex* as the grasses. Trees and shrubs included mainly *Acacia*

polyacantha subsp. *campylacantha*, *Acacia hockii*, *Rhus natalensis*, *Albizia coriaria*, *Albizia zygia*, *Albizia grandibracteata*, *Pilliosigma thonningii*, *Combretum molle*, *Combretum collinum*, *Combretum ghasalensis*, *Terminalia brownii*, *Lonchocarpus laxiflorus*, *Bridelia scleronuera*, *Annona senegalensis* and *Vittalleria paradoxa*, the only IUCN registered species (Vulnerable). Corridor clearing will cause considerable loss of vegetation along the power line passage. Such impacts need to be mitigated by replacing vegetation to avoid biodiversity loss.



Plate 8.3: Modified farm lands along the proposed Hoima-Kinyara transmission corridor

Mitigation measures

- Movement of equipment (vehicles, contractors and the entire construction crew) must follow designated path ways or agreed upon access roads. This will avoid unintended damages to vegetation and animal habitats. The project shall be monitored by district and local authorities to ensure that when unplanned destruction of vegetation occurs during project implementation, UETCL is held accountable and will have to compensate for the loss appropriately.
- The contractor should work with National Forestry Authority field staff to map out forest zones or project area segments with invasive species and to take up precautionary measures to avoid spreading the species to other zones.
- UETCL and the contractor must guard against fires arising from campsites because the impact on vegetation and biological diversity can be immense especially in the savannah woodlands and grasslands in Masindi district.
- The contractor under the supervision of the local and district authorities shall adjust tower intervals to avoid ecologically sensitive areas such as breeding sites for water fowls, water sources, nesting sites for birds and areas of strong cultural significance to the local people.
- UETCL shall contribute towards local environmental programs. UETCL shall remit funds towards district and sub-county afforestation projects to compensate for

biomass lost during corridor clearing and habitat fragmentation especially where the forests affected are local reserves and scattered shrubs and woodlands.

8.2.2.5 Impacts on Primates such as Chimpanzees

All the large mammal species such as chimpanzees in the project area are of low risk, least concern according to IUCN redlisting, except the Chimpanzee which is endangered. The main footprint will be along the power line corridor and its immediate surroundings during power line construction and maintenance. Habitat loss will be along a vector loss – the area covered by the powerline route – which is a small area compared to the habitat used by the fauna – which is spatial representing more than 90% of the total area. The impact is also localized, less severe expected to last for a short time and not to extend beyond the direct impact zone.

Mitigation measures

- The contractor shall be prohibited from hunting any fauna including any stray chimpanzees in the project area and will work with NFA and UWA to ensure all vulnerable and non vulnerable fauna encountered along the transmission corridor are reported, rescued, cared for and or protected from deaths or hunting by the contractor and the community. UETCL safeguard unit supervise and enforce compliance by the contractors based on lesson and good practices from the ESDP project.

The project implementing team will carefully observe and note any animals from the stray conservation areas to the construction period and report number and frequency of their movement to the Uganda Wildlife Authority (UWA) for quick and timely intervention to relocate them as required.

8.2.2.6 Impacts arising from management of earth works due to tower foundations

The proposed construction works involve grading, haulage of rock materials and levelling of tower foundations across the entire corridor. This may impact on the streams and wetlands/swamps through siltation and sedimentation. A total of about 3-4 streams will be crossed by the proposed transmission line impacting a distance of not more than 250meters. Both seasonal and permanent wetlands will be impacted by the line to an approximated distance of 600m. Excavations for tower foundations will generate stock piles of earth works and if such is exposed to excessive rains especially in steeper areas ,it may be washed away resulting in soil erosion and sedimenting streams downstream. Tower foundations also come along with concrete residues that will be scattered along the entire corridor at various tower spots. Such concerns must be well addressed by the contractor.

Mitigation measures

- Works across wetland areas could be undertaken with effort to ensure minimal siltation and transportation of loose soil materials

- On some section across wetlands, the contractor may place gabions and stone boulders to check erosion of loose soil materials.
- Proper storm water drainage facilities (culverts) have to be designed at the various areas along the route to prevent any erosion that may contribute to the increase of suspended solids;
- Disposal of cut to spoil will be done under the direction of the Resident Engineer and District Environment officer who will approve disposal sites;
- Dumping of cut to spoil along the road reserves and streams should be prohibited;
- There will be bench terracing on the hill slopes to check issues of soil erosion and unstable slopes;.
- Inert debris such as concrete, brick, concrete block, uncontaminated soil, rock, sand and gravel should be recycled and reused as clean fill material.
- Upon completion of a tower, the tower base should be cleared of all construction waste (soil, sand, concrete, stones, gravel and others) and either reused in other towers or used as fill materials in roads or damped in appropriate places with guidance from the District Environment Officers of Hoima and Masindi.
- Where such disposal sites were not in existence at the time of construction, it may be necessary that a separate Project Brief be conducted by competent authorities and approved by NEMA before disposal of waste can be given a go ahead.
- All tow spots shall be adjusted to avoid being cited in wetlands or streams.

8.2.2.7 Generation of Solid Waste

The proposed project will come along with waste of various types. Waste will be generated during construction of towers and stringing of conductors. Such waste may include conductors (wires), steel members (Metallic bars), insulators and other accessories associated with transmission lines. Organic waste will also be generated at labour camps such as food stuffs and human excreta. Plastics waste such as mineral water bottles, polythene bags (Kaveera), Jerricans, cups, plates and other plastic accessories may be found at the camps and along the power line corridor. Waste will also be generated from demolition of built up structures long the corridor. Such waste may include iron sheets, timber, poles, nails, doors, windows, tiles, bricks, concrete, firewood and others. Such waste needs to be handled reasonably and must not remain in the power line corridor. The impact of littering waste is likely to be low to medium since much of the waste is not expected to be hazardous or infectious. However if the contractor prefers to service vehicles at various labour camps rather than using the existing and licenced service stations, the chances of littering hazardous waste (contaminated with oils) is high and the impact will be high. In this respect, waste oil will find its way into the soils and waters sources.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |

| | | | | | |
|--|---|-----|-----|-----|-----|
| | 1 | Low | Low | Low | Low |
|--|---|-----|-----|-----|-----|

Mitigation measures

- All sorts of waste generated during construction such as conductors, steel and tower members (metallic bars), insulators and other accessories associated with transmission lines shall be collected and handed over to UETCL for proper recycling or disposal. Such waste must not be thrown or left in the power line corridor.
- All organic waste generated at labour campsites such as food stuffs shall be collected and transported by the contractor to designated Municipal and Town Council landfills within the affected districts and or sub-counties. This activity shall be supervised by the district environment Officer.
- All plastic waste generated at campsites and in the course of work such as mineral water bottles, polyethene bags, jerricans and cups shall be collected in mobile vans and sold either to the local people for re-using or taken for recycling in respective factories. UETCL must ensure that non-biodegradable waste is not abandoned within the power line corridor.
- Human excreta shall be managed using a mobile toilet and then disposed in pit latrines. Human waste must not be littered in bushes and wetlands as this can spark off diseases.
- All waste generated from demolition of built up structures shall be sorted by the contractor and either sold or given to the locals depending on their resell values. Such waste may include iron sheets, timber, poles, nails, doors, windows, tiles, bricks, firewood and others.
- Concrete foundations shall be demolished and all concrete and aggregate waste shall be collected and disposed in designated areas in consultation with district planners, Engineers and the environment officers.

8.2.2.8 Disturbance and degeneration of wetlands and aquatic ecosystems

The major wetlands that are partly crossed by the power line include Twanga and Bineneza wetland system all which of drain in Lake Albert. These wetlands are interconnected and are crossed by the transmission line at different segments of the line. The main concern here is the short-term disturbance of wetlands during construction of temporary/permanent access tracks to tower sites. The construction of concrete tower pads in wetlands is likely to affect their hydrological functions if this is rendered necessary. The dominant vegetation Species of the seasonal wetlands include *Echinochloa pyramidalis*, *Loudezia simplex*, *Cyperus* spp., *Fimbristylis dichotoma*, *Cissampelos mucronata*, *Leersia hexandra* and *Polygonum salicifolium*. *Cyperus papyrus*, *Phragmites mauritiana*, *Phoenix reclinata* were among the many species of permanent wetlands. In these wetland areas were also found patches of swamp forest vegetation and the species here included *Phoenix reclinata*, *Albizia zygia*, *Maesopsis eminii*, *Macaranga schweinfurthii* and *Alchornea cordifolia*. Swamp forest species were *Phoenix reclinata*, *Acacia polyacantha*, *Blighia unijugata*, *Albizia grandibracteata* among others.

However, no significant clearing will be necessary for operation or construction since most of these wetlands will be skipped by spanning the electricity conductors across them. Thus, no significant biological effects are expected. No Critical Habitat for endangered species will be affected by the project. Exact tower locations will be determined on the ground at the time of construction (and in consultation with WID), to minimize social and environmental impacts.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact Severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |



Plate 8.4: Some of the streams in the project area (Twanga River)

Mitigation measures

The following mitigation measures will be used to minimize temporary disturbance of the wetland, and avoid permanent intrusion into the wetland areas:

- The transmission line will use existing road corridors for construction and operational access wherever possible.
- No tower should be located in any of the streams (wetlands) in the project area.
- The alignment shall use small 'peninsulas' off the existing road causeways, rather than constructing dedicated causeways to new tower sites in the middle of the wetland. However, due to the small size of all the wetlands crossed by the transmission line, it is recommended that all tower spots be located outside wetlands.

- Fine tuning of tower locations in consultation with local communities and the Wetlands Department will greatly reduce impacts in wetlands. Fine tuning of tower locations will be done in consultation with local communities and Wetlands Department so that specific effects on these locations will be minimized.
- Footings of towers will be built to address wet season conditions. Towers that are located in seasonally wet areas will be built with raft foundations, rather than the pad and chimney foundation that is normally used on dry sites. The concrete pads that form the base of these towers will have minimal effect on hydrology. Construction of the raft foundations will require dewatering in the immediate area of foundation excavation. The dewatering will be temporary and localized and is not expected to have any long term effect on flora or fauna.
- Use of specialized construction techniques where necessary can also help to reduce such negative impacts. Where the route requires towers to be located in the swamp and in areas which cannot easily be accessed from existing roads or causeways, specialized construction techniques will be used to access the sites in a way that does not require permanent access ways to be built. It is envisaged that these techniques would include the use of temporary access ways, built from Terramats or similar structures, which would be removed after.

8.2.2.9 Material sources for tower foundations

The contractor will have to identify sources for raw materials such as murrum, aggregates, sand, stones and others. The actual sources cannot be predicted at the moment but it is assumed that such will be procured from the nearest sources preferably within the project area to minimize costs. Such activities may result into fresh land takes and general interference with the landscape features especially where fresh borrow pits are created as well as disruption of normal social settings in the area.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation

- Before opening up borrow areas for supplying raw materials for tower foundation, the Contractor and or subcontractors will secure some lease consent from the landlords for borrow areas and access roads to these sites and have a Project Brief prepared and approved by NEMA before on set of activities;
- Access routes to such areas will be surveyed for any hidden cultural resources (graves, shrines etc) and the route cleared of vegetation and other debris. These

cleared materials shall be stockpiled for use during the restoration process of borrow areas and material extraction sites;

- Stock pile and cut to spoil materials will be kept in the vicinity of the borrow pits and with the approval of the District Environment Officer and District Engineer. The cut to stockpile materials could then be used in the eventual restoration of the borrow areas in the end. This option will be prioritized in order to reduce challenges relating to the management of cut to spoil materials;
- Landscaping and evening up of cliffs could be done on decommissioning of works. There will be efforts to ensure proper drainage of the site to avoid water logging in the areas;
- Sequential restoration of borrow pits as when they are exhausted of materials; A detailed decommissioning plan will be prepared detailing how the contractor intends to restore the borrow pits after the completion of the project. The restored borrow pits at the end of the project have to be inspected and approved by the respective environment authorities at NEMA and UETCL at the end of the Project's Defects Liability Period; and
- Access routes to and from the borrow pits will be restored/ripped off and replanted with grass.

OPERATION PHASE

8.2.2.10 Exposure to health hazards associated with Electric and Magnetic Fields (EMF)

Humans are exposed to a wide variety of natural and man-made electric and magnetic fields. The earth's atmosphere produces slowly varying electric fields (about 0.1 to 10 kV/m), with a product of these fields being lightning. The earth's core produces a steady magnetic field, which ranges in strength from about 470 milliGauss (mG) to 590 mG over North America.

Many childhood toys contain magnets, and many individuals use magnets to hold items onto metallic surfaces. These permanent magnets typically have fields in excess of 100,000 mG. An increasingly common diagnostic procedure, magnetic resonance imaging (MRI), uses fields of 20,000,000 mG on humans and is preferred over X-rays because of its safety. In modern electrified homes and apartments, typical baseline 60 Hz magnetic fields in the middle of rooms range from 0.5 to 2.0 mG. 60 Hz EMFs can also be found in the vicinity of all electrical appliances, which produce magnetic fields of 40-80 mG at distances of about half a meter, although the fields quickly diminish with distance.

Personal electric appliances such as shavers, hair dryers, and electric toys can produce fields in the hundreds of mG in the vicinity of the person using them. In the school and work environment copy machines, vending machines, computer terminals, telephones, wireless telephones, electric lights, tools, motors and heaters are all sources of EMFs. *Electric fields*

and *magnetic fields* have different properties (Table 8.6); however, more recent interest and research has focused on the potential human health effects of magnetic fields.

Table 8.6: Comparison of Electric and Magnet Fields

| Electric Fields | Magnetic Fields |
|--|---|
| 1. Produced by <i>voltage</i> (i.e., lamp plugged in but turned off) | 1. Produced by <i>current</i> (i.e., lamp plugged in and turned on) |
| 2. Measured in volts per metre (V/m) or in kilovolts per metre (kV/m) | 2. Measured in gauss (G) or tesla (T) 1 milliGauss(mG) = 0.1 microtesla (μ T) milli (m) = 1 thousandth micro (μ) = 1 millionth |
| 3. Easily shielded (weakened) by conducting objects like trees and buildings | 3. Not easily shielded (weakened) by most material |
| 4. Reduced in strength with increasing distance from the source | 4. Reduced in strength with increasing distance from the source |

Source: National Institute of Environmental Health Services and U.S. Department of Energy. 1995. Questions and Answers about EMF. Washington, D.C.

EMFs from electrical transmission lines have extremely low frequencies and thus low energy levels. The energy levels are unable to break molecular bonds and thus are considered non-ionizing. Higher frequency fields, such as microwaves, have sufficient energy to cause heating in conductive materials but are still non-ionizing. The higher frequencies of x-rays and gamma rays have sufficient energy to cause ionization (breaking of molecular bonds). High-energy ionizing radiation can, therefore, disrupt the molecular structure within cells.

Effects on Human Health

Research on the human health effects of EMF was initiated in the 1960s. Since that time, universities, government agencies, utilities, and other expert bodies at a global level have conducted significant research and review of the potential human health effects of exposure to EMF. Such research has included laboratory studies concerning the effects on cells, tissues and animals, as well as studies on human exposure and epidemiology (Federal-Provincial Working Group, 1998). In the United States, the National Institute of Environmental Health Sciences (1995) has concluded that: “Most recent reviews have concluded that the existing evidence, although suggestive, does not show that EMFs cause cancer. These include national reviews by the U.S. Environmental Protection Agency, the Committee on Interagency Radiation Research and Policy Coordination, the Australian Ministry of Health, the National Radiological Protection Board of the United Kingdom, the Danish Ministry of Health, the French National Institute of Health and Medical Research,

and reviews sponsored by the states of California, Texas, Connecticut, Illinois, Maryland, and Colorado.”

Available laboratory or human data have not demonstrated what if any, magnitudes of power-line electric and magnetic fields cause human health effects (National Research Council, 1997). Despite the lack of a demonstrated “cause and effect” relationship between exposure to EMF and human health effects, a precautionary approach has been embraced by several governments and organizations through the adoption of guideline limits. This approach provides guidance for the establishment of EMF exposure limits, as discussed below.

Applicable Regulatory Guidance on EMF Health Effects

In Uganda there are no promulgated EMF health and/or safety standards and, consequently, there are no particular levels of EMF that trigger “regulatory action.” Regulatory agencies have been unable to identify an adverse health effect against which it is possible to specifically define “safe” magnetic field levels. As discussed below, some non-regulatory guidance has been offered, based on limiting electric currents induced in body tissues to below one-tenth of typical naturally occurring electric currents in the body, even though such induced currents have not been associated with deleterious effects on health.

In the United States, some States have adopted guidelines based on maintaining the *status quo* for EMF exposure. Several States have adopted as guidelines the electric and magnetic field levels that have historically been present at ground level in transmission line corridors. However, none of these guidelines have been based on the conclusion that particular levels of EMF pose a risk to human health, and none have been developed using careful scientific methodologies. The International Commission on Non-Ionizing Radiation Protection (ICNIRP, 1990; 1998) has published interim guidelines on limits of exposure to 50/60 Hz electric and magnetic fields. The guidelines are based on analyses of the most recent scientific literature and on earlier review articles published by the World Health Organisation (WHO, 1993). The WHO concluded that no biological effects could be expected for magnetic fields smaller than 50,000 mG. The ICNIRP (1998) guidelines state that occupational exposure continuing throughout the working day should be limited to below 4,167 mG for magnetic fields and below 8.33 kV/m for electric fields. The guidelines also state that exposure for members of the general public should be limited to 833 mG for magnetic fields and 4.16 kV/m for electric fields. In addition, general public magnetic field exposure between 1,000 and 10,000 mG should be limited to a few hours per day.

In regard to the Electric and Magnetic Fields for the Hoima-Kinyara power line, the EPC Contractor will calculate the EMF levels generated by the various components of transmission line project prior to final construction. Design changes will be made to ensure that levels for the proposed Hoima-Kinyara project will be well below the range suggested by guidelines and also well within the range of EMF generated by other common sources.

No adverse effects on human health and welfare can be expected from operation of the proposed facilities, either on the basis of EMF guidelines, or on the basis of conclusions reached by scientific review groups that have examined EMF studies reported in the scientific literature.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation

- The electrical transmission line will be designed and constructed to ensure that EMF levels are well below accepted guidelines for occupational and human health exposure limits.
- UETCL/Government of Uganda's policy of keeping residences and other structures out of way leaves will minimize exposure of the general public to EMFs.
- The contractor will work with Community Development Officers (CDO) at sub-county levels to sensitise communities with in the vicinity of the transmission corridor about the dangers of living under such high voltage lines. No additional mitigation measures are required. EMF levels will be measured at representative cross-sections of the various transmission lines that are part of the system during initial full load operation. EMF levels are not expected to change with time, so further monitoring is not planned.

8.2.2.11 Impact on aquatic habitats and associated fauna & flora

The proposed construction of the 40 meter corridor in areas where there was no access before is likely to expose certain habitats to human interference. For example the access road under the transmission line which will be used for line maintenance and supervision will eventually be taken over by the local communities to access certain areas that were inaccessible before. This scenario could eventually be abused by the users of such a road to pollute streams and other sensitive habitats creating a negative effect on such ecosystems. Other concerns could be usage of the access road under the transmission line to spread invasive species to areas where they did not exist before.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|--|--|--------------------------|----|---|----|
| | | <<1 | <1 | 1 | 1+ |

| | | | | | |
|-----------------|---|--------|--------|--------|--------|
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- Always perform regular maintenance in wetlands during the dry season. Favour use of floating devices and manual maintenance.
- Undertake selective cutting of the vegetation in order to maintain low scrubby and herbaceous species that do not represent a risk for the power line (species that cannot grow more than 4m in height, including papyrus).
- Wayleave maintenance programs should avoid destabilizing wetlands and or sediments. Spillage of waste or cut to spoil into wetlands should be avoided.
- Forbid use of chemical pesticides to control vegetation in the ROW;
- Undertake monitoring of natural resources exploitation and implement a sensitization program in order to educate and increase local communities' awareness on natural resources protection.

8.2.2.12 Impact on birds

Birds sitting on the power line pylons and or conducting cables can be killed if they cause short circuits (short circuit between energised cables). In flight, birds can collide into the cables of lines because cables are often difficult to see. In most cases, the impact of collision leads to immediate death or fatal injuries and mutilations. Birds migrating at night are at high risk or those flying under unfavourable conditions like fog, rainfall and strong winds. Although there are no sites categorised as important bird areas in the project area, the power line remains a hazard to birds.

Risk Assessment Matrix

| | | | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | Likelihood of Occurrence | | | |
| | | <<1 | <1 | 1 | 1+ |
| Impact Severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- Implement a bird mortality monitoring program, including data monitoring of bird mortality (in partnership with local communities).
- Contractor shall be tasked to install bird reflectors prior to and after angle point HK305 for about 10km that are close to Budongo Forest Reserve section

8.2.3 NEGATIVE IMPACTS OF THE TRANSMISSION LINE (SOCIAL ECONOMIC ENVIRONMENT)

8.2.3.1 Psychological impacts

Psychological impacts such as stress, trauma, shock and fear are associated with displacement and resettlement. It was discovered that there is a lot of fear and uncertainty associated with the proposed construction of Hoima-Kinyara power line. This was critically expressed by those individuals whose structures are within the power line corridor.

“Why didn’t the line take a straight line from Bulemwa without passing through my house?” said one of the PAP in Bulemwa village, Hoima district where AP1.

“If the line is passing through my land and leaving a small portion, what do you do?” How can someone who is illiterate understand that the valuer is giving right rates?” said one of the affected people in Kihomboza village, Hoima district.

Some of the affected people don’t seem to be conversant with the land law and consequently compensation guidelines. The affected people seem to be in a state of uncertainty and need to be guided on the law. There are several emerging issues which are associated with the quality of RAP that was conducted and these need to be addressed.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- Using several avenues including local and national media such as radio stations, TVs and sensitization workshops, all affected peoples’ fears need to be addressed prior to compensation and resettlement.
- The intentions of land acquisition and demolition of structures should be purposed to the construction of 220KV power line from Hoima to Kinyara. This must be the ultimate reason and must be adhered to by the contractor and UETCL.
- UETCL needs to inform the public that Resettlement and compensation of Project-Affected People will be carried out in compliance with Ugandan legislation and WB OP 4.12.
- UETCL needs to oversee all the actions involved in the RCDAP and ensure that thorough RCDAP is conducted to help restore peoples’ confidence in the whole exercise.

- Before all PAPs are compensated, the RAP implementation consultant should conduct a revaluation of all people's properties with complaints and ensure all people are compensated appropriately using current market rates of properties.
- The RAP implementation consultant should liaise with the village committees in place and local leaders at the subcounty to constitute and operationalize the grievance redress committee which will act as a medium through which all concerns and complaints will be channelled.
- The independent NGO should also be publicised throughout the project area using appropriate media such as local radio stations to help arbitrate certain cases that may fail to be resolved by the grievance redress committee in place.
- As a strategy to reducing resistance from the community and increasing project acceptability, the contractor and subcontractors should try as much as possible to employ local people in the affected villages especially where the nature of job/work doesn't necessitate specialised skills.

8.2.3.2 Exploitation of Workers

Projects of such nature are normally labour intensive and need a multidisciplinary team of workers ranging from professionals, semi-skilled and casual labourers. Several workers will be contracted for corridor clearing, supply of aggregates, sand, food staffs, and construction of access roads. Several Engineers (Civil, Mechanical and Electrical) will be contracted during tower establishment and construction. All staff under the contractor or under UETCL need to be procured under well-established working procedures and must be protected from exploitation.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- All staff should be procured under a well-recognized contract.
- All contract workers must be paid as per the contract. All casual labourers must receive a fair days pay for a fair days work done.
- Exploitation of workers and refusal to pay workers is an offence and the contractor must be monitored to ensure that all workers are paid.
- All workers must be paid promptly and correctly.
- Workers need to be sensitized of their rights and need to be represented by a mediator in the affected districts through the office of the labour officers.

- While recruiting workers especially to fill up the non-skilled nature of jobs such as casual jobs or where skills can be obtained easily on job, the Developer or Contractor should give the local people first priority.
- The contractor shall liaise with Ministry of Gender, Labour and Social Development (especially the Department of Labour and Occupational Health and Safety) to set up labour conditions for the project in accordance with the labour laws of Uganda.
- Workers need to be sensitized of their rights and need to be represented by a mediator in the affected districts through the office of the Labour Officer.
- The contractor should employ an onsite Environment Health and Safety Officer with a Safety Committee in place

8.2.3.3 Physical Cultural Property

Some cultural properties as highlighted in section 4.4 exist in the project area. Some of these will be affected and these are mainly graves. There is likelihood that some cultural trees may be encountered along the corridor in the process of corridor clearing. Although most of the major historical sites identified are quite far from the line, there is a possibility that such materials/artifacts need to be protected by vandalism from the construction crew. During the construction stage, new people will come to the project area in terms of skilled labour force, from different tribes, religions and cultural practices. These are likely to introduce new norms, cultural practices and behaviours to the community. This practice will dilute/distort the shared beliefs, customs, values and language of the local community. Breakdown in traditional methods of social control and discipline and social dis-orientation of local population is therefore likely to occur. In general, the impact on culture and cultural property will be **low negative** since only a few of the existing cultural property (especially graves).

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |
| | | | | | |



Plate: 8.5: A grave under the power line and the Board bame site about 1km a way from the power line corridor

Mitigation

- Structures like shrines if any and graves will be relocated in accordance with the existing rituals and norms of the society. Loss of incomes shall also be compensated for since the owners may take some time without any income from them especially if its deemed necessary to relocate them far from their original site due to cultural rituals involved. Details of compensation should also be contained in the RAP.
- Sites that are buried may be discovered during project implementation. Such discoveries of archaeological nature are termed as 'archaeological chance finds'. These could be concentrations of pottery, animals and human bones, worked stone etc. World Bank guidelines should be adopted in project design to carter for such discoveries. The following **Chance Find Procedure** shall be followed:
 - a) On discovering evidence of possible scientific, Paleontological, historical, prehistoric, or archaeological remains, the contractor shall notify the Department of Museums and Monuments giving the location and nature of the finds.
 - b) The Contractor shall cease work in the vicinity of the site and request the responsible officer from the Department of Museums and Monuments to inspect the site and make recommendation on possible salvage within 72 hours.
 - c) The Contractor shall exercise care so as not to damage artefacts or fossils uncovered during excavation operations and shall provide such cooperation and assistance as may be necessary to preserve the findings.
 - d) The department of Museums and Monuments is located in Kampala, Kamwokya just before Uganda Wild Life Authority on the road to Ntinda (Kira road). The Commissioner Uganda Museum can be contacted on +256 772485624. A detailed chance find procedure has been presented in section 9.11.

- To mitigate damage to archaeological resources, it is proposed that the construction foremen will inform construction crew to be aware of the possibility of discovering fossils or archaeological remains, what form these would take (bones, fossils in rock, shards or pottery, arrow heads etc.) and the procedure to be followed should be as stated above.
- Further still, the contractor should develop and implement avoidance procedures. In the event of human remains, there shall be no further excavations or disturbance of the site until the responsible police authorities have been informed.

8.2.3.4 Power outages due to interference with local power grid

Although the proposed Hoima-Kinyara 220KV power line diversion is not expected to lead to significant power outages, the line will pass over existing low voltage lines at some points along its corridor. This may necessitate unavoidable temporary outages especially during construction as the contractor team works underneath or over the existing low power lines necessitating them to switch off power to avoid short circuiting. Such circumstances were identified along Biseruka road, Masindi-Hoima road, and some other areas where the Hoima-Kinyara line will cut across the road perpendicular to the existing low power lines. Therefore, places which are directly connected to such lines may experience some unavoidable temporary outages which will be an inconvenience. However, the duration of such outages is not expected to last more than 2 days and will only be restricted to the time when such a place is being worked upon. The number of outages cannot be predicted at the moment although UETCL will have to ensure that they supply power to UMEME Ltd in accordance with the agreed terms.



Plate 8.6: A local power line along and across Biseruka road from Hydromax Mini hydropower station that might be interfered with during construction

The impact of Power outages due to interference with the existing local power grid is expected to be low to medium to medium.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- Inevitable power outages as mentioned in the above paragraph cannot be mitigated at the moment. However the impact of such outages on the consumers can be reduced further if the customers are informed in advance as it has always been done by UMEME Ltd. Therefore UETCL needs to corroborate with UMEME Ltd at all stages of project implementation.
- Accidental outages resulting from contractor's carelessness can be disastrous and must be avoided. Such outages can be reduced by procuring companies and engineers (contractors) with proven experience in electricity transmission.

8.2.3.5 Interference with traffic and diminished road safety

The proposed Hoima-Kinyara will cut across several roads including Biseruka road, Hoima-Masindi road and several others as presented in **Table 8.7 below**. Unless proper mitigation measures are put in place, stringing across these roads could result into critical interference with traffic or accidents. Its therefore necessary that key precautions be undertaken at such road crossing to avoid accidents and impairing traffic activities.

Table 8.7: Major road crossings in the project area

| Name of the road | Coordinates | village | Sub-county | District |
|---------------------------------|------------------------|----------|------------|----------|
| Hoima-Biseruka road | E:314297, N: 163951 | Bulemwa | Kitoba | Hoima |
| Hoima-Kigorobya road | E:314053, N: 171139 | Birungu | Kitoba | Hoima |
| Bulyango-Nyantozzi-Budongo road | E:326835, N: 177704 | Bineneza | Nyantonzi | Masindi |



Plate 8.7: Hoima-Biseruka road and Kigoroby-masindi roads be crossed by the Hoima-Kinyara T-Line

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation

- To minimize interference with traffic, stringing across roads and high ways should be conducted in hours with less traffic preferably at night or on weekends.
- Conspicuous notices should be well placed on roads and guides on ground should direct traffic in case of diversions or lose/sagging conductors and cables.
- UETCL will have to notify traffic police in advance and work with it during stringing across high ways and other major roads.

8.2.3.6 Water Sources

Although there were no noticeable water sources of community nature along the transmission corridor, construction of the transmission line may indirectly affect some of the water sources along or close to the T-line. For example any slight interference with the wetland ecosystems that are crossed by the T-line will ultimately affect the downstream users of wetland streams. This is because the proposed line route runs parallel and sometimes across few permanent wetlands where some springs are located. It is expected that these will be directly affected by the construction activities through pollution, sedimentation and interference of flow.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation

- In situations where interference with public water sources is likely to be inevitable, the contractor should endeavour to construct alternative safe water sources for the communities prior to commencement of works in such areas.
- Construction of towers in wetlands for the Hoima-Kinyara transmission line should be avoided completely since the number of wetlands are few, short and can be left undisturbed by spanning conductors across them.

8.2.3.7 Public health concerns

This project is expected to attract various categories of people who will seek employment on project activities during construction. It is apparent that part of the labour force will be procured and housed in workers camps. Some of these will be local labour while others will come from places far away from the project site. Those who will come from far are unlikely to be accompanied by their spouses. Many local people will also participate in providing services to workers. This will cause the establishment of social networks, which can promote the spread of socially transmitted diseases especially HIV/AIDS and other STIs.

During project development, there will be large scale movement of earth material which may cause soil erosion, dust, leading to respiratory infections.

Workers may be exposed to occupational hazard such as physical injuries and maiming by construction machinery etc. Garbage and human wastes generated by workers, if not properly managed may compromise water quality and may cause water related diseases in the area. According to the community HIV/AIDS scares them most. Pressure on the existing health services is likely to increase. Although not many skilled workers are expected, the impacts of diseases have a multiplier negative effect. The impact on health services and the health of the residents is likely to be **medium negative**.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|--------|---|--------------------------|--------|------|------|
| | | <<1 | <1 | 1 | 1+ |
| Impact | 4 | Medium | Medium | High | High |

| | | | | | |
|--|---|-----|--------|--------|--------|
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation

- The developer will provide workers with protective gears/wears during construction work to prevent injury and where necessary to avoid contracting germs and or diseases;
- Workers and the community should be sensitized on protective behaviour and practices during work by distributing appropriate education materials to workers and the surrounding community.
- The developer will establish a first aid facility at the construction site to treat injury cases whenever they occur.
- The project contractor is also advised to employ services of an independent NGO engaged in HIV/AIDS activities to sensitize and treat both the project workers and the communities around the work site. This should be included in the bill of quantities during procurement as part of main streaming HIV/AIDS prevention in the project.
- High risk groups such as the youths especially students should be continuously sensitized on the dangers of casual sex, consequences of early marriages, teenage pregnancy and monitored to ensure that such groups are not at risk of falling victims.
- Provide surveillance and active screening and treatment of workers and the community where a communicable disease is discovered.
- All impacts of public health nature should be mitigated using a well coordinated approach that must involve health units in the affected sub-counties including collaborations with local NGOs involved in similar activities to pool resources (especially human resources) and increase efficiency of mitigation measures being instituted.
- Excessive alcohol abuse should be discouraged as a company policy among power line construction workers.
- The contractor and subcontractors ought to have adequate sanitation facilities for the workers at both places of residences and at all work places.
- The contractor or subcontractors shall procure a secure and descent accommodation for all staff either through renting the existing structures in the project area or by constructing new houses in consultation with UETCL.
- Other aspects of health and safety should be should be adhered to as presented in the Health and Safety Management plan (section 9.8).

8.2.3.8 Noise, Air and water quality

- Earth works are likely to increase dust and soil erosion and hence polluting water sources;
- Construction machinery and vehicular fumes are likely to cause air pollution from their emissions;

- Dust pollution of air and water bodies from earth moving equipment and hauling trucks is a nuisance and can cause dust related diseases such as silicosis to workers and local community.
- Noise pollution by construction machinery and vehicles is expected to interfere with local activities and in some cases schools.

Mitigation

- Water will be regularly sprinkled at the site using bowers and haulage trucks will be covered with canvas to minimise dust emissions;
- The contractor shall ensure all vehicles and construction machinery are properly operated and maintained to minimise exhaust emissions;
- Noise from hauling trucks and construction equipment is likely to cause minor impact on the local community and will be mitigated by ensuring that all vehicles and construction material are well serviced and maintained.

8.2.3.9 Health and Safety Hazards

Health and safety risks are inherent to transmission line construction. There are concerns relating to site preparation and construction, including injuries to workers and incidences of malaria. The EPC contractor will need to follow international and national safety guidelines as well as proposed action emphasized in the environmental monitoring and management plan. For the period during project implementation, the EPC Contractor will develop and maintain a HS&E Management System to ensure that project activities comply with regulatory, reporting, operational and document control requirements. A comprehensive HS&E management system will be developed by the EPC Contractor and will include the following components:

- The HSE&S Policy.
- HSE&S target and objectives.
- Organization and responsibilities.
- HSE&S documents and communication.
- HSE&S operation control.
- Training, awareness and competence.
- Management of change.
- Monitoring, compliance audit and corrective actions
- Management review

For details of the health and safety management plan, refer to **section 9.8**

8.2.3.10 Misuse of cash compensation

According to most cultures in Uganda, women have no ownership over land or most other family property implying that men will be the recipients of cash compensation before project implementation. Cash compensation could create vulnerability to women and children if misused by male household heads instead of restoring pre-project livelihoods and replacing

assets (land or dwellings) lost to the project. These negative effects can be long-term and irreversible.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation

- During compensation and resettlement, PAPs shall be advised through sensitization by UETCL about wise use of money to avoid misuse and cases of destitution among PAP families.
- The RAP implementation consultant should engage all vulnerable groups such as wives/women and children in the affected households and their views on compensation versus resettlement obtained. Where some house hold members object cash compensation due to fears that their fathers and or male guardians will misuse the money, resettlement should be recommended and effected.
- Guiding and monitoring of how compensation payment is spent will need to be a part of the RAP internal and external monitoring.

8.2.3.11 In-migration into villages where construction camps are located

The indirect effects of inward migration will include greater pressure on natural resources such as fuel wood, building materials, groundwater, and grazing and cultivated land. The occurrence of employment opportunities may attract an external workforce to the project areas in Hoima and Kinyara. The presence of an external workforce and competition for local jobs can result in tensions as well as health risks associated with, amongst others, STDs. An increase in population also means increased pressure on the social infrastructure and healthcare services. The cause of tensions may include unfulfilled expectations regarding employment; increasing price of food and land; increasing pressure on land and infrastructure and change in demographic profiles.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation

- Implement and main stream health, STD and HIV/AIDS as part of the awareness/training for the workforce.
- Contractor should ensure that the workplace has adequate access to medical facilities.
- Sensitization of the local communications should be carried out to manage community expectations of the project.
- The contractor should ensure preferential treatment is given to the local communities at the time of employment in order to combat conflicts/tensions in the project area.
- The developer will provide workers with protective gears/wears during construction work to prevent injury and where necessary to avoid contracting germs and or diseases;
- Workers and the community should be sensitized on protective behaviour and practices during work by distributing appropriate education materials to workers and the surrounding community.
- The developer will establish a first aid facility at the construction site to treat injury cases whenever they occur.
- The project contractor is also advised to employ services of an independent NGO engaged in HIV/AIDS activities to sensitize and treat both the project workers and the communities around the work site. This should be included in the bill of quantities during procurement as part of main streaming HIV/AIDS prevention in the project.
- High risk groups such as the youths especially students should be continuously sensitized on the dangers of casual sex, consequences of early marriages, teenage pregnancy and monitored to ensure that such groups are not at risk of falling victims.
- Provide surveillance and active screening and treatment of workers and the community where a communicable disease is discovered.
- All impacts of public health nature should be mitigated using a well-coordinated approach that must involve health units in the affected sub-counties including collaborations with local NGOs involved in similar activities to pool resources (especially human resources) and increase efficiency of mitigation measures being instituted.
- Excessive alcohol abuse should be discouraged as a contractors policy among power line construction workers.
- Other aspects of health and safety should be should be adhered to as presented in the Health and Safety Management plan (section 9.8).

8.2.3.12 Fire risk at camps and work stations

Fire causes could be such as smoking in or near fuel storage areas, or throwing smouldering cigarette butts onto dry combustible materials or dry grass surrounding the camp. A large fire outbreak would impair the construction program but also result in loss of equipment, materials or even human life. In dry seasons when grass around camps is dry, a small fire could quickly spread onto a large area affecting large area and stalling construction activities on sites. The severity of this impact can range from being low to medium and to high depending on the measures put in place to combat the fire.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation

- The camps site should have adequate firefighting capability to put off a large fire. Hence fire extinguishers should be located in easily accessible places.
- The contractor shall sensitize workers on sources, possible causes and prevention of fire at the camp.
- Workers should be knowledgeable about use of firefighting equipment and aware of various colour coding on fire extinguishers.
- The camps must have part of the site designated as a fire evacuation/assembly area.
- Smoking should only be allowed in designated low-risk areas. No smoking must be allowed near fuel storage areas.
- The camp should maintain a 10-metre strip of bare ground to act a fire barrier around the camps.
- All hydro carbons shall be stored and managed in NEMA gazetted centers with clear instructions on how such fuels should be handled.

OPERATION PHASE**8.2.3.13 Impact on social cohesion during the pre-construction and construction phase activities**

The impact of compensation and other activities during pre-construction and construction phases can spill over to operation phase if they are not well handled. Although the impacts on communities and social cohesion are likely to be mostly felt during the construction phase, they could also be felt, to a lesser degree, during the operation phase due to the presence of workers for maintenance activities. Such impacts could be tensions between workers from outside. There could be some land use disputes, reviving old quarrels and others. In some rare scenarios, lines are built when some PAPs have not been compensated. This normally happens especially when the PAPs resort to court or where PAPs or PAPs representatives cannot be identified.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |

| | | | | | |
|--|---|-----|-----|-----|-----|
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- Communicate with communities effectively and involve their leaders
- Restrict project land use during the operation phase to the line's right-of-way to avoid project developer from conflict with local communities.
- Ensure all PAPs are identified and compensated.
- The RAP implementation consultant should try as much as possible to settle compensation issues outside court.

Community health and safety

The presence of electric power lines constitute potential risks and safety for the population living nearby especially where people sometimes try to make illegal connections. Steel thefts on pylons can also pose significant safety risks in the event of tower collapses. Although it is expected that the towers will be designed according to the best practices and applicable norms and standards such incidents cannot be ruled out. However, the land use restrictions within the wayleave will prevent contacts with the energized conductors and minimize risks to public safety in the event of tower collapses. Risks associated with steel theft are also limited by the fact that the project is located near public roads along all its route. This will guarantee reliable and safe operation of the power transmission line while ensuring safety for the communities neighbouring the power transmission line.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- Proper communication and awareness of local populations.
- Educate local populations on safe behaviour around high voltage power lines.
- Warning signs and anti-climbing devices installed near substations and pylons.
- Usage of safety locks and bolts in order to minimize steel theft risks.
- Ensure the development of local and regional emergency plans in case of infrastructure breakdowns, especially near roads or residential areas.
- Monitor and control illegal connections.

8.2.4 Overall Risk Register

The overall risk register has been summarised in table 8.8 below.

Table 8.8: Overall Risk Register for the proposed construction of the Approximately 50 km Hoima-Kinyara Power Line

| ID | Risk | Chance | Severity | Overall Impact |
|-----------------------------------|---|----------|---------------|-----------------|
| Biophysical Environment | | | | |
| Construction Phase | | | | |
| E1 | Loss of crops along the corridor during construction | Likely | high | High |
| E2 | Spot alteration of land use on agriculture, savannah, grassland and wetlands by tower spots | Possible | Low | Low |
| E3 | Loss of significant land due to the power line | Likely | high | Medium-High |
| E4 | Displacement of built up structures in certain areas | Likely | Moderate-high | Medium-High |
| E5 | Loss of Vegetation and Animal habitats | Likely | Low-medium | Low-medium |
| E6 | Impacts arising from management of earth works due to tower foundations | Possible | Low | Low |
| E7 | Generation of Solid Waste | Possible | Low | Low-medium-high |
| E8 | Disturbance and degeneration of wetlands and aquatic ecosystems | Possible | low | Low |
| E9 | Material sources for tower foundations | | | |
| Operation Phase | | | | |
| E10 | Exposure to health hazards associated with EMF | unlikely | Low | Low |
| E11 | Impact on aquatic habitats and associated fauna and flora | Possible | Low | Low |
| E12 | Impact on birds | Possible | Low | Low |
| Socio-economic environment | | | | |

| ID | Risk | Chance | Severity | Overall Impact |
|---------------------------|---|----------|---------------|-----------------|
| Construction Phase | | | | |
| S1 | Psychological impacts to the communities such as stress, fear and trauma due to displacement and compensation issues. | Likely | Moderate-High | Medium-High |
| S2 | Exploitation of workers during project implementation | Possible | Moderate | Medium |
| S3 | Physical cultural property | Possible | Moderate | Low |
| S4 | Interference with local power grid resulting in sporadic outages | Likely | Low-moderate | Low-Medium |
| S5 | Interference with traffic and diminished road safety | Possible | Low | Low |
| S6 | Pollution of community water sources | Possible | Low | Low |
| S7 | Public health concerns | Likely | Low-moderate | Medium |
| S8 | Noise, Air and water quality | Possible | Low | Low |
| S9 | Health and safety hazards relating to site preparation and construction, including injuries to workers | likely | Moderate-High | Medium to high |
| S10 | Misuse of cash compensation | Possible | Moderate | Medium-High |
| S11 | In-migration into villages where construction camps are located | Possible | Low | Low |
| S12 | Fire risks | Possible | Moderate | Low-Medium-High |
| Operation Phase | | | | |
| S13 | Impact on social cohesion during the pre-construction and construction phase activities | Possible | Low | Low |
| S14 | Community health and safety | Possible | Moderate | Low-Medium-High |

8.2.5 NEGATIVE IMPACTS ASSOCIATED WITH CONSTRUCTION OF ACCESS ROADS

CONSTRUCTION PHASE (BIOPHYSICAL ENVIRONMENT)

8.2.5.1 Overview

The construction of towers comes along with other offsite impacts that need to be monitored. Construction of tower foundations require the use of sand and aggregate that will be excavated in identified areas that might be away from the power corridor and tower spots. The construction of access roads will require backfilling of certain areas with murrum and aggregates. These activities may alter certain landscapes within the project area by leaving out gaping holes that could cause accidents and as well as breeding sites for mosquitoes and other disease causing vectors. Excavation pits left may change the entire landscape and become barriers to transport and other local activities. Excavation pits for murrum and other aggregates have an effect on the value of the land as prospective developers may find such areas unfit for certain projects. Below are the likely impacts resulting from the construction of access roads and their possible mitigation measures.

8.2.5.2 Vegetation loss

Vegetation loss will arise from initial clearance of land needed for the permanent works and for temporary use during construction through creation of diversions, camps and quarries. The road may also capture some of the tree plantations and fruit trees along it. Some may be natural grassland, shrub land and woodland. The majority of the affected vegetation will be crops and some scattered trees and shrubs such as *Vitex doniana*, *Combretum collinum*, *Annona senegalensis*, *Microglossa yrifolia*, *Flueggea virossa*,. However, none of the affected plant species are listed under the IUCN list.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- Vegetation clearance will be restricted within the road reserves. The contractor will also ensure that:
- Clearing exercise is controlled and limited to what is necessary for opening up on new access road, quarry and camp sites;
- Earthworks will be kept to a minimum to limit disturbance to large amounts of soil.
- Where trees are cut, owners shall be compensated in accordance with the RAP findings

8.2.5.3 Impact on water resources

The proposed construction works involve grading, haulage of rock materials and levelling of tower foundations across the entire corridor. This may impact on the streams and wetlands/swamps through siltation and sedimentation. A total of about 9 streams will be crossed by the proposed transmission line impacting a distance of approximately 789 meters. Both seasonal and permanent will be impacted by the line to an approximated distance of 1458m.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation Measures

- Works across wetland areas could be undertaken with effort to ensure minimal siltation and transportation of loose soil materials; and
- On some section across wetlands the contractor may place gabions and stone boulders to check erosion of loose soil materials.
- Raft foundations shall be used in wetland areas.
- In areas where it's not necessary to construct a permanent access road to the tower site, temporary access roads shall be constructed and after decommissioned and sites restored.
- Decommissioning of such roads shall be supervised by the district Environment Officers and District Engineers.

8.2.5.4 Dust Nuisance

Access road works will likely generate dust from a number of activities such as rock blasting, stone crushing, sweeping, earthworks, hauling of materials to tower spots and general clearing and grabbing works which will impact negatively on the surrounding communities and residents along these roads in the project area. The dust will also impact on the safety of the road users through reduced visibility and as well affect businesses in trading centres such as those in Bulemwa, Enjinga, amongst others. Dust may also present health risks to the workforce and the neighbourhoods.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |

| | | | | | |
|--|---|-----|-----|-----|-----|
| | 1 | Low | Low | Low | Low |
|--|---|-----|-----|-----|-----|

Mitigation measures proposed include:

- Dust control will be through routine sprinkling of water on the loose surfaces;
- Observance of speed limits through speed control sections of the road with humps and related infrastructures; and
- Workers will be availed with Personal Protective Equipment (PPE) such as masks, helmets, hand gloves, boots and ear muffs to protect them from dust.

8.2.5.5 Soil erosion

The soils along the project transmission line are typically loam and deep on the valley slopes but tend to be shallower on the upper slopes. Soil erodibility is low and rainfall erosive is generally moderate. The water table is high with soils frequently water logged. The impact of soil erosion is likely to be major especially in areas around Abangi village, Budongo sub-county, Masindi district where homesteads down slope are likely to be impacted by siltation as well as siltation/sedimentation of water sources thus affecting the water quality in such water areas.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation Measures

- Proper storm water drainage facilities (culverts) have to be designed at the various areas along the route to prevent any erosion that may contribute to the increase of suspended solids;
- Disposal of cut to spoil will be done under the direction of the Environment Officer and District Engineer who will approve disposal sites;
- Dumping of cut to spoil along the road reserves or streams will be prohibited;
- There will be controlled clearance of vegetation on only sections that are needed for the road works;
- There will be bench terracing on the hill slopes to check issues of soil erosion and unstable slopes; and
- The client could consider a suitable indigenous cover grass preferably; Cyanodon, Setaria etc could be planted along the drainage channels to reduce scouring effect of water. Steep surfaces would also be kept under grass cover, or where applicable, such surfaces will be stone pitched to stabilize the slope and control erosion.

8.2.5.6 Impacts of Borrow Pits

Establishment of access routes and subsequent opening of borrow pits all represent a large negative impact of the project. Several borrow pits areas will be identified by the contractor although the number cannot be predicted at the moment. These land uptake activities all lead to erosion and general interference with the landscape features as well as, disruption to normal social settings in the areas. These are large long term negative impacts though they will be restricted to the construction phases of the project. The following measures are proposed as mitigations.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- Before exploitation of the borrow pits is undertaken the Contractor will secure some lease consent from the landlords for borrow areas and have a Project Brief prepared and approved by NEMA before on set of activities;
- Access routes to the borrow pits will be surveyed for any hidden cultural resources (graves, shrines etc) and the route cleared of vegetation and other debris. These cleared materials shall be stockpiled for use during the restoration process of borrow areas and material extraction sites;
- Stock pile and cut to spoil materials will be kept in the vicinity of the borrow pits and with the approval of the District Environment Officer and District Engineer, the cut to stockpile materials could then be used in the eventual restoration of the borrow areas in the end. This option will be prioritized in order to reduce challenges relating to the management of cut to spoil materials;
- Landscaping and evening up of cliffs could be done on decommissioning of works. There will be efforts to ensure proper drainage of the site to avoid water logging in the areas;
- Sequential restoration of borrow pits as when they are exhausted of materials; A detailed decommissioning plan will be prepared detailing how the contractor intends to restore the borrow pits after the completion of the project. The restored borrow pits at the end of the project have to be inspected and approved by the respective environment authorities at NEMA and UETCL at the end of the Project's Defects Liability Period; and
- Access routes to and from the borrow pits will be restored/ripped off and replanted with grass.

8.2.5.7 Impacts of Stone Quarry Operations

The contractor will require stone products for the road works and tower foundations works and potential sources of rock materials will be identified in the project area. The process of

stone blasting as well as establishing access routes to quarry sites will have adverse negative impacts on both bio-physical and social environment which can be of very large negative scale.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- The quarry sites will be subjected to separate ESIA which will be approved by NEMA before blasting begins.

8.2.5.8 Management of Accidental oil Spills and Risks for Fires

There is very strong potential for environmental damage from the accidental spillage of petroleum products and chemicals on construction sites. To minimize this possibility and related possible adverse effects on the environment from such spills, it is increasingly realized that, the contractor will need to develop plans to deal with such possible emergency situations. Such plans will include guidelines and measures for reporting spills, training procedures, resource allocation and the supervision of containment and restoration procedures. This ESIA proposes some pertinent steps that could be put in place to address such concerns.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation Measures

- It is absolutely important that, spills greater than or equal to 100litres of flammable/combustible liquids or waste oil will be immediately reported to the police 999 and the Fire Brigade. Emergency preparedness will include critical examination of each of the construction to identify potential hazards;
- Hazardous compounds will be stored in secure locked containers on site in secured enclosures. Compounds used in the curing of concrete, lubricants, and fuel for small equipment will be present on site and kept tidy especially after work;
- There is need for an internal alerting system in case of spills. This is because; timely and accurate reporting of accidental spills can help to ensure quick and efficient

response. Alerting systems/plans will include clear and detailed information regarding sources and location of such risks;

- Principally, the purpose of such a response plan will be to initiate an immediate response with trained personnel and equipment to clean up and ensure containment, disposal, and monitoring, including details regarding equipment and personnel allocation, are also presented; and
- Finally, the plan will contain a commitment for restoring the contaminated site to its previous state before the accidental spill.

8.2.5.9 Loss of agricultural land, property, crops and businesses

The proposed road works will likely lead to land uptake as well as some properties through acquisition of land for re-alignments and clearance of road reserve. Property areas are also likely to be taken up through construction works such as during establishment of diversions. Out right in the ESIA study, it was evident that, grazing land and crops especially rice, cassava, maize and coffee plantations will be impacted upon during acquisition of land for access roads. A number of concerns were echoed by the communities consulted from the starting point in the village of Bulemwa (Hoima district) up to Kayera village in Masindi district. All the affected communities are concerned about the eminent loss of their properties, land, crops and businesses (Annex 1). The anticipated loss of property, land and crops is likely to be a very large one and is the main concern of the Project Affected Persons.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- Adequate, fair, and prompt compensation and resettlement of PAPs will be implemented in the project;
- Communicating to the PAPs early enough on the schedules of the project so that, they can adjust on a number of their livelihoods plans; and
- Furthermore, the RAP will define mechanisms for the Resettlement of some of the PAPs as their needs may demand. The demands and needs of the PAPs may differ across the project and therefore, the Resettlement process will be responsive to the extent possible to the prevailing needs of the beneficiaries/PAPs.

CONSTRUCTION PHASE (SOCIO-ECONOMIC ENVIRONMENT)

8.2.5.10 Psychological impacts associated with land Surveying and mapping

The preliminary project activities included land surveying, valuation and related preparatory feasibility studies. These studies will generally not pose major issues of environmental concern. However, as houses and properties will be marked by the surveyors, this is likely to create anxiety and speculations amongst landlords which if not well addressed will stifle compensation process.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- Sensitization of the local communities and awareness programmes will be implemented as part of the RAP to address such concerns.

8.2.5.11 Noise and Vibration Impacts

During construction, noise will be generated through construction activities, such as blasting in areas of rock excavation, mixing of concretes and stone crushing. During operation; noise will likely be generated from engines and exhaust systems of large trucks, and the interaction of tyres with the road surface by trucks. Noise will therefore cause nuisance effects and may have health implications through stress. Noise from construction works might interfere with learning activities especially if such sites are near schools or public places. If these activities are within 0–50m from a habitable or a residential property, special attention may be needed to mitigate the potential for adverse effects.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- Protect people's health from environmental risk and pollution through a number of measures such as; routine sprinkling of water on dust surfaces to suppress dust, availing workers with Personal Protective Equipment (PPE) such as masks, helmets, hand gloves, boots and ear muffs;
- Restrict construction activities to day time hours to minimize disrupting sleep in the nearby communities;
- All fresh sites for murrum excavation and quarries shall be approved by NEMA through a separate EIAs or Project Briefs.

8.2.5.12 Occupational Safety and Health for the workforce

Heavy machinery such as graders, rollers, bulldozers, heavy trucks as well as other small road works equipment such as hoes, pangas, slashers and others pose potential risks to the safety and health of the workers during the road construction activities. Dust, noise and vibration from machinery impact on the safety and health of the workers. At the camp sites, the employees are more likely to be affected by noise produced from the generator, fuelling station and workshop areas. These are medium negative impacts of long term nature to the affected.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- First and foremost, the contractor has to put in place an OSH Plan as provided for under the General Specifications for Road and Bridge works, 2005;
- As a prerequisite, the usage of Personal Protective Equipment will be part of the employees' contract and the usage of PPE at work will be mandatory.
- It is the obligation of the contractor to provide adequate and quality PPE to all Workers such as masks, helmets, hand gloves, boots, overalls and ear muffs to protect them from dust, noise, sharp machines and other forms of hazards. PPE will be provided in pairs to enable cleaning and changing.
- All PPE provided will be of the standard type, fitting and comfortable to work and walk with. For hand tools, they will be sharp and with smooth handles;
- All employees will be obliged to wear PPE before commencing work and this condition will be part of their employment contract;
- Workers will be trained and sensitized on safety measures while on the site and the need to take personal responsibility on one's health and safety;
- Guidelines and regulations on site safety will be communicated to all workers, suppliers and subcontractors and will be part of their employment; and

- There will be emergency response measures on the site and workers will be sensitized on use of fire fighting equipment. The fire fighting equipment will well service and ready to be used and strategically located in areas that they can be readily accessed in case of any safety problems on site.

OPERATION PHASE (BIOPHYSICAL ENVIRONMENT)

8.2.5.13 Soil contamination

During operation, oil spills could result from equipment breakdown especially during power line maintenance. The extent of the impact is local since any spill or inappropriate management is likely to occur in a well-defined area within the ROW. Moreover, the duration of the impact is short, given that any accidental spill will be contained and cleaned-up immediately. The impact on soils during the operation phase is thus considered of minor importance. The probability of occurrence is low after the application of mitigation measures.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- Ensure that equipment and machinery are in good operating condition, clean (power washed), free of leaks, excess oil, and grease.
- Ensure that all stationary equipment and machinery are installed above spill containment facilities of sufficient capacity.
- Keep a Spill Containment Kit readily accessible onsite in the event of an accidental spill and ensure on-site staff is trained in spill response.
- Contain any spills onsite and clean up spills as soon as possible.
- Document and report all spills.

8.2.5.14 Impact on land use

Although the impacts on land use are likely to be mostly felt during the construction phase, they are also likely be felt, to a lesser degree, during operation phase activities. Such activities include way leave and ROW maintenance and repair. Loss of crops (annual and perennial) due to maintenance activities may affect some PAPs especially women more than men. In fact, women are usually in charge of subsistence activities and struggle to provide for the household when crops are limited. Proper consideration of this dynamic in

the attribution and distribution of compensation packages is recommended. Prompt and proper compensation need to be provided for any crop loss due to maintenance activities.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- Compensate all affected PAPs immediately such incidents occur.
- Plan for maintenance activities outside the growing or harvesting season
- Allow grazing in the ROW and other agricultural activities in the wayleave, provided that plantations do not exceed 4 m in height. If UETCL permits it, the ROW in urban area can be used for a number of purposes that will increase quality of life in neighborhoods crossed by the wayleave, e.g. gardening, playground, walking path.

OPERATION PHASE (SOCIOECONOMIC ENVIRONMENT)

Once access roads have been established, there are no key social economic impacts at operation phase other than people using such improved access to encroach and or steal peoples properties such as food in the nearby gardens. Such impacts will be mitigated on a case by case basis using village courts, bylaws or conventional courts.

8.2.6 NEGATIVE IMPACTS ASSOCIATED WITH CONSTRUCTION OF SUBSTATIONS

8.2.6.1 Hoima Sub-station

Former site conditions (2013)

The substation site (about 5 acres) has been identified. It is located in Bulemwa village, Bujumbura division, Hoima Municipality. The site was previously cleared and part of it has been cultivated in the past and is surrounded by settlement. It is therefore disturbed and is not sensitive from a conservation point of view. There is therefore no special preference that can be attached to the site from a conservation perspective. Other than the maize, rice and cassava gardens that used to the site, It comprised plant species such as *Tephrosia linearis*, *Sporobolus africanus*, *Setaria sphacelata*, *Hyparrhenia filipendula*, *Eragrostis tenuifolia*, *Urena labata* L, *Hyparrhenia diplandra*.A Rich, *Lippia abyssinica*, *Cymbopogon nardus*, *Aspilia Africana*, *Justicia ladanoides*, *Panicum maximum* and others. The site also comprises a semi-permanent home that was relocated when substation works commenced.

Current site conditions (2016)

The substation site was fully acquired and contractor is on site. Excavations and site leveling were done. The site is also stone pitched and contractor's structures are on site. Therefore, the substation is currently under construction.

8.2.6.2 Kinyara substation

No activities have taken place at the Kinyara substation site. The site is gently sloping and the area can be considered to be land under fallow.

8.2.6.3 (Construction phase)

The impacts related to construction of these substations will likely include increases in traffic, noise, dust and potential sediment transport from the site, disruption of vehicle and pedestrian traffic and loss of vegetation cover. These will be addressed by the following;

- To minimize **traffic impacts**, construction vehicles will enter and leave the sites at controlled points. Using signs and barriers, the contractor and also with help of police especially at Hoima substation will direct pedestrians and vehicles traffic as needed around the construction zone. Some activities can be scheduled in off peak traffic times to minimize impacts.
- Although **noise** generating activities are not likely to interfere with local communities since both substation sites are located in sparsely populated areas, construction activities should be limited to day time. This will limit noise pollution and noise related problems to those hours when most persons are awake.
- **Fugitive dust emissions** will be controlled by wetting exposed soil and road areas with water. Tarpaulins will be used to cover truck beds hauling soil and debris. Roadways and transport equipment will be cleaned on a regular basis.
- **Particulate emissions** will also be controlled by offsite disposal of land clearing and construction debris. Burning of such material will not be allowed on the site.
- **Habitat loss.** There will be no significant habitat loss during the construction of both Hoima and Kinyara substations. The Kinyara substation site is an open grassland often used for farming. The Hoima substation site is a farmland planted with cassava, eucalyptus and pines. Only grass and a few trees will be cleared to expand the outdoor fenced equipment area.
- **Run off, erosion and sediment transport** will be controlled using storm water best management practices. The two sites are well drained and appropriate channels should be constructed to drain any run off into the drainage systems of the neighboring areas.

- **Environmentally deleterious materials** generated by the construction activities will be disposed offsite in an appropriate, legal and safe manner. In the event that hazardous wastes are generated during construction, they will be properly disposed off site by either the contractor or UETCL in accordance with appropriate waste disposal regulations. The overall goal will be to minimize as much as practical the generation of all wastes. Disposal of all construction waste shall be guided by the district environment officers of Hoima and Masindi respectively.

8.2.6.4 Operation phase

- **Noise:** Once completed the operation of both Hoima and Kinyara substations are not expected to generate significant noise. However, UETCL needs to acquire enough land so as to create a large buffer zone and deter people from settling close to the substations in future.
- **Waste generation:** The operation of these substations will result in the generation of waste. Hazardous materials generated such as transformer oils will be disposed off through existing programs at the office of the Environment, Health and Safety Officer at UETCL. General trash will be picked up by a contract waste hauler for proper disposal at a permitted facility in consultation with the District Environment Officers.
- **Transformer oil:** Transformers and certain types of breakers contain mineral oil, which is essential for both insulation and cooling. This oil is relatively inert, indeed quite similar in many ways to clear motor oil. However, the quantity of oil at a substation is very large. A major oil release would be a significant environmental incident, so UETCL needs to take steps to avoid such releases. To manage this environmental risk, UETCL will have to use a comprehensive leak detection and management program. A thorough check for leaks will be an integral part of the monthly substation inspection routine. All leaks, no matter how small, will be monitored on a regular basis. When a small leak is found it will be marked on the inspection form and the information entered into a computer database. In this way, the leak can be continually monitored by field crews and can be repaired if it gets worse. If a more serious leak is found, it will be promptly repaired.
- **Polychlorinated Biphenyl's (PCBs):** PCBs, originally used as chemical stabilizers in electrical equipment insulating oils, were common in equipment manufactured until the late 1970's. Eventually, scientific knowledge advanced to the point where it was determined that PCBs take a very long time to break down chemically into harmless substances after they have entered the environment. Therefore, the usage of such oils will be prohibited through the entire life spans of these substations.

- **Water consumption:** The operation of these substations will not result in a significant increase in water consumption.
- **Water quality:** Long term negative impacts on surface and underground water quality are expected to be minimal to nonexistent except if an oil spill from the transformers occurs. The disturbed areas of these substations will be planted with grasses and other plants or covered with gravel eliminating most sediment transportation from the sites.

8.2.7 NEGATIVE IMPACTS ASSOCIATED WITH WORKERS CAMPS

CONSTRUCTION PHASE

BIOPHYSICAL ENVIRONMENT

8.2.7.1 Soil erosion

The construction and landscaping of these labour camps involves removal of vegetation, ground levelling and stabilization which exposes the soil to erosion. If the contractor chooses a sloppy site, soil erosion is anticipated to occur once earthworks on the campsite start. Soil erosion from labour camps can pollute streams if not checked.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact Severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- Vegetation clearing and site levelling activities will be limited to areas required for camp establishment only;
- Loose/open soil areas will be compacted to control erosion; and
- The contractor will plant ornamental trees and grass on the opened surface to provide vegetation cover and hence control soil erosion.
- The contractor should choose a site that is flat and away from streams or wetlands.

8.2.7.2 Impacts of solid and liquid waste

Domestic solid waste will be generated from the restaurant, laboratory, housing units in the camp site and from administration block in form of polythene bags, papers, bottles, tins and

many others although the quantity of waste cannot be estimated since the capacity of the camp(s) is not known.

Solid waste from the service and fuelling station will also be generated in significant amount and these may be in the following category; oily solid waste such as semisolid grease, spent oil filters, air filters, spark plugs, empty oil containers and other spent serviceable engine components. Packaging wastes (polythene bags and paper boxes), rubber waste (rubber gloves, old tyres and their tubes) and dredges from oil interceptors. In absence of mechanisms to recycle or reuse these solid wastes from the service and fuelling station, this is expected to pose a negative, medium to long term impact on the environment. Liquid waste/ effluent at the camp sites will arise from washrooms, bathrooms, toilets and restaurant.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- The contractor will put in place dust bins and metallic skips where the solid waste can be temporarily collected and later disposed to the dumping site recommended by both Hoima and Masindi district authorities;
- The Contractor will have a clear plan on how to manage the solid waste and general cleanliness in the camp site. The waste will be sorted on collection based on its nature, for instance biodegradable and non-biodegradable will be collected separately in clearly marked out containers. Only biodegradable waste will be disposed in temporary skips and finally to municipal landfills in the project areas but plastics and polythene will be sorted separately and disposed by recycling or disposed by licenced waste disposal companies in Nakasongola waste disposal facility;
- All used oil from servicing of vehicles will be collected in an onsite secure container (oil drums) and sent to back to the delegated firm or supply company for proper disposal;
- For effluent human waste, the contractor will have in place septic tanks which will be emptied by NWSC at the close of the project and disposed in gazetted lagoons;
- It is recommended for the camp(s) site to have separate toilet facilities for males and females and these must be clearly marked with standard signs for the different sexes.

- There will be routine cleaning of the camp site and its associated facilities such as toilets and bath rooms and the workers responsible for cleaning given areas will be availed specific and appropriate wear (hand gloves, gum boots, overalls and scrubbing brushes).

8.2.7.3 Potential Contamination from oil spills and leakages

In case of major oil spill on the site, it is apparent that prevention is and will remain the best strategy against oil spills (Australian Marine Safety Authority, 1993). In most cases however, prevention of spills cannot be fully guaranteed. This thus calls for mitigation resources and equipment to be available in case of such crises. The National Environment (Discharge Effluent) Regulations 1998 limit oil and gas in effluent discharge into environment to 10 mg/l.

Contamination could result from such causes as: equipment failure, human error for instance spilling oil during dispensing, leaks from underground storage tanks, and leaks from pipes system, pumps and fittings. Water pollution may result from car washing and general cleaning of the premises. Ground and surface water contamination may result from waste oil (used oil), grease and fuel leaks, spills from delivering trucks, vehicles and servicing bay at the station and many others.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- The contractor will closely liaise with the Department of Petroleum Supplies in the Ministry of Energy and Mineral Development on the guidelines for establishing underground storage tanks.
- The contractor will ensure that all underground fuel storage tanks are coated with a layer of tar and placed on a concrete slab as a precautionary measure against rusting;
- During construction, a qualified inspector will ensure that all the features that have been proposed to prevent leakage are properly incorporated in the finished job;
- Clay is one material that is nearly impervious to seal off spillage by petroleum products (Kajubi .L. and Pohl. J, 1997). Backfilling with a layer of sand and then compact clay all round the concrete slab will help to limit spread of any fuel leakage; and

- Additionally, storage tanks shall satisfy national specifications and requirements such as: Cathode protection against rusting, easily cleaned and waste disposed responsibly and pressure testing to ensure that tanks and connecting pipes withstand pressures up to 50 Psi (equivalent of 350 kN/m²) done regularly.

8.2.7.4 Used engine oil

Car servicing is anticipated to generate significant volumes of used oil. Once irresponsibly disposed, it will pose potential hazard to the environment. Discharged into public storm water drains, the oil would eventually end up in the surrounding boreholes and possibly sensitive ecosystems around the camp sites for example in wetlands or other sensitive runoff sinks disrupting fragile ecosystems.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- The contractor will ensure that all spillage and oil-contaminated water be directed to the internal drainage system running through an oil-water separator;
- Oil-water separators (oil interceptors) require regular cleaning and maintenance and records of these activities will be kept;
- Care will be taken however to ensure that the interceptor is not overloaded with surface waters from areas where there are no risks of contamination; and
- All spent oil could be sent back to the oil companies (agents supplying oil and petrol to the Contractor for proper recycling.

SOCIAL ECONOMIC ENVIRONMENT

8.2.7.5 Welfare of workers & public health concerns

More often than not, there has been a tendency for contractors to provide substandard accommodation for the labour force especially the local workers. There is concern in terms of housing, welfare and language used towards the workers is often rude. This is a very large negative social impact as it affects the relation between the project and the communities.

This project is expected to attract various categories of people who will seek employment on project activities during construction. It is apparent that part of the labour force will be

procured and housed in workers camps. Some of these will be local labour while others will come from places far away from the project site. Those who will come from far are unlikely to be accompanied by their spouses. Many local people will also participate in providing services to workers. This will cause the establishment of social networks, which can promote the spread of socially transmitted diseases especially HIV/AIDS and other STIs.

During project development, there will be large scale movement of earth material which may cause soil erosion, dust, leading to respiratory infections.

Workers may be exposed to occupational hazard such as physical injuries and maiming by construction machinery etc. Garbage and human wastes generated by workers, if not properly managed may compromise water quality and may cause water related diseases in the area. According to the community HIV/AIDS scares them most. Pressure on the existing health services is likely to increase. Although not many skilled workers are expected, the impacts of diseases have a multiplier negative effect. The impact is likely to be **medium to high**.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | | | | | |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- The contractor or subcontractors shall procure a secure and descent accommodation (with male and female units) for all resident staff either through renting the existing structures in the project area or by constructing new houses in consultation with UETCL.
- The floors of the housing units will be cemented and they will have be approved by the District Health Inspectors from the host district;
- The contractor's top management will note the need for cordial and harmonious relations with its workers and the communities;
- There will be decent & adequate toilet facilities for the workers in the camp site catering for both sexes.
- The developer will provide workers with protective gears/wears during construction work to prevent injury and where necessary to avoid contracting germs and or diseases;

- Workers and the community should be sensitized on protective behaviour and practices during work by distributing appropriate education materials to workers and the surrounding community.
- The developer will establish a first aid facility at the construction site to treat injury cases whenever they occur.
- The project contractor is also advised to employ services of an independent NGO engaged in HIV/AIDS activities to sensitize and treat both the project workers and the communities around the work site. This should be included in the bill of quantities during procurement as part of main streaming HIV/AIDS prevention in the project.
- High risk groups such as the youths especially students should be continuously sensitized on the dangers of casual sex, consequences of early marriages, teenage pregnancy and monitored to ensure that such groups are not at risk of falling victims.
- Provide surveillance and active screening and treatment of workers and the community where a communicable disease is discovered.
- All impacts of public health nature should be mitigated using a well-coordinated approach that must involve health units in the affected sub-counties including collaborations with local NGOs involved in similar activities to pool resources (especially human resources) and increase efficiency of mitigation measures being instituted.
- Excessive alcohol abuse should be discouraged as a company policy among power line construction workers.
- The contractor and subcontractors ought to have adequate sanitation facilities for the workers at both places of residences and at all work places.
- Other aspects of health and safety should be should be adhered to as presented in the Health and Safety Management plan (section 9.8).

8.2.7.6 Camp Site Security

Thefts and general insecurity can be a threat to the smooth operations of the camp site and the project at large. Experience has shown that, camp sites are prone to thefts such as fuel, construction materials, cements and other movable items which all impact on the progress of the project and can be a very large negative impact.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation measures

- Entrance to the camp site will be controlled through guards and vehicles entering and leaving the camp site will be subject to checks;
- All visitors to the camp will wear visitors cards which are exchanged with their identity cards which they surrender to security at the gate;
- Proper lighting will be ensured to supplement the security system. The project management and staff will be kept on idlers in the camp site;
- The management of the project will liaise with nearby police units to reinforce their security; and
- The contractor could ensure security personnel hired will be from a reputable local security firm with good record.
- The entire camp boundaries should be defined and securely fenced.

8.2.7.7 Impacts of Noise from the generator in the camp site

Envisaged sources of noise pollution in the labour camp will be from operation of generator to supply power to the camp site and its workshop. If adequate mitigation measures are not put in place, there is likely to be an increase in the background noise levels which may cause nuisance and stress effects to the workers and the neighbouring communities. However this will be short term impact during the construction phase only.

Mitigation measures

- A good design of the generator room and good positioning of the exhaust pipe will minimize noise from the generator;
- The generator will be housed in a concrete house to buffer noise impacts;
- The generator will be operated till 10pm to avoid disrupting sleep in the neighbourhood; and
- The contractor could install a silenced generator model to control noise level.

8.2.7.8 Fire accidents

The fuel products stored on facility site are highly inflammable. In case of a fire outbreak, there is likely to be extensive property damage, possibly loss of human life and large scale short-term air pollution by smoke. Fire outbreak may also result from improper installation and wiring of electricity at the site.

Risk Assessment Matrix

| | | Likelihood of Occurrence | | | |
|-----------------|---|--------------------------|--------|--------|--------|
| | | <<1 | <1 | 1 | 1+ |
| Impact severity | 4 | Medium | Medium | High | High |
| | 3 | Low | Medium | Medium | Medium |
| | 2 | Low | Low | Low | Low |
| | 1 | Low | Low | Low | Low |

Mitigation for fire outbreaks

- Fire warning notices/stickers/signs will be up on pillars of the pump island warning motorists not to smoke while at the facility, to switch off mobiles and any such electric/electronic gadgets such as cameras and motor engines while refuelling.
- The workers will be trained in fire fighting, fire control and first aid skills. First Aid facilities will be provided on site and accessible to all personnel; and there will be in place a Spill Prevention, Counter Measure and Control Plan (SPCC);
- There will be fire extinguishers; and two sand-buckets per fuel pump properly positioned at all times for emergency fire. Additionally, all electrical installations or future modifications on service station shall conform to accepted national safety standards;
- Tank building design, materials and methods shall be adopted that reduce, and/or eliminate, the occurrence of fire. In addition, insulation materials for fuel pumps/stations shall be used that have a limited potential to be either ignited, or support flame.
- Tanks shall be covered and at a distance of 10-15m from the pumping point. And fuelling station shall have a minimum of two exit points, which shall not be locked during working hours;
- Fuel spills shall be avoided and when they occur they shall be cleaned immediately
- During the night, there will be a security guard on duty daily to guard against intruders and wrong elements; and
- The camps must have part of the site designated as a fire evacuation/assembly area.
- Smoking should only be allowed in designated low-risk areas. No smoking must be allowed near fuel storage areas.
- The camp should maintain a 10-metre strip of bare ground to act a fire barrier around the camps.
- All hydro carbons shall be stored and managed in NEMA gazetted centers with clear instructions on how such fuels should be handled.
- Relevant government authorities such as Ministry of Works, National Bureau of Standards; the District Environment Officer, and NEMA shall regularly inspect the fuelling stations.

OPERATION PHASE

Upon commissioning of the transmission line, the camps may be maintained by the contractor until expiry of the deficit liability period after which they may be decommissioned. Meanwhile, most of the immigrant workers will have returned to their places of origin. The camp may be maintained by few technical staff. Decommissioning of all infrastructures constructed as a result of the transmission line works shall be guided by a compliance environmental audit that shall be commissioned by UETCL and conducted by Certified Environmental Auditors. A decommissioning plan for camp(s) shall be approved by NEMA in consultation with the District Environment Officer and District Engineer.

8.2.8 ANALYZING THE PROJECT IMPACTS OF THE HOIMA-KINYARA TRANSMISSION LINE USING THE LEOPOLD MATRIX

8.2.8.1 Overview

The Leopold Matrix method was developed by Leopold et al. (1971), and it has been used for the identification of impacts. It involves the use of a matrix with 100 specified actions and 88 environmental items. In constructing the matrix, each action and its potentiality for creating an impact on each environmental item must be considered.

Where an impact is anticipated, the matrix is marked with a diagonal line in the interaction box. The second step is to describe the interaction in terms of its magnitude (M) in the upper section and importance (I) in the lower section of each box. The magnitude of an interaction or impact is represented by numerical scale; it is described by the assignment of a numerical value from one to ten. The value, ten represents the largest magnitude and the value, one represents the lowest magnitude, whereas values near five represent impacts of intermediate magnitude. Assignment of a numerical value for the magnitude of an interaction is related to the extent of any change (for example, if noise levels in a village were expected to increase by 20 dB (A), this is a large increase at night and may score 8 or even 9).

The scale of importance also ranges from one to ten. The higher the value, the higher the importance; the lower the value, the lower the importance. Assignment of a numerical value for importance is based on the subjective judgment of the multi-disciplinary team working on the EIA. Plus (+) or minus (-) can be used to show whether an impact is beneficial or adverse.

In this case all interactions that do not contain Plus (+) have been taken to be negative interactions or minus (-) although it's not physically shown in the cells.

Evaluation method

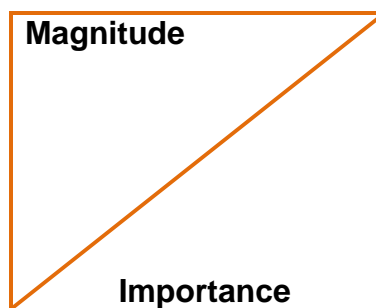


Table 8.9: Project impacts analyzed using a The Leopold Matrix

| Proposed Action | | | Action | | | | | | | | | | Total |
|-------------------------|------------|-------------------------------|--|-------------------------|---------------------------|------------------------------------|-------------------|----------------------------|--------------------------------|--|--|-------------------------------|-------|
| | | | Pre-Construction | Construction | | | | | | | Operation | | |
| Resources | | | Feasibility studies, Land survey & acquisition | Hoima Sub-station works | Kinyara sub-station works | Works & Activities at Labour camps | Access road works | Excavation for tower spots | Clearing for the ROW & wayleaf | Transportation & delivery of raw materials | Construction of towers & stringing of conductors | Substation & Line maintenance | |
| A. Physical Environment | Earth | Construction material | / | 2 | 2 | 4 | / | / | / | / | / | / | 8 |
| | | Soils | 2 | 2 | 2 | 3 | / | / | / | / | / | / | 7 |
| | | Land form | 1 | 4 | 3 | 5 | 4 | 3 | 2 | 3 | 5 | 4 | 34 |
| | | Unique physical features | / | / | / | / | 4 | 2 | 6 | / | / | / | 12 |
| | Water | Surface | / | / | / | / | 4 | 2 | 6 | 4 | / | / | 10 |
| | | Underground | / | 3 | 3 | 2 | 5 | 3 | 3 | 4 | / | 3 | 19 |
| | | Quality | 1 | 2 | 2 | 1 | 2 | 2 | 2 | 4 | 2 | 2 | 11 |
| | | Temperature | 1 | 3 | 2 | 3 | 7 | 5 | 5 | 3 | 5 | 2 | 41 |
| | | Recharge | / | 5 | 5 | / | 5 | 4 | 4 | / | 5 | / | 28 |
| | Atmosphere | Quality (gases, particulates) | 2 | 5 | 5 | 3 | 5 | 3 | 3 | 7 | 4 | 5 | 26 |
| | | Climate (micro, macro) | 2 | 4 | 4 | 2 | 7 | 4 | 2 | 6 | 3 | 2 | 39 |
| | | Temperature | 2 | 2 | 2 | 2 | 6 | 3 | 2 | 6 | 3 | 1 | 29 |
| | Processes | Floods | / | / | / | / | 5 | 3 | / | / | / | / | 5 |
| | | Erosion | 1 | 5 | 3 | 2 | 6 | 5 | 2 | 6 | 2 | 2 | 32 |
| | | Deposition (sedimentation) | 1 | 4 | 3 | 2 | 4 | 4 | 2 | 5 | 5 | 1 | 24 |
| | | Compaction | / | 4 | 3 | 2 | 5 | 2 | 3 | 2 | 2 | / | 18 |
| | | Stress-strain (earthquake) | / | 3 | 2 | 2 | 3 | 3 | 3 | 2 | 2 | / | 15 |
| | | | | 6 | 6 | 2 | 5 | 5 | 6 | 6 | / | / | 30 |
| | | | | 5 | 5 | 2 | 5 | 5 | 5 | 5 | / | / | 27 |

| Proposed Action | | | Action | | | | | | | | | | Total |
|---------------------------|----------|----------------------------------|--|-------------------------|---------------------------|------------------------------------|-------------------|----------------------------|--------------------------------|--|--|-------------------------------|-------|
| | | | Pre-Construction | Construction | | | | | | | | Operation | |
| Resources | | | Feasibility studies, Land survey & acquisition | Hoima Sub-station works | Kinyara sub-station works | Works & Activities at Labour camps | Access road works | Excavation for tower spots | Clearing for the ROW & wayleaf | Transportation & delivery of raw materials | Construction of towers & stringing of conductors | Substation & Line maintenance | |
| | | Air movements | | 2 | 2 | | 3 | | | 2 | | | 9 |
| | | | | 2 | 1 | | 2 | | | 1 | | | 6 |
| B. Biological Environment | Flora | Trees | 1 | 2 | 2 | 2 | 6 | 5 | 7 | | | | 25 |
| | | Shrubs | 1 | 2 | 2 | 1 | 6 | 5 | 6 | | | | 23 |
| | | Grass | 2 | 3 | 3 | 2 | 7 | 5 | 5 | | | | 27 |
| | | Crops | 2 | 1 | 1 | 1 | 2 | 8 | 7 | 8 | | | 23 |
| | | Microflora | 1 | 2 | 2 | 2 | 4 | 3 | 2 | | | | 16 |
| | | Aquatic | | 1 | 1 | 1 | 2 | 3 | 2 | | | | 8 |
| | | plants | | 2 | 2 | 2 | 7 | 5 | 8 | | | | 26 |
| | | Endangered species | | 1 | 1 | 1 | 5 | 5 | 5 | | | | 18 |
| | Fauna | Birds | | 2 | 2 | 1 | 3 | 2 | 2 | 2 | 2 | 1 | 17 |
| | | Land animals, including reptiles | | 1 | 1 | 1 | 2 | 2 | 3 | 2 | | | 9 |
| | | Fish | | | | | 1 | 1 | 1 | 2 | | | 5 |
| | | Insects | | | | | 2 | 1 | 2 | | | | 5 |
| | | Microfauna | | 2 | 2 | 1 | 2 | 2 | 1 | | 2 | | 12 |
| | | Endangered species | | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | | 7 |
| Barriers | | | | | | | | | | | | | |
| C. Cultural & Social | Land use | Wilderness and open | 1 | | | 2 | 2 | 4 | | | | 9 | |
| | | | 1 | | | 1 | 1 | 2 | | | | 5 | |

| Proposed Action | | Resources | Action | | | | | | | | | Total | | |
|----------------------|----------------------------|-------------------------------|--|-------------------------|---------------------------|------------------------------------|-------------------|----------------------------|--------------------------------|--|--|-------------------------------|----|----|
| | | | Pre-Construction | Construction | | | | | | | Operation | | | |
| | | | Feasibility studies, Land survey & acquisition | Hoima Sub-station works | Kinyara sub-station works | Works & Activities at Labour camps | Access road works | Excavation for tower spots | Clearing for the ROW & wayleaf | Transportation & delivery of raw materials | Construction of towers & stringing of conductors | Substation & Line maintenance | | |
| Economic Environment | | spaces | | | | | | | | | | | | |
| | | Wetlands | | | | | 3 | | | | | | 3 | |
| | | Forestry | | | | | 2 | 2 | 3 | | 2 | | 10 | |
| | | Grazing | | | 5 | | 3 | 2 | 2 | 3 | | 2 | 8 | |
| | | Agriculture | 2 | | 4 | | 2 | 2 | 1 | 2 | 2 | 1 | 18 | |
| | | Residential | 4 | 2 | | | 6 | 4 | 3 | 7 | | | 18 | |
| | | Commercial | | 2 | | | 3 | 2 | | 7 | | | 13 | |
| | | Industrial | | | | | | | | 4 | | | 4 | |
| | | Mining and quarrying | | | | | | | | 4 | | | 4 | |
| | | Recreation | | | | | | | | | | | | |
| | | Hunting | | | | | | | | | | | | |
| | | Fishing | | | | | | | | | | | | |
| | | Aesthetics and human interest | | 2 | | | 2 | 2 | 4 | 4 | 2 | 4 | | 18 |
| | | Scenic view and vistas | | 1 | | | | 2 | 3 | 3 | 2 | 2 | | 13 |
| | | Wilderness qualities | | | | | 2 | 1 | 2 | 3 | | | | 7 |
| | | Open space qualities | | | | | 1 | | 1 | 2 | | | | 4 |
| | | Landscape design | 3 | 1 | 2 | 1 | 2 | 1 | 2 | 3 | | 2 | | 14 |
| | | Unique physical features | | | | | | | | 2 | | 1 | | 7 |
| | | Parks and reserves | | | | | | | | | | | | |
| | | Monuments | | | | | | | | | | | | |
| | Rare and unique species or | | | | | | | | | | | | | |

| Proposed Action | | Resources | Action | | | | | | | | | | Total |
|-------------------------------------|------------------------------------|--|--|-------------------------|---------------------------|------------------------------------|-------------------|----------------------------|--------------------------------|--|--|-------------------------------|-------|
| | | | Pre-Construction | Construction | | | | | | | | Operation | |
| | | | Feasibility studies, Land survey & acquisition | Hoima Sub-station works | Kinyara sub-station works | Works & Activities at Labour camps | Access road works | Excavation for tower spots | Clearing for the ROW & wayleaf | Transportation & delivery of raw materials | Construction of towers & stringing of conductors | Substation & Line maintenance | |
| | Cultural status | ecosystems | | | | | | | | | | | |
| | | Historical or archaeological sites and objects | | | | | | | | | | | |
| | | Cultural patterns (life style) | 2 | | | | | | | | | | |
| | | Health and safety | 2 | | | | | | | | | | |
| | | Employment | +2 | +3 | +3 | +2 | +6 | +5 | +5 | +5 | +5 | +5 | +3 |
| | Man-made facilities and activities | Population density | 1 | 2 | 2 | 2 | 5 | 5 | 4 | 4 | 4 | 2 | |
| | | Structures | 6 | 2 | | | | | | | | | |
| | | Transportation network (movement, access) | 5 | 1 | 5 | | 7 | | | 6 | 6 | | |
| | | Utility networks | | | | | 4 | 5 | 3 | | 7 | | |
| | | Waste disposal sites | | | | | 3 | 3 | 4 | 2 | | 5 | |
| D. Ecological relationships such as | Salinization of water resources | | | | | 3 | 1 | | | | | | |
| | Eutrophication | | 2 | | | 3 | 2 | 2 | 2 | 1 | 3 | 3 | |
| | Disease-insect vectors | | 2 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | 2 | 3 | |
| | Food chains | | 2 | 1 | 2 | 3 | 2 | | 1 | | | | |
| | Salinization of surficial material | | 1 | 1 | | 4 | 2 | | | | | | |
| Total | | | 20 | 77 | 71 | 36 | 172 | 93 | 113 | 40 | 58 | 13 | |
| | | | 17 | 55 | 51 | 26 | 120 | 70 | 85 | 32 | 45 | 9 | |

8.2.8.2 Key explanations about the conclusion of the Leopold's matrix

Impact of Actions

According to the Hoima-Kinyara transmission line project, 10 key actions were identified as the most impacting aspects of the project. These include;

1. Feasibility studies, Land survey & acquisition
2. Hoima Sub-station works
3. Kinyara sub-station works
4. Works & Activities at Labour camps
5. Access road works
6. Excavation for tower spots
7. Clearing for the ROW & wayleaf
8. Transportation & delivery of raw materials
9. Construction of towers & stringing of conductors
10. Substation & Line maintenance

Among the 10 key actions identified under this project, Access road works will impact the environment most (172/120) followed by Clearing for the ROW & Wayleaf (113/85) and then Excavation for tower spots (93/70) as presented in **table 8.10** below. The impact of Hoima substation is slightly higher (77/55) than that of Kinyara (71/51) because the Hoima substation is located in the Municipality (land value is high) and will result into relocation of a structure which is not the case with that of Kinyara which already owned and offered by Kinayara Sugar Ltd to UETCL. Besides, the location of Hoima substation is adjustment a valley and concerns of soil erosion and sedimentation are anticipated compared to that of Kinyara that is located in flat savannah woodland.

Table 8.10 Total magnitude and importance of Impacts of the various actions anticipated in the Hoima-Kinyara project

| Pre-Construction | Action | | | | | | | | Operation |
|--|-------------------------|---------------------------|------------------------------------|-------------------|----------------------------|--------------------------------|--|--|-------------------------------|
| | Construction | | | | | | | | |
| Feasibility studies, Land survey & acquisition | Hoima Sub-station works | Kinyara sub-station works | Works & Activities at Labour camps | Access road works | Excavation for tower spots | Clearing for the ROW & wayleaf | Transportation & delivery of raw materials | Construction of towers & stringing of conductors | Substation & Line maintenance |
| 20 | 77 | 71 | 36 | 172 | 93 | 113 | 40 | 58 | 13 |
| 17 | 55 | 51 | 26 | 120 | 70 | 85 | 32 | 45 | 9 |

As noted from **Table 8.10** above, most of the key impacts will be incurred during construction phase and most of them will be irreversible. Generally, Substation and Line maintenance operations will have the least impacts although they will be continuous and long term.

Impact on resources

The matrix also reveals that the line will impact heavily on the **biological environment (flora)** and this is expected because the acquisition of the corridor will result into a land take of 3.88km² (obtained by multiplying the total length of the line (Approx 50 km) by the width (40metesr)). This impact will be increased by further acquisition of land for access roads, borrow pit areas and quarries. Such activities will result into substantial clearing of vegetation cover throughout the project area. However, biodiversity inventories along the proposed transmission corridor did not reveal any endangered plant species or species of high conservation value. The impact on **fauna** is low and this is attributed to the fact that the project area has been modified by farming activities (cultivation and grazing). The intensity of fauna in farm lands is expected to be low especially where protected areas are far from the project area and this was depicted by the biodiversity studies

The impact on **land use** is also moderate because the line route was re-aligned to avoid built up areas and Central Forest Reserves. Detailed studies on the ground indicate that the line may affect between 10-13 home steads, an impact that can be categorized as low compared to the normal impacts of transmission lines and displacement of homesteads/structures. The line will affect only 3 commercial houses (matrix score-4/4) along Hoima-Biseruka road and no structure of industrial nature (matrix score 0/0). The line may have some impact in scenic view and wilderness qualities but this is not expected to be pronounced since the wider segment of the impacted areas are farmlands (both gardens or cattle ranches).

All Central Forest Reserves under National Forestry Authority in the project areas have been avoided. In addition, consultation from Uganda Wild Life Authority (UWA) also reveals that no protected area (Wild Life Reserve) will be affected by the T-Line. The line crosses some wetlands (for about 600meters) but this impact can also be categorized as low. However, the impact on streams may be high if access road works are not managed cautiously. This could eventually affect the **water quality and other water recharge** concerns as indicated in the matrix. Since most of these streams occupy sensitive zones of between 50-120 meters, adjustment of tower spots will ultimately avoid such streams.

The impact of the transmission line on **transportation network** (matrix score 26/21) is a key concern because the corridor will intercept 7 major road crossings and other minor ones as presented in table.. below. Its therefor necessary that key precaution be undertaken at such road crossing to avoid accidents and impairing traffic activities.

9 SOCIAL AND ENVIRONMENTAL ACTION PLAN

9.2 OVERVIEW

This SEAP document therefore has the following objectives;

- To ensure compliance with HS&E requirements in accordance with the law.
- To document social and environmental concerns and put in appropriate mitigation and protection measures.
- To provide guidance to the Project Management Team (PMT) regarding procedures for protecting the environment and promoting worker's health and safety.
- To ensure social and environmental impacts are minimized during construction activities.
- To act as a training aid on social and HS&E issues during implementation of the project.
- To ensure all legislative requirements and international practices are adhered to.

The SEAP framework has been developed to respond to project activities anticipated during the construction period covering the following scope:

- Environmental and Social Management and Monitoring plan
- Environmental Mitigation Plan
- Traffic Management Plan (TMP);
- Waste Management Plan (WMP);
- Labour Force Management Plan (LFMP);
- Health and Safety Management Plan (HSMP);
- Pollutant Spill Contingency Plan (PSCP);
- Hazardous Materials Management Plan (IHMMMP);
- Environmental monitoring programme
- Chance Find Procedure
- Grievance Redress Mechanism
- Compliance with various permits and regulations
- Institutional arrangements for project implementation
- General environmental management conditions for construction contracts

9.3 ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN

9.3.6 General consideration

The Environment and Social management and monitoring plan proposed in table 9.1 specifies mitigation measures and monitoring actions with time frames, specific responsibilities assigned and follow-up actions defined in order to check progress and the resulting effects on the environment by the construction works of the project. Monitoring should begin right away and should continue through both the construction stage and through to the operation phase. One important aspect of monitoring should be to assess the effectiveness of the mitigation measures suggested, where they are found lacking, appropriate new actions to mitigate any adverse effects should be undertaken.

Implementations of these measures have to be carried out at different stages of project construction & operation phases. During the design stage the consultant should incorporate proposed mitigation measures in the design and tender documents. The contractual agreement should also include articles to enforce the environmental issues. Construction stage activities are mainly the responsibility of the contractor and that of the construction supervision consultant. The actual physical implementation works are carried out mostly at this stage. The execution of construction works for proposed Hoima-Kinyara transmission should also equally treat the implementation of the physical works of environmental mitigation measures.

Mitigation measures proposed for socio-economic issues like compensation to damaged properties, loss of land should be handled by the Chief Government Valuer. Environmental issues during the operation phase of the transmission line shall be handled by UETCL (the developer). The staff of the Environmental Unit at UETCL should acquire some specialized knowledge and skills in environmental monitoring activities for them to effectively assume the responsibility. The Health, Safety, Social and Environmental (HSSE) Compliance Monitoring and Enforcement checklist is presented in **Annex 14**.

Table 9.1: Environmental Management Plan

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|---|--|--|-------------------|---|--|
| SECTION 1: EMP FOR THE TRANSMISSION LINE IMPACTS | | | | | |
| BIO-PHYSICAL ENVIRONMENT | | | | | |
| PRE-CONSTRUCTION/CONSTRUCTION PHASE | | | | | |
| Loss of crops within transmission corridor | <p>Farmers should be notified about the start of the project at least 6 months in advance so that cultivated crops are harvested</p> <p>Movement of equipment (vehicles, contractors and the entire construction crew) must follow designated pathways or agreed upon access roads</p> <p>All affected villages and parishes need to establish committees at village and parish levels to work along with the government Valuers and assess the magnitude of damage during the preparation of RAP and during construction.</p> <p>UETCL must compensate appropriately all farmers for crops destroyed by the contractor during construction regardless of proximity to the power line.</p> <p>The RCDAP implementation and outcomes will be monitored and evaluated as part of a transparent</p> | <p>Number of sensitization workshops/meetings conducted per village.</p> <p>Level of media involvement</p> <p>Level and number of stakeholder involvement from the village level up to district level</p> <p>Presence of evaluation and dispute management committees from village level to district level</p> <p>Evidence of valuation of crops</p> <p>Evidence of a thorough RAP</p> <p>Evidence of reasonable compensation of the affected people</p> | USD 50,000 | <p>District Environment Officers</p> <p>District Agricultural Officers</p> <p>Local Council leaders</p> <p>Crop owners/PAP</p> <p>UETCL</p> <p>Sub-county Chiefs</p> <p>Councillors</p> | 6 months before commencing the project and then Continuous until the power line is commissioned. |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|--|--|--|--------------------------|---|---|
| | <p>process</p> <p>UETCL to consider revaluing all affected plants/crops due to the time lag since valuation was last done.</p> <p>Where PAPs are not satisfied with their entitlements especially due to under valuation and other related issues, the valuation exercise should be re-done.</p> <p>All PAPs should be given an opportunity to own and study the valuation forms before their entitlements are paid.</p> | <p>Magnitude of conflicts and disputes arising</p> <p>Absence of intimidation by UETCL and contractor to the affected people</p> | | | |
| <p>Spot alteration of agricultural land use, grassland and wetlands by Tower sports</p> | <p>Depending on the topography and obstacles beneath the line, the tower sites should be as far as the maximum span length</p> <p>Tower shifting should be used to minimize adverse impacts of the tower sites</p> <p>Accessing of tower sites and stringing of lines should be done with due care to avoid damage to fruit trees, crops and nearby homesteads</p> <p>All lost or damaged crops or properties at tower sites must be compensated for in accordance with the land law and the World Bank Safeguard Policies</p> | <p>Attitudes of the local population towards the contractor and staff</p> <p>Movement patterns of the upgrading team</p> <p>Number of complaints brought up against the contractor on destruction of crops, trees</p> <p>Contractors' relationship with the district and local leaders</p> <p>Absence of intimidation by UETCL and contractor to the affected people</p> | <p>USD 50,000</p> | <p>District Environment Officers</p> <p>District Natural Resource officers</p> <p>Sub-county and Local environmental committees</p> <p>Community Development Officers</p> <p>UETCL</p> <p>Local Council</p> | <p>Continuous until the power line is commissioned.</p> |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|---|--|---|-------------------------------|--|---|
| | | | | Leaders Sub-county chiefs | |
| Loss of Land to the power line in the corridor | <p>UETCL must work with local council committees, sub-county committees, district land boards, CAOs, RDCs, and Town Councils, Politicians and other local leaders to sensitize all people to be affected on the intentions of land acquisition by UETCL</p> <p>UETCL must conduct a thorough Resettlement Action Plan (RAP) in accordance with World Bank Group and its Safeguard Policies</p> <p>UETCL to consider revaluing all affected land due to the time lag since valuation was last done.</p> <p>Where PAPs are not satisfied with their entitlements especially due to under valuation and other related issues, the valuation exercise should be re-done.</p> <p>All PAPs should be given an opportunity to own and study the valuation forms before their entitlements are paid.</p> | <p>Number of sensitization workshops conducted per village</p> <p>Level of media involvement</p> <p>Level and number of stakeholder involvement from the village level up to district level</p> <p>Presence of evaluation and dispute management committees from village level to district level</p> <p>Evidence of land surveying and valuation by Registered and Certified Land Surveyors and Valuers</p> <p>Evidence of a detailed RAP</p> <p>Evidence of reasonable compensation of the affected people</p> <p>Magnitude of conflicts</p> | Detailed in RAP report | <p>CAOs</p> <p>Town Clerks</p> <p>District, Town Planners</p> <p>District, and Town Engineers</p> <p>District, and Town Land Boards</p> <p>District Environment Officer</p> <p>Land Officers</p> <p>LC5 Chairmen</p> <p>Councillors</p> <p>RDCs</p> <p>UETCL</p> <p>ERA</p> <p>Land Owners</p> | 6 months before commencing the project and then Continuous until the commissioning of the power line. |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|---|--|--|-------------------------------|---|------------|
| | | and disputes arising Absence of intimidation by UETCL and contractor to the affected people | | Local Council Leaders | |
| Displacement of built up structures (homes, Kiosks, commercial buildings, latrines) in the Right of Way and Wayleave | <p>UETCL must work with local council committees, sub-county committees, Councilors, district land boards, CAOs, RDCs, Politicians and other local leaders to sensitize all people to be affected on the intentions of land acquisition</p> <p>UETCL must conduct a detailed Resettlement Action Plan (RAP) in accordance with World Bank Group and its Safeguard Policies</p> <p>All sorts of compensation and settlements must be done at least 6 months before structures are demolished.</p> <p>UETCL to consider revaluing all affected properties especially all structures due to the time lag since valuation was last done.</p> <p>Where PAPs are not satisfied with their entitlements especially due to under valuation and other related issues, the valuation exercise should be re-done.</p> <p>All PAPs should be given an opportunity to own and study the</p> | <p>Number of sensitization workshops conducted per village</p> <p>Level of media involvement</p> <p>Level and number of stakeholder involvement from the village level up to district level</p> <p>Presence of evaluation and dispute management committees from village level to district level</p> <p>Evidence of land surveying and valuation by Registered and Certified Land Surveyors, Quantitative Surveyors and Valuers</p> <p>Evidence of a detailed RAP</p> <p>Evidence of reasonable compensation of the affected people 6 months</p> | Detailed in RAP report | <p>Structural and Land Owners</p> <p>CAOs</p> <p>Town Clerks</p> <p>District, and Town Planners</p> <p>District, and Town Engineers</p> <p>District and Town Land Boards</p> <p>Land Officers</p> <p>LC5 Chairmen</p> <p>RDCs</p> <p>Government Valuers</p> <p>UETCL</p> <p>ERA</p> | |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|---|---|--|-------------------|---|--|
| | valuation forms before their entitlements are paid. | to project implementation Magnitude of conflicts and disputes arising during and before project implementation Absence of intimidation by UETCL and contractor to the affected people | | Local Council Leaders | |
| Loss of vegetation and animal habitats by vehicle traffic, clearing of Wayleaves and access roads. | <p>Movement of equipment (vehicles, contractors and the entire construction crew) must follow designated path ways or agreed upon access roads.</p> <p>Adjust tower intervals to avoid ecologically sensitive areas such as breeding sites for water fowls, water sources, nesting sites for birds and areas of strong cultural significance to the local people. This includes all wetlands crossed by the power line.</p> <p>UETCL shall contribute towards local environmental programs. UETCL shall remit funds towards district and sub-county afforestation projects to compensate for biomass lost during Wayleave clearing.</p> <p>The contractor shall be prohibited from hunting any fauna including chimpanzees in the project area and will work with NFA and UWA to ensure</p> | <p>Number of access roads constructed and mitigation measures undertaken.</p> <p>Attitude of the local people towards the contractor and UETCL.</p> <p>Number of ecologically sensitive sites spared.</p> <p>Movement pattern of the contractor.</p> <p>Magnitude of vegetation cleared.</p> <p>Evidence that UETCL supports afforestation programs in affected sub-counties and that money was received by project implementers</p> <p>Number of trees planted by implementing agencies</p> | USD 30,000 | <p>UETCL</p> <p>UWA</p> <p>NFA</p> <p>Kinyara Sugar Works Ltd</p> <p>District Environment Officers</p> <p>District Natural Resource Officers</p> <p>Local Environment Committees</p> <p>Local Council Leaders</p> | Throughout the construction phase and Continuous for some time after commissioning of the power line |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|--|---|--|----------------------|---|---|
| | <p>all vulnerable and non-vulnerable fauna encountered along the transmission corridor are reported, rescued, cared for and or protected from deaths or hunting by the contractor and the community. UETCL safeguard unit supervise and enforce compliance by the contractors based on lesson and good practices from the ESDP project.</p> | <p>Level of involvement of UETCL in tree planting project</p> <p>Presence of a good working relationship between UETCL and the local administrations in affected areas.</p> | | | |
| <p>Earth works and concrete residues due to tower foundations</p> | <p>Works across wetland areas could be undertaken with effort to ensure minimal siltation and transportation of loose soil materials</p> <p>On some section across wetlands, the contractor may place gabions and stone boulders to check erosion of loose soil materials.</p> <p>Proper storm water drainage facilities (culverts) have to be designed at the various areas along the route to prevent any erosion that may contribute to the increase of suspended solids.</p> <p>Disposal of cut to spoil will be done under the direction of the Resident Engineer and District Environment officer who will approve disposal sites.</p> <p>Dumping of cut to spoil along the road reserves and streams should be prohibited.</p> | <p>Absence or presence of construction waste (soil heaps, sand, stones, gravel) at the tower bases</p> <p>Presence of designated disposal sites for cut to spoil</p> <p>Level of involvement of District Environment Officer and District Engineer in the management of construction waste.</p> <p>Evidence of NEMA approval for such disposal sites</p> | <p>25,000</p> | <p>UETCL</p> <p>The Contractor</p> <p>District Environment Officers</p> <p>District Engineer</p> <p>Local Environment Committee</p> <p>LC Leaders</p> | <p>Continuous until the commissioning of the power line</p> |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|--|---|--|----------------------|---|--|
| | <p>There will be bench terracing on the hill slopes to check issues of soil erosion and unstable slopes.</p> <p>Inert debris such as concrete, brick, concrete block, uncontaminated soil, rock, sand and gravel should be recycled and reused as clean fill material.</p> <p>Upon completion of a tower, the tower base should be cleared of all construction waste (soil, sand, concrete, stones, gravel and others) and either reused in other towers or used as fill materials in roads or disposed in appropriate places with guidance from the District Environment Officers of Hoima and Masindi.</p> <p>NEMA to clear waste disposal sites through a separate EIA or Project Brief.</p> | | | | |
| <p>Generation of solid waste during demolition of built up structures, Construction camp residues and construction waste.</p> | <p>All sorts of waste regenerated during construction such as conductors, steel and tower members (metallic bars), insulators and other accessories associated with transmission lines shall be collected and handed over to the contractor for proper recycling or disposal. Such waste must not be thrown in the power line corridors.</p> <p>All organic waste generated at labour campsites such as food stuffs shall be collected and transported by the</p> | <p>Presence of a power line corridor that is devoid of wires, conductors, oils and sorts of electricity transmission waste</p> <p>Presence of waste bins at campsites</p> <p>Presence of mobile toilets at camps sites</p> <p>Absence of waste</p> | <p>30,000</p> | <p>UETCL</p> <p>District Environment Officer</p> <p>The Contractor</p> <p>Local Council Leaders</p> | <p>Throughout the construction period and slightly after commissioning of the power line</p> |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|--|---|---|-----------------|------------------------------|--|
| | <p>contractor to designated District and town council landfills within the affected areas.</p> <p>All plastic waste regenerated at campsites and in the course of work such as mineral water bottles, polyethene bags, jerricans, cups shall be collected in mobile vans and sold either to the local people for re-using or taken for recycling in respective factories.</p> <p>Human excreta shall be managed using a mobile toilet.</p> <p>All waste generated from demolition of built up structures shall be sorted by the contractor and either sold or given to the locals depending on their resell values. Such waste may include iron sheets, timber, poles, nails, doors, windows, tiles, bricks, firewood and others.</p> <p>Concrete foundations shall be demolished and all concrete and aggregate waste shall be collected and disposed in designated areas in consultation with District and town planners.</p> | <p>abandoned at campsites.</p> <p>Level of involvement of district authorities and town councils during demolition of structures</p> <p>Presence of well restored sites after demolition of structures.</p> | | | |
| Disturbance and degeneration of wetland | To minimise disturbance on the wetlands ecosystems such as Twanga and Bineneza streams, increase spacing between towers so as to avoid | <p>Number of towers within the wetlands.</p> <p>Number of access roads</p> | 25,000 | District Environment Officer | Throughout the construction period of the power line |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|---|---|--|-----------------|--|--|
| ecosystems | <p>erecting towers in wetlands. Maximum spanning of towers within the wetland should be done to avoid sensitive areas and surface waters.</p> <p>Use low ground-pressure construction equipment during construction.</p> <p>Try to avoid establishing towers in the smaller wetlands. These can be skipped by adjusting tower intervals respectively.</p> <p>Fine tuning of tower locations will be done in consultation with local communities and WID, so that specific effects of these locations, will be minimized</p> | <p>and pattern of movement within wetlands.</p> <p>Level of involvement of local leaders.</p> <p>Presence of Wetland permits from Wetlands Department.</p> | | <p>District Natural Resource Officers.</p> <p>UETCL Local Environment Committees Local Council Leaders</p> | |
| Material sources for tower foundations | <p>Contractor and subcontractor to secure lease consent from land lords for borrow areas and have a project Brief prepared and approved by NEMA before onset of activities.</p> <p>Access routes to be surveyed for any hidden resources such as graves, shrines.</p> <p>Keep stock pile and cut to spoil materials in the vicinity of the borrow pits. Then use such materials for eventual restoration</p> <p>Landscaping and evening up of cliffs and borrow areas to be done on decommissioning of works</p> | <p>Presence or absence of conflicts/complaints between the land lords and the contractor or subcontractor.</p> <p>Presence of a decommissioning plan.</p> <p>Presence of a Project Brief approved by NEMA</p> <p>Nature and appearance of borrow areas after line construction</p> | 100,000 | <p>UETCL</p> <p>District Environment Officer The Contractor</p> <p>Local Council Leaders</p> | Throughout the construction period of the power line |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|---|---|---|-----------------|---|---|
| | Contractor to prepare a detailed decommissioning planning indicating how restoration of borrow areas will be done. | | | | |
| OPERATION PHASE | | | | | |
| Health hazards associated with Electric and Magnetic Fields (EMF) from the conductors. | <p>Although research has not been able to establish a cause and effect relationship between exposure to magnetic fields and human disease, nor a believable biological mechanism by which exposure to EMF could cause disease, Exposure of EMF should be avoided. UETCL must ensure that no settlements are constructed under the power line.</p> <p>All settlements under the power line must be demolished and owners compensated reasonably.</p> <p>People must be sensitized of possible dangers from EMF and consequently evicted from the power line corridors occasionally.</p> <p>The entire corridor should be marked using permanent marks such as concrete pillars used by Uganda National Roads Authority to mark the road reserve.</p> | <p>Level of awareness about the effect of EMF by the people living in the vicinity of the power line.</p> <p>Absence of structures under the power line.</p> <p>Absence of structures in the Wayleaves.</p> <p>Presence of permanent marks for the entire transmission corridor</p> | 250,000 | <p>UETCL District Environment Officer</p> <p>Town and District Planners</p> <p>District, , and Town Land Boards</p> | Continuous |
| Impact on aquatic habitats and associated | Always perform regular maintenance in wetlands during the dry season. Favour use of floating devices and manual | Concerns from the community | 100,000 | <p>UETCL</p> <p>Local NGOs</p> | Quarterly thought the life of the transmission line |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|-----------------------------------|--|--|-----------------|---|--|
| fauna and flora | <p>maintenance.</p> <p>Undertake selective cutting of the vegetation in order to maintain low scrubby and herbaceous species that do not represent a risk for the power line (species that cannot grow more than 4m in height, including papyrus).</p> <p>Wayleave maintenance programs should avoid destabilizing wetlands and or sediments. Spillage of waste or cut to spoil into wetlands should be avoided.</p> <p>Forbid use of chemical pesticides to control vegetation in the ROW;</p> <p>Undertake monitoring of natural resources exploitation and implement a sensitization program in order to educate and increase local communities' awareness on natural resources protection.</p> | <p>Water quality in wetlands especially in areas where maintenance activities are on-going</p> <p>Presence of earth materials in wetlands</p> <p>Methods used to suppress weeds in ROW and wayleves</p> <p>Evidence that environmental sensitization and education programmes are undertaken to educate the masses on environmental protection</p> | | District Local Governments of Hoima & Masindi | |
| Impact on birds | <p>Implement a bird mortality monitoring programme.</p> <p>Contractor shall be tasked to install bird reflectors prior to and after angle point HK305 for about 10km that are close to Budongo Forest Reserve section.</p> | <p>Extent of bird mortality along the transmission line as evidenced from bird monitoring studies.</p> <p>Presence of bird reflectors</p> | 100,000 | UETCL Contractor | <p>During construction and</p> <p>Bi annually throughout the life of the transmission line</p> |
| SOCIO-ECONOMIC ENVIRONMENT | | | | | |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|--|---|---|--------------------------------------|--|---|
| PRE-CONSTRUCTION/CONSTRUCTION PHASE | | | | | |
| <p>Psychological impacts such as stress, trauma, shock and fear associated with displacement and resettlement</p> | <p>Using several avenues including local and national media such as radio stations, TVs and sensitization workshops, all affected people's fears need to be addressed prior to compensation and resettlement.</p> <p>The intentions of land acquisition and demolition of structures should be purposed for the construction of 220KV power line from Hoima to Kinyara. This must be the ultimate reason and must be adhered to by the contractor and UETCL.</p> <p>All people with property in the vicinity of power line must be sensitized on the routing side that will be taken over by the steel towers.</p> <p>UETCL needs to inform the public that Resettlement and compensation of Project-Affected People will be carried out in compliance with Ugandan legislation and WB OP 4.12.</p> <p>UETCL needs to oversee all the actions involved in the RCDAP and ensure that thorough RCDAP is conducted to help restore peoples' confidence in the whole exercise.</p> <p>Give the local community first priority</p> | <p>Level of awareness depicted by the local people in regard to the project.</p> <p>Extent of curiosity expressed by the locals and the affected people. Significant evidence that the intentions of UETCL are not well understood.</p> <p>Presence of intimidation</p> <p>Level of involvement of politicians in sensitization</p> <p>Proper understanding of the routing order by the affected authorities</p> <p>Willingness to talk about and criticize the project by the affected people.</p> <p>Number of conflicts and disputes from the affected people on the project</p> <p>Number of local people employed by the contractor.</p> | <p>Detailed in RAP report</p> | <p>UETCL LC5 Chairmen District Environment Officers Community Development Officers Councilors Local Council Leaders RDCs</p> | <p>Continuous until the commissioning of the power line and for some time after commissioning</p> |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|---|--|--|---|---|---|
| | while recruiting casual labourers. | | | | |
| Exploitation of workers by the contractor | All staff need to be procured under a well-recognized contract. All contract workers must be paid as per the contract. All casual laborers must receive a fair days pay for a fair days work done. All workers must be paid promptly and correctly. | Absence of conflicts along the sites and the corridor Absence of conflicts between the contractor and the district authorities | 100,000 | District Labour Officers District Environment Officers Community Development Officers | Throughout the construction period and Continuous until commissioning of the power line |
| Physical cultural property | Relocate structures such as shrines and graves in accordance with the local norms. For sites that are buried in the ground, implement a chance find procedure presented chapter 9. | Evidence that all physical cultural resources were relocated. Concerns and issues arising from the community on physical cultural resources. Level of implementation of the chance find procedure. | 20,000 and additionally as detailed in the RAP | UETCL Contractor Supervising consultant | Throughout the pre & construction period and Continuous until commissioning of the power line |
| Power outages due to interference with local grid | UETCL to collaborate with power operators (UMEME) in the affected areas and inform consumers of planned power outages Avoid accidental outages by procuring experienced & competent contractors. | Concerns from the community and local leaders on power outages. Extent of damage caused due to accidental power outages. | 20,000 | UETCL Contractor Supervising consultant | Throughout the construction period of the power line |
| Interference with traffic and diminished road safety | Stringing across roads or highways should be conducted in hours or days with less traffic preferably at night or weekends. | Extent of impact on traffic Evidence that police is always informed while | 15,000 | UETCL Contractor | Throughout the construction period of the power line |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|-------------------------------------|--|--|-----------------------------------|--|---|
| | <p>Install appropriate signage's on the roads</p> <p>Notify and work with police while stringing across roads.</p> | <p>stringing across roads.</p> <p>Methods used to alert road users while stringing across roads and high ways.</p> | | Supervising consultant | |
| Impact on water sources | <p>In situations where interference with public water sources is inevitable, the contractor should endeavour to construct alternative water sources.</p> <p>Avoid erecting towers in fragile ecosystems such as wetlands or streams.</p> | <p>Concerns from the community on water quality.</p> <p>Absence of towers in fragile ecosystems such as streams.</p> | 30,000 | <p>UETCL</p> <p>Contractor</p> <p>Supervising consultant</p> | Quarterly throughout the construction period of the power line. |
| Noise, air and water quality | <p>Water will be regularly sprinkled at the site using bowers and haulage trucks will be covered with canvas to minimise dust emissions.</p> <p>The contractor shall ensure all vehicles and construction machinery are properly operated, driven at controlled speeds and maintained to minimise exhaust emissions and dusts.</p> <p>Noise from hauling trucks and construction equipment will be mitigated by ensuring that all vehicles and construction material are well serviced and maintained.</p> | <p>Concerns from the community on dust and noise.</p> | 20,000 | <p>UETCL</p> <p>Contractor</p> <p>Supervising consultant</p> | Quarterly throughout the construction period of the power line. |
| Misuse of cash compensation | <p>Sensitize PAPs on wise use of money.</p> <p>RAP implementation consultant to take care and guide all vulnerable groups.</p> | <p>Social economic status of PAPs after compensation.</p> | Detailed in the RAP report | <p>UETCL</p> <p>RAP implementation</p> | Continuous throughout pre & construction phases of project |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|---|--|--|-----------------|--|--|
| | There should be a procedure to generally guide and monitor how compensation money is spent as part of the RAP internal and external monitoring. | Concerns and or testimonies from other people especially other household members or close friends and leaders Evidence on how compensation money was spent | | consultant. Sub county leadership Local leadership | implementation. Continuous for at least 2 years after project completion. |
| Immigration into villages where construction camps are located | Implement and main stream health, STD and HIV/AIDS as part of the awareness/training for the workforce. Contractor should ensure that the workplace has adequate access to medical facilities. Sensitization of the local community should be carried out to manage community expectations of the project. The contractor should ensure preferential treatment is given to the local communities at the time of employment in order to combat conflicts/tensions in the project area. The contractor will provide workers with protective gears/wears during construction work to prevent injury and where necessary to avoid contracting germs and or diseases. Workers and the community to be sensitized on protective behaviour and | Presence of medical facilities at workers camps. Level of sensitization undertaken to alert the workers and community or health related issues. Quantity and quality of PPE provided by the contractor. Presence of a first aid kit with appropriate equipment and drugs. Contractors human resource policy on alcohol & safety. Level of HIV/AIDS awareness campaign undertaken by the contractor. | 50,000 | UETCL Contractor Supervising consultant Sub-county leadership | Continuous throughout pre & construction phases of project implementation. |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|-----------------------------------|---|--|-----------------|-----------------------------|--|
| | <p>practices during work by distributing appropriate education materials to workers and the surrounding community.</p> <p>The developer will establish a first aid facility at the construction site to treat injury cases whenever they occur.</p> <p>High risk groups such as the youths especially students should be continuously sensitized on the dangers of casual sex, consequences of early marriages, teenage pregnancy and monitored to ensure that such groups are not at risk of falling victims.</p> <p>Provide surveillance and active screening and treatment of workers and the community where a communicable disease is discovered.</p> <p>Excessive alcohol abuse should be discouraged as a contractors policy among power line construction workers</p> <p>Employ services of an independent NGO engaged in HIV/AIDS activities to sensitize the workers and the community.</p> | <p>Nature of conflicts or concerns from the community on the contractor and staff.</p> <p>Concerns from the contractors staff</p> <p>Attitude of the community especially leaders towards the contractor.</p> <p>Presence of safe and adequate accommodation facilities for both males and females workers.</p> <p>Complaints from female workers.</p> <p>Level of interaction between the contractors staff and the community</p> | | | |
| Fire risk at work stations | <p>Ensure camps have adequate fire fighting capability</p> <p>Workers should be sensitized on fire sources, possible causes and</p> | <p>Presence of fire fighting equipment at camps sites and work stations.</p> <p>Evidence that all workers</p> | 20,000 | UETCL Contractor | Continuous until commissioning of the power line |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|---------------------------------------|---|---|-----------------|---|--|
| | <p>prevention</p> <p>Workers should be knowledgeable about use of firefighting equipment and aware of various colour coding on fire extinguishers.</p> <p>Ensure all camps have at least a 10 meter strip of bare ground to act as a fire barrier.</p> <p>Store and manage all hydro carbons in NEMA gazetted centres with clear instructions on how such fuels should be handled.</p> <p>Smoking should only be allowed in designated low-risk areas. No smoking must be allowed near fuel storage areas.</p> <p>The camps must have part of the site designated as a fire evacuation/assembly area.</p> | <p>are trained and or sensitized in fire management</p> <p>Nature and proximity of camps to flammable substances.</p> <p>Risks associated with handling and storage of fuels</p> <p>Type of fire and emergency response plan in place</p> | | | |
| Occupational health and safety | | | | | |
| Child labour | All children below 18 years should not be involved as workers either directly or indirectly at all levels during the construction of 220KV Hoima-Kinyara transmission line. | Number of children involved in activities related to the construction of this 220KV power line | 10,000 | District Labour Officers District Environment Officers Community Development Officers | Continuous until the commissioning of the power line |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|-------------------------------|--|--|-----------------|--|--|
| Sanitation | <p>Sanitary facilities should be well equipped with supplies (e.g., protective creams) and employees should be encouraged to wash frequently, particularly those exposed to dust, chemicals or pathogens.</p> <p>All employees should be provided with suitable PPE, emergency eyewash and shower stations, ventilation systems, sanitary facilities for both sexes, pre-employment and scheduled periodic medical examinations</p> <p>Periodic monitoring of workplace air contaminants relative to worker tasks and plant operations is required.</p> <p>Workplace air quality monitoring equipment should be well maintained</p> <p>Facilities must include locker rooms, an adequate number of toilets with washbasins, and a room dedicated for eating. Water supplied to areas of food preparation or for the purpose of personal hygiene must meet drinking water quality standards.</p> <p>Pre-employment and periodic medical examinations should be conducted for all personnel, and specific surveillance programs instituted for personnel potentially exposed to toxic or radioactive substances.</p> | <p>Presences of wash rooms for workers.</p> <p>Presence of adequate water for all the workers</p> <p>Presence of adequate safe drinking water</p> <p>Presence of Monthly medical records for all workers.</p> <p>Presence of protective equipment for workers exposed to hazards.</p> <p>Presence of proper toilets (Mobile) and VIP Latrines at various labour camps for both sexes.</p> <p>Presence of adequate cleaning detergents.</p> <p>Presence of a medical doctor on the team of workers.</p> | 30,000 | <p>District Health Officer EPC Contractor UETCL</p> <p>District Environment Officer</p> <p>Labour Officer</p> <p>Community Development Officer</p> | Continuous until the commissioning of the power line |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|-------------------------------|--|---|-----------------|--|---|
| | <p>All employees should be provided with suitable PPE, emergency eyewash and shower stations, ventilation systems, sanitary facilities, pre-employment and scheduled periodic medical examinations.</p> <p>When extraordinary protective measures are required, the employer shall provide appropriate and relevant health surveillance to workers prior to first exposure and at regular intervals thereafter</p> <p>Shield guards or guard railings should be installed at all belts, pulleys, gears and other moving parts.</p> | | | | |
| Medical examinations | <p>Pre-employment and periodic medical examinations should be conducted for all personnel, and specific surveillance programs instituted for personnel potentially exposed to toxic or radioactive substances.</p> <p>All employees should be provided with suitable PPE, emergency eyewash and shower stations, ventilation systems, sanitary facilities, pre-employment and scheduled periodic medical examinations.</p> <p>When extraordinary protective measures are required, the employer shall provide appropriate and relevant</p> | <p>Evidence of medical examination of all workers prior to recruitment.</p> <p>Availability and usage of PPE by all workers.</p> <p>Presence of monthly health inspection records of all workers.</p> <p>Evidence of adequate medical care for vulnerable and sick workers.</p> | 20,000 | <p>District Health Officer</p> <p>EPC Contractor</p> <p>UETCL</p> <p>District Labour Officer</p> <p>District Environment Officer</p> | Monthly until the commissioning of the power line |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|--|---|---|-----------------|--|---|
| | health surveillance to workers prior to first exposure and at regular intervals thereafter | | | | |
| Prevention of mechanical injuries | <p>Shield guards or guard railings should be installed at all belts, pulleys, gears and other moving parts.</p> <p>Floors should be level, even and non-skid. Heavy oscillating, rotating or alternating equipment should be located in dedicated buildings or structurally isolated sections. Appropriate shields, guards or railings must be installed and maintained to eliminate human contact with moving parts or hot and cold items.</p> | <p>Presence of safety guards on all moving objects.</p> <p>Presence of Insulators on all hot points</p> <p>Availability and usage of adequate PPE by all staff.</p> | 25,000 | <p>EPC Contractor</p> <p>District and Town Council Engineers.</p> <p>UETCL</p> | Continuous until the commissioning of the power line and throughout maintenance process |
| Climbing towers | <p>Employees involved in climbing towers must be provided with non-slip footwear, gloves, helmets, face protection, leggings and other necessary protective equipment</p> <p>Hand, knee and foot railings must be installed on stairs, fixed ladders, platforms, permanent and interim floor openings, loading bays, ramps etc. Openings must be sealed by gates or removable chains</p> <p>Covers if feasible shall be installed to protect against falling items.</p> | <p>Availability and usage of adequate PPE by all staff.</p> <p>Presence of Hand, knee and foot railings on stairs, fixed ladders, platforms and others.</p> | 30,000 | <p>District Labour officer.</p> <p>EPC Contractor</p> <p>District and Town Council Engineers.</p> <p>UETCL</p> | Continuous until the commissioning of the power line and during maintenance |
| Prevention of falling Injuries | Elevated platforms and walkways, and stairways and ramps should be equipped with handrails, toe boards and non-slip surfaces. | <p>Availability and usage of adequate PPE by all staff.</p> <p>Presence of Hand, knee</p> | 20,000 | <p>District Labour officer.</p> <p>EPC Contractor</p> <p>District and</p> | Continuous until the commissioning of the power line |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|-------------------------------|--|--|-----------------|--|--|
| | <p>Hand, knee and foot railings must be installed on stairs, fixed ladders, platforms, permanent and interim floor openings, loading bays, ramps etc. Openings must be sealed by gates or removable chains</p> <p>Covers if feasible shall be installed to protect against falling items</p> | and foot railings on stairs, fixed ladders, platforms and others | | Town Council Engineers. UETCL | |
| Site Drinking Water | Water supplied to areas of food preparation or for the purpose of personal hygiene must meet drinking water quality standards. | <p>Availability of safe drinking water.</p> <p>Presence of certified water tests that indicate water is fit for human consumption.</p> | 20,000 | EPC contractor. Labour officer District and Town Council Health Officers Environment Officers | Weekly until the commissioning of the power line |
| Safety program | <p>A safety program should be established for construction and maintenance work</p> <p>All employees should be provided with suitable PPE, emergency eyewash and shower stations, ventilation systems, sanitary facilities, pre-employment and</p> | <p>Evidence that all workers underwent a thorough approach to safety management and training.</p> <p>Evidence and presence</p> | 15,000 | District & Town Council Engineers. EPC contractor UETCL Labour Officers. RDCs | Continuous until the commissioning of the power line |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|---|--|---|-----------------|--|---|
| | <p>scheduled periodic medical examinations.</p> <p>Periodic monitoring of workplace air contaminants relative to worker tasks and plant operations is required. Workplace air quality monitoring equipment should be well maintained</p> <p>The employer is responsible for planning, implementing and monitoring programs and systems required to ensure OHS on its premises.</p> | <p>of well implemented and followed up safety measures at all machine centres.</p> <p>Evidence of a proper program on safety and precautions set.</p> | | <p>Chief Administrative Officers District Environment Officers</p> | |
| Protection from dust and hazardous materials | <p>Personnel should use special footwear, masks and clothing for work in areas with high dust levels or contaminated with hazardous materials</p> <p>Precautions must be taken to keep the risk of exposure as low as possible. Work processes, engineering and administrative control measures must be designed, maintained and operated to avoid or minimize the release of hazardous substances to the working environment</p> <p>The employer must ensure adequate and competent supervision of the work, work practices and the appropriate use of PPE.</p> <p>All waste to be removed by the contractor before decommissioning</p> | <p>Availability and usage of PPE by all workers under exposure to dust and hazardous materials.</p> <p>Evidence of complaints from workers.</p> | 20,000 | <p>District & Town Council Engineers. District Environment Officers UETCL EPC Contractor</p> | <p>Continuous until the commissioning of the power line</p> |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|--|---|--|----------------------|---------------------------------|---|
| <p>Handling, storage and labelling of hazardous materials</p> | <p>All ignitable, reactive, flammable, radioactive, corrosive and toxic materials must be stored in clearly labelled containers or vessels</p> <p>All hazardous (reactive, flammable, radioactive, corrosive and toxic) materials must be stored in clearly labelled containers or vessels</p> <p>Hazardous materials must be packaged in a manner that keeps them from interacting with each other or with the environment or from being tampered with, either purposefully or otherwise. Packaging labels must comply with standards acceptable. Unless otherwise specified by national regulations, it should contain the corresponding UN number preceded by the letter "UN" on each package.</p> <p>All chemicals and hazardous materials present are labelled and marked according to national and internationally recognized requirements and standards</p> <p>International Chemical Safety Cards (ICSC), or Material Safety Data Sheets (MSDS) or equivalent data/information in an easily understood language must be readily available to exposed workers and first aid personnel. The employer must ensure adequate and competent supervision of the work, work practices</p> | <p>Presence of a hazardous material management store</p> <p>Presence of complaints or accidents from staff.</p> <p>Presence of a hazardous material management specialist.</p> | <p>30,000</p> | <p>UETCL EPC Contractor</p> | <p>Continuous until the commissioning of the power line</p> |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|--|--|---|-----------------|--|--|
| | and the appropriate use of PPE. | | | | |
| HIV/AIDS Prevention and public health concerns due In-migration into villages where construction camps are located | <p>Implement and main stream health, STD and HIV/AIDS as part of the awareness/training for the workforce.</p> <p>Ensure workforce have adequate medical facilities.</p> <p>Sensitize workers and community on protective behaviour</p> <p>Ensure adequate first aid facility on site</p> <p>Procure services of an independent NGO involved in HIV/AIDS activities.</p> <p>Sensitize high risk groups such as students on the dangers of casual sex, early pregnancy and HIV/AIDS</p> <p>Provide surveillance and active screening and treatment of workers and the community where communicable disease is discovered.</p> <p>Collaborate and implement all impacts of public health nature with existing health units at the sub-counties and local NGOs involved in similar activities.</p> <p>As a contractor's policy, discourage excessive abuse of alcohol among power line workers.</p> | <p>Evidence that workers are sensitized and protected against HIV/AIDS and other forms of communicable diseases.</p> <p>Presence of adequate medical facilities</p> <p>Presence of first aid kits at various work stations</p> <p>Evidence of collaboration with sub-county health units and local NGOs</p> <p>Status and attitude of workers</p> <p>Concerns and attitude of the local community and leaders</p> | 50,000 | <p>UETCL</p> <p>Local leaders</p> <p>Contractor</p> <p>District health officials</p> <p>Sub-county health officers</p> <p>Local NGOs</p> | Continuous until 2 years after commissioning of the power line |
| | | | | | |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|---|---|---|-----------------|---|--|
| OPERATION PHASE | | | | | |
| Impact on social cohesion during the pre-construction and construction phase activities | <p>Communicate with communities effectively and involve their leaders.</p> <p>Restrict project land use during the operation phase to the line's right-of-way to avoid project developer from conflict with local communities.</p> <p>Ensure all PAPs are identified and compensated.</p> <p>The RAP implementation consultant should try as much as possible to settle compensation issues outside court</p> | <p>Post construction issues emerging from the community.</p> <p>Concerns from local and district leaders.</p> <p>Number of court cases</p> | 30,000 | <p>UETCL</p> <p>Contractor</p> <p>RAP Implementation Consultant</p> | Continuous until 5 years after commissioning of the power line |
| The Transmission lines & the safety of the public and community including EMF. | <p>Ensure there is proper communication and awareness of local populations.</p> <p>Educate local populations on safe behaviour around high voltage power lines.</p> <p>Install warning signs and anti-climbing devices on pylons.</p> <p>Use safety locks and bolts in order to minimize steel theft risks.</p> <p>Ensure the development of local and regional emergency plans in case of infrastructure breakdowns, especially near roads or residential areas.</p> <p>Monitor and control illegal connections.</p> | <p>Level power safety of awareness in the community.</p> <p>Presence of warning signs on pylons.</p> <p>Presence or absence of infrastructure under the power line.</p> | 40,000 | UETCL | Bi-annual throughout the life cycle of the powerline. |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
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| SECTION 2: EMP FOR THE ACCESS ROAD IMPACTS PRE-CONSTRUCTION AND CONSTRUCTION PHASE BIOPHYSICAL ENVIRONMENT | | | | | |
| Vegetation loss | <p>Vegetation clearance will be restricted within the road reserves. The contractor will also ensure that:</p> <p>Clearing exercise is controlled and limited to what is necessary for opening up on new access road, quarry and camp sites;</p> <p>Earthworks will be kept to a minimum to limit disturbance to large amounts of soil.</p> <p>Where trees are cut, owners shall be compensated in accordance with the RAP findings</p> | <p>Extent of clearance for road construction</p> <p>Evidence of compensation for trees destroyed</p> <p>Presence or absence of complaints in respect to vegetation destruction.</p> | 20,000 | UETCL EPC Contractor | Continuous until commissioning of the power line |
| Impact on water resources | <p>Works across wetland areas could be undertaken with effort to ensure minimal siltation and transportation of loose soil materials.</p> <p>On some section across wetlands the contractor may place gabions and stone boulders to check erosion of loose soil materials.</p> | <p>Water quality in the affected areas</p> <p>Complaints and or concerns of water users in the affected areas</p> <p>Technological options adopted by the contractor to minimise water</p> | 40,000 | UETCL EPC Contractor District & Town Council Engineers. District Environment Officers Local Environment | Continuous until commissioning of the power line |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
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| | <p>Raft foundations shall be used in wetland areas.</p> <p>In areas where it's not necessary to construct a permanent access road to the tower site, temporary access roads shall be constructed and after decommissioned and sites restored.</p> <p>Decommissioning of such roads shall be supervised by the district Environment Officers and District Engineers</p> | <p>contamination</p> <p>Evidence of a clear rapport with the local environment committees and leaders on water quality management</p> | | Committees | |
| Noise, dust and vibration Impacts | <p>Protect people's health from environmental risk and pollution through a number of measures such as; routine sprinkling of water on dust surfaces to suppress dust, availing workers with Personal Protective Equipment (PPE) such as masks, helmets, hand gloves, boots and ear muffs;</p> <p>Restrict construction activities to day time hours to minimize disrupting sleep in the nearby communities;</p> <p>All fresh sites for murrum excavation and quarries shall be approved by NEMA through a separate EIAs or Project Briefs.</p> <p>Dust control will be through routine sprinkling of water on the loose surfaces;</p> | <p>Evidence of NEMA clearance for all quarries and borrow pits</p> <p>Presence of PPE for all workers subjected to Noise, dust and vibrations</p> <p>Attitude and concerns of the surrounding community</p> <p>Presence or absence of dust during construction and usage of access roads</p> <p>Availability of speed control systems with the contractor</p> | 30,000 | UETCL EPC Contractor District & Town Council Engineers. District Environment Officers Local Environment Committees | Continuous until commissioning of the power line |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
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| | Observance of speed limits through speed control sections of the road with humps and related infrastructures. | | | | |
| Soil erosion | <p>Proper storm water drainage facilities (culverts) have to be designed at the various areas along the route to prevent any erosion that may contribute to the increase of suspended solids;</p> <p>Disposal of cut to spoil will be done under the direction of the Environment Officer and District Engineer who will approve disposal sites;</p> <p>Dumping of cut to spoil along the road reserves or streams will be prohibited;</p> <p>There will be controlled clearance of vegetation on only sections that are needed for the road works;</p> <p>There will be bench terracing on the hill slopes to check issues of soil erosion and unstable slopes; and</p> <p>The client/contractor could consider a suitable indigenous cover grass preferably; Cyanodon, Setaria etc could be planted along the drainage channels to reduce scouring effect of water. Steep surfaces would also be kept under grass cover, or where applicable, such surfaces will be stone pitched to stabilize the slope and control erosion.</p> | <p>Quality of water in water sources</p> <p>Availability of soil erosion mitigation techniques</p> <p>Availability of approved disposal sites for cut to spoil</p> <p>Complaints and or attitude of the affected persons in respect to water quality.</p> | 25,000 | UETCL EPC Contractor | Continuous until commissioning of the power line |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
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| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
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| <p>Impacts of borrow pits</p> | <p>Before exploitation of the borrow pits is undertaken, the Contractor will secure some lease consent from the landlords for borrow areas and have a Project Brief prepared and approved by NEMA before on set of activities;</p> <p>Access routes to the borrow pits will be surveyed for any hidden cultural resources (graves, shrines etc) and the route cleared of vegetation and other debris. These cleared materials shall be stockpiled for use during the restoration process of borrow areas and material extraction sites;</p> <p>Stock pile and cut to spoil materials will be kept in the vicinity of the borrow pits and with the approval of the District Environment Officer and District Engineer, the cut to stockpile materials could then be used in the eventual restoration of the borrow areas in the end. This option will be prioritized in order to reduce challenges relating to the management of cut to spoil materials;</p> <p>Landscaping and evening up of cliffs could be done on decommissioning of works. There will be efforts to ensure proper drainage of the site to avoid water logging in the areas;</p> <p>Sequential restoration of borrow pits as</p> | <p>Evidence of clearance from NEMA for all borrow pit areas</p> <p>Availability of a decommissioning plan for each borrow pit</p> <p>Nature and state of former borrow pit areas</p> <p>Concerns from the District Environment Offer</p> <p>Attitude of local people in respect to former borrow areas</p> | <p>45,000</p> | <p>UETCL EPC Contractor District Environment Officer District Engineer Local Leaders</p> | <p>Continuous until commissioning of the power line</p> |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
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| | <p>when they are exhausted of materials; A detailed decommissioning plan will be prepared detailing how the contractor intends to restore the borrow pits after the completion of the project. The restored borrow pits at the end of the project have to be inspected and approved by the respective environment authorities and NEMA and UETCL at the end of the Project's Defects Liability Period; and</p> <p>Access routes to and from the borrow pits will be restored/ripped off and replanted with grass.</p> | | | | |
| <p>Impacts of stone quarry operations</p> | <p>The quarry sites will be subjected to separate ESIA which will be approved by NEMA before blasting begins</p> | <p>Evidence of clearance from NEMA for all quarry areas</p> <p>Availability of a decommissioning plan for each quarry</p> <p>Nature and state of former quarries</p> <p>Concerns from the District Environment Officer</p> <p>Attitude of local people in respect to former quarry areas</p> | <p>25,000</p> | <p>UETCL EPC Contractor District Environment Officer</p> <p>District Engineer</p> <p>Local Leaders</p> | <p>Continuous until commissioning of the power line</p> |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|--|--|--|----------------------|---------------------------------|---|
| <p>Accidental fuel & oil spills and risks for fires</p> | <p>Spills greater than or equal to 100litres of flammable/combustible liquids or waste oil will be immediately reported to the police 999 and the Fire Brigade. Emergency preparedness will include critical examination of each of the construction to identify potential hazards</p> <p>Hazardous compounds will be stored in secure locked containers on site in secured enclosures. Compounds used in the curing of concrete, lubricants, and fuel for small equipment will be present on site and kept tidy especially after work;</p> <p>There is need for an internal alerting system in case of spills. This is because; timely and accurate reporting of accidental spills can help to ensure quick and efficient response. Alerting systems/plans will include clear and detailed information regarding sources and location of such risks;</p> <p>Principally, the purpose of such a response plan will be to initiate an immediate response with trained personnel and equipment to clean up and ensure containment, disposal, and monitoring, including details regarding equipment and personnel allocation, are also presented; and</p> | <p>Absence/Presence or evidence of spills</p> <p>Technological adoptions on the ground to avert spills and fires</p> | <p>50,000</p> | <p>UETCL EPC Contractor</p> | <p>Continuous until commissioning of the power line</p> |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
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| | Finally, the plan will contain a commitment for restoring the contaminated site to its previous state before the accidental spill. | | | | |
| Loss of agricultural land, property, crops and business | <p>Adequate, fair, and prompt compensation and resettlement of PAPs will be implemented in the project;</p> <p>Communicating to the PAPs early enough on the schedules of the project so that, they can adjust on a number of their livelihoods plans; and</p> <p>Furthermore, the RAP will define mechanisms for the Resettlement of some of the PAPs as their needs may demand. The demands and needs of the PAPs may differ across the project and therefore, the Resettlement process will be responsive to the extent possible to the prevailing needs of the beneficiaries/PAPs.</p> | <p>Number of sensitization workshops conducted per village</p> <p>Level of media involvement</p> <p>Level and number of stakeholder involvement from the village level up to district level</p> <p>Presence of evaluation and dispute management committees from village level to district level</p> <p>Evidence of land surveying and valuation by Registered and Certified Land Surveyors, Quantitative Surveyors and Valuers</p> <p>Evidence of a detailed RAP</p> <p>Evidence of reasonable compensation of the affected people 6 months to project implementation</p> | To be determined by the RAP | <p>Structural and Land Owners</p> <p>CAOs</p> <p>Town Clerks</p> <p>District, and Town Planners</p> <p>District, and Town Engineers</p> <p>District and Town Land Boards</p> <p>Land Officers</p> <p>LC5 Chairmen</p> <p>RDCs</p> <p>Government Valuers</p> <p>UETCL</p> <p>ERA</p> <p>Local Council</p> | Continuous until commissioning of the power line |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|--|---|--|-----------------|-----------------------------|---|
| | | <p>Magnitude of conflicts and disputes arising during and before project implementation</p> <p>Absence of intimidation by UETCL and contractor to the affected people</p> | | Leaders | |
| PRE-CONSTRUCTION AND CONSTRUCTION PHASE | | | | | |
| SOCIAL ECONOMIC ENVIRONMENT | | | | | |
| Psychological impacts associated with land Surveying and mapping for access roads | Sensitization of the local communities and awareness programmes will be implemented as part of the RAP to address such concerns | <p>Attitude and concerns of the project affected persons</p> <p>Evidence and extent of sensitization drive carried out</p> | 20,000 | UETCL EPC Contractor | Continuous until all affected persons have been compensated |
| Noise and vibration impacts | <p>Sprinkle water on dust surfaces to suppress dust on routine basis.</p> <p>Ensure all workers have adequate PPE Construction activities that generate a lot of noise should be restricted to day time.</p> <p>All fresh sites for murrum excavation and quarries shall be approved by NEMA through separate EIAs or Project Briefs.</p> | <p>Concerns from the community on dust and noise</p> <p>Nature, quality & quantity of PPE used by workers.</p> <p>Evidence that fresh quarries and borrow areas were approved by NEMA.</p> | 40,000 | UETCL EPC Contractor | Continuous until commissioning of the power line |
| Occupational Safety and Health for the | First and foremost, the contractor has to put in place an OSH Plan as provided for under the General | <p>Presence of OSH Plan</p> <p>Availability of adequate</p> | 30,000 | UETCL EPC Contractor | Continuous until commissioning of the power line |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|-------------------------------|--|---|-----------------|-----------------------------|------------|
| workforce | <p>Specifications for Road and Bridge works, 2005;</p> <p>As a prerequisite, the usage of Personal Protective Equipment will be part of the employees' contract and the usage of PPE at work will be mandatory.</p> <p>It is the obligation of the contractor to provide adequate and quality PPE to all Workers such as masks, helmets, hand gloves, boots, overalls and ear muffs to protect them from dust, noise, sharp machines and other forms of hazards. PPE will be provided in pairs to enable cleaning and changing.</p> <p>All PPE provided will be of the standard type, fitting and comfortable to work and walk with. For hand tools, they will be sharp and with smooth handles;</p> <p>All employees will be obliged to wear PPE before commencing work and this condition will be part of their employment contract;</p> <p>Workers will be trained and sensitized on safety measures while on the site and the need to take personal responsibility on one's health and safety;</p> <p>Guidelines and regulations on site</p> | <p>and proper PPE for all workers all forms of risks</p> <p>Presence of safety guidelines on site</p> <p>Presence of fire fighting equipment in vulnerable or inevitable work locations</p> | | | |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|--------------------------------|--|--|-----------------|-----------------------------|--|
| | <p>safety will be communicated to all workers, suppliers and subcontractors and will be part of their employment; and</p> <p>There will be emergency response measures on the site and workers will be sensitized on use of fire fighting equipment. The fire fighting equipment will well service and ready to be used and strategically located in areas that they can be readily accessed in case of any safety problems on site.</p> | | | | |
| OPERATION PHASE | | | | | |
| BIOPHYSICAL ENVIRONMENT | | | | | |
| Soil contamination | <p>Ensure that equipment and machinery are in good operating condition, clean (power washed), free of leaks, excess oil, and grease.</p> <p>Ensure that all stationary equipment and machinery are installed above spill containment facilities of sufficient capacity.</p> <p>Keep a Spill Containment Kit readily accessible onsite in the event of an accidental spill and ensure on-site staff is trained in spill response.</p> | Concerns from the community regarding ROW & Wayleave maintenance activities. | 40,000 | UETCL | Bi annually throughout the lifespan of the transmission line |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|--|--|--|-----------------|--|--|
| | <p>Contain any spills onsite and clean up spills as soon as possible.</p> <p>Document and report all spills.</p> | | | | |
| Impact on land use | <p>Compensate all affected PAPs in case wayleave maintenance crew destroys their crops.</p> <p>Plan for maintenance activities outside the growing or harvesting season.</p> <p>Allow grazing in the ROW and other agricultural activities in the wayleave, provided that plantations do not exceed 4 m in height.</p> | Concerns from the community regarding ROW & Wayleave maintenance activities. | 35,000 | UETCL | Bi annually throughout the lifespan of the transmission line |
| SOCIOECONOMIC ENVIRONMENT | | | | | |
| Once access roads have been established, there are minor social economic impacts that can be anticipated now. However, once they occur, they shall be dealt with on case by case basis using village courts, bylaws or conventional courts. Such impacts may include people taking advantage of improved access to steal people's properties and food crops in the nearby gardens. | | | | | |
| SECTION 3: EMP FOR THE SUBSTATION IMPACTS | | | | | |
| CONSTRUCTION PHASE | | | | | |
| Impact on traffic | <p>Construction vehicles will enter and leave the sites at controlled points.</p> <p>Using signs and barriers, the contractor and also with help of police especially at Hoima substation will direct pedestrians and vehicles traffic as</p> | <p>Presence or absence of accidents</p> <p>Concerns from Police</p> | 20,000 | <p>UETCL</p> <p>EPC Contractor</p> <p>Police</p> | Continuous until commissioning of the power line |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|---|--|--|--|---|--|
| | needed around the construction zone. Some activities can be scheduled in off peak traffic times to minimize impacts | | | | |
| Fugitive dust emissions | To be controlled by by wetting exposed soil and road areas with water Tarpaulins will be used to cover truck beds hauling soil and debris | Presence or absence of dust Concerns from the surrounding community | 10,000 | UETCL EPC Contractor | Continuous until commissioning of the substations |
| Solid waste and all forms of Environmentally deleterious materials | All waste to be disposed in sites approved by the District Environment Officer or NEMA | Presence of waste at the substation or its vicinity | 12,000 (Only during construction) | UETCL EPC Contractor District Environment Officer | Continuous even after commissioning of the substations |
| Noise | UETCL needs to acquire enough land so as to create a large buffer zone and deter people from settling close to the substations in future. Activities likely to generate noise should be restricted to day time | To locate each substation on at least 5 acres of land | Costs to be determined by the RAP | UETCL EPC Contractor | Continuous until all PAPs have been compensated |
| OPERATION PHASE | | | | | |
| Transformer waste oils | Hazardous materials generated such as transformer oils will be disposed of through existing programs at the office of the Environment, Health and Safety Officer at UETCL which includes having such waste collected by licensed waste disposal service providers. | Presence or absence of oil spills at the substation or in its vicinity Complaints from the neighbours about transformer oils Presence of oil leakage detection mechanism on site | 8000 | UETCL | Monthly until decommissioning of the substation |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|--|--|--|-----------------|--|--|
| SECTION 4: EMP FOR THE LABOUR CAMPS | | | | | |
| CONSTRUCTION PHASE (BIO-PHYSICAL ENVIRONMENT) | | | | | |
| Soil erosion | <p>Vegetation clearing and site levelling activities will be limited to areas required for camp establishment only;</p> <p>Loose/open soil areas will be compacted to control erosion; and The contractor will plant ornamental trees and grass on the opened surface to provide vegetation cover and hence control soil erosion.</p> <p>The contractor should choose a site that is flat and away from streams or wetlands.</p> | <p>Appearance of the camp</p> <p>Concerns from the local people about campsite construction activities.</p> <p>Proximity of the camp to the near by streams or public water sources.</p> | 10,000 | <p>UETCL</p> <p>EPC Contractor</p> <p>District Environment Officer</p> | Weekly throughout the construction phase of the camp site. |
| Solid and liquid waste impacts | <p>Sort waste into biodegradable and non-biodegradable using various colour coded bins.</p> <p>Separate hazardous waste from non-hazardous. Hazardous waste to be disposed in Nakasongola and non-hazardous to be disposed in gazzeted municipal landfills.</p> <p>Plastic waste to be recycled or disposed as hazadous waste above.</p> <p>Human waste to be disposed temporarily in septic tanks and finally to gazette lagoons by licensed waste transportation and disposal companies.</p> | <p>Presence of colour coded bins for hazardous and non hazasous waste.</p> <p>Evidence that all waste is disposed as recommended.</p> <p>Physical appearance of the camp site</p> <p>Concerns from the community & workers about the campsite.</p> <p>Presence of clean, adequate toilet and</p> | 50,000 | <p>UETCL</p> <p>Contractor</p> <p>District Environment Officer</p> | Monthly until decommissioning of the camp site |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|--------------------------------|--|---|-----------------|--|--|
| | <p>Ensure campsites have separate bathroom & toilet facilities for both males and females.</p> <p>There shall be routine cleaning of the campsites and workers responsible should be provided with adequate PPE and equipment.</p> | <p>bathroom facilities for male and female workers.</p> <p>Presence of designated personnel for cleaning the camp with adequate cleaning equipment and PPE.</p> | | | |
| Oil spills and leakages | <p>The contractor will closely liaise with the Department of Petroleum Supplies in the Ministry of Energy and Mineral Development on the guidelines for establishing underground storage tanks.</p> <p>The contractor will ensure that all underground fuel storage tanks are coated with a layer of tar and placed on a concrete slab as a precautionary measure against rusting;</p> <p>During construction, a qualified inspector will ensure that all the features that have been proposed to prevent leakage are properly incorporated in the finished job;</p> <p>Additionally, storage tanks shall satisfy national specifications and requirements such as: Cathode protection against rusting, easily cleaned and waste disposed responsibly and pressure testing to ensure that tanks and connecting pipes</p> | <p>Clearance from MEMD to store hydrocarbons</p> <p>Evidence that the fuel storage facility was constructed using standard procedure and guidelines.</p> <p>Evidence of fuel spills or not.</p> | 20,000 | <p>Contractor</p> <p>UETCL</p> <p>District Environment Officer</p> | Monthly until decommissioning of the camp site |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|---|--|--|-----------------|---|---|
| | withstand pressures up to 50 Psi (equivalent of 350 kN/m ²) done regularly. | | | | |
| Disposal of used engine oil | <p>The contractor will ensure that all spillage and oil-contaminated water be directed to the internal drainage system running through an oil-water separator;</p> <p>Oil-water separators (oil interceptors) require regular cleaning and maintenance and records of these activities will be kept; Care will be taken however to ensure that the interceptor is not overloaded with surface waters from areas where there are no risks of contamination; and</p> <p>Old engine oil to be temporality stored in leak proof containers/drums</p> <p>All spent oil could be sent back to the oil companies (agents supplying oil and petrol to the Contractor for proper recycling.</p> | <p>Presence of a functioning oil water separator.</p> <p>Evidence that spend oil is sent back to service providers for proper disposal and or recycling.</p> <p>Presence of old engine storage facilities that leak proof.</p> | 10,000 | Contractor UETCL District environment Officer | Monthly until decommissioning of the camp site |
| CONSTRUCTION PHASE (SOCIAL ECONOMIC ENVIRONMENT) | | | | | |
| Welfare of workers and public health concerns | The contractor or subcontractors shall procure a secure and descent accommodation (with male & female units) for all resident staff either through renting the existing structures in the project area or by constructing new houses in consultation with UETCL. | <p>Presence of decent male and female housing units with cemented floors.</p> <p>Attitude of workers & community towards the contractor</p> | 150,000 | Contractor UETCL District Environment Officer | Continuous until decommissioning of the camp site |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|-------------------------------|--|--|-----------------|---|------------|
| | <p>The floors of the housing units will be cemented and they will have be approved by the District Health Inspectors from the host district;</p> <p>The contractor's top management will note the need for cordial and harmonious relations with its workers and the communities;</p> <p>There will be decent & adequate toilet facilities for the workers in the camp site and work place catering for both sexes.</p> <p>The developer will provide workers with protective gears/wears during construction work to prevent injury and where necessary to avoid contracting germs and or diseases;</p> <p>Workers and the community should be sensitized on protective behaviour and practices during work by distributing appropriate education materials to workers and the surrounding community.</p> <p>The developer will establish a first aid facility at the construction site to treat injury cases whenever they occur.</p> <p>The project contractor is also advised to employ services of an independent NGO engaged in HIV/AIDS activities to</p> | <p>Presence of decent & adequate toilet & shower room facilities for both male and female staff.</p> <p>Presence of adequate PPE for all staff to cater for different tasks.</p> <p>Evidence that workers and the community have been sensitized of risky behaviour.</p> <p>Systems put in place to manage communicable diseases and level of contractors collaboration with existing NGOs, sub-county units engaged in public health education.</p> <p>Contractor's policy on alcohol.</p> <p>General contractors human resource policy</p> <p>Evidence that the camp site is registered by the Department of Labour and Occupational Safety and Health in the MoGLSD</p> | | <p>District Health Officer</p> <p>District Labour Officer</p> | |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|-------------------------------|--|-----------------------|-----------------|-----------------------------|------------|
| | <p>sensitize and treat both the project workers and the communities around the work site. This should be included in the bill of quantities during procurement as part of main streaming HIV/AIDS prevention in the project.</p> <p>High risk groups such as the youths especially students should be continuously sensitized on the dangers of casual sex, consequences of early marriages, teenage pregnancy and monitored to ensure that such groups are not at risk of falling victims.</p> <p>Provide surveillance and active screening and treatment of workers and the community where a communicable disease is discovered.</p> <p>All impacts of public health nature should be mitigated using a well-coordinated approach that must involve health units in the affected sub-counties including collaborations with local NGOs involved in similar activities to pool resources (especially human resources) and increase efficiency of mitigation measures being instituted.</p> <p>Excessive alcohol abuse should be discouraged as a company policy among power line construction workers.</p> <p>Other aspects of health and safety</p> | | | | |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|--|--|--|-----------------|-----------------------------|---|
| | should be should be adhered to as presented in the Health and Safety Management plan (section 9.8). | | | | |
| Campsite security | <p>Entrance to the camp site will be controlled through guards and vehicles entering and leaving the camp site will be subject to checks;</p> <p>All visitors to the camp will wear visitors cards which are exchanged with their identity cards which they surrender to security at the gate;</p> <p>Proper lighting will be ensured to supplement the security system.</p> <p>The project management and staff will be keen on idlers in the camp site;</p> <p>The management of the project will liaise with nearby police units to reinforce their security;</p> <p>The contractor could ensure security personnel hired will be from a reputable local security firm with good record.</p> <p>The entire camp boundaries should be defined and securely fenced.</p> | <p>Presence of a security fence around the camp.</p> <p>Presence of guards at the fence.</p> <p>Presence of a system that vets who enters and who leaves the camp.</p> <p>Presence of adequate lighting at the camp.</p> | 50,000 | Contractor | Continuous until decommissioning of the camp site |
| Noise impact from the generator | A good design of the generator room and good positioning of the exhaust pipe will minimize noise from the generator. | Magnitude of noise experienced emitted by the generator as measured by the noise | 5,000 | Contractor UETCL | Continuous until decommissioning of the camp site |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|-------------------------------|---|--|-----------------|-----------------------------|---|
| | <p>The generator will be housed in a concrete house to buffer noise impacts.</p> <p>The generator will be operated till 10pm to avoid disrupting sleep in the neighbourhood.</p> <p>The contractor could install a silenced generator model to control noise level.</p> | <p>meter.</p> <p>Concerns from camp workers and the community or noise.</p> | | | |
| Fire accidents | <p>Fire warning notices/stickers/signs will be up on pillars of the pump island warning motorists not to smoke while at the facility, to switch off mobiles and any such electric/electronic gadgets such as cameras and motor engines while refuelling.</p> <p>The workers will be trained in fire fighting, fire control and first aid skills. First Aid facilities will be provided on site and accessible to all personnel; and there will be in place a Spill Prevention, Counter Measure and Control Plan (SPCC);</p> <p>There will be fire extinguishers; and two sand-buckets per fuel pump properly positioned at all times for emergency fire. Additionally, all electrical installations or future modifications on service station shall conform to accepted national safety standards;</p> | <p>Presence of fire warning stickers & signposts at fuel storage facilities.</p> <p>Evidence that camp workers are trained in fire fighting, control and first aid skills.</p> <p>Presence of various fire fighting equipment at the camp site such fire extinguishers and sand buckets.</p> <p>Evidence that all storage infrastructures meet standard designs and quality.</p> <p>Presence of a fire assembly point at the camp.</p> | 50,000 | Contractor UETCL | Continuous until decommissioning of the camp site |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|-------------------------------|--|---|-----------------|-----------------------------|------------|
| | <p>Tank building design, materials and methods shall be adopted that reduce, and/or eliminate, the occurrence of fire. In addition, insulation materials for fuel pumps/stations shall be used that have a limited potential to be either ignited, or support flame.</p> <p>Tanks shall be covered and at a distance of 10-15m from the pumping point. And fuelling station shall have a minimum of two exit points, which shall not be locked during working hours;</p> <p>Fuel spills shall be avoided and when they occur they shall be cleaned immediately</p> <p>During the night, there will be a security guard on duty daily to guard against intruders and wrong elements; and</p> <p>The camps must have part of the site designated as a fire evacuation/assembly area.</p> <p>Smoking should only be allowed in designated low-risk areas. No smoking must be allowed near fuel storage areas.</p> <p>The camp should maintain a 10-metre strip of bare ground to act a fire barrier around the camps.</p> | <p>Evidence that fuel storage facilities were cleared by NEMA and MEMD.</p> | | | |

| Biophysical and Social impact | Proposed Mitigation and Aspects for Monitoring | Monitoring Indicators | Proposed budget | Implementing responsibility | Time Frame |
|---|--|-----------------------|-----------------|-----------------------------|------------|
| | <p>All hydro carbons shall be stored and managed in NEMA gazetted centers with clear instructions on how such fuels should be handled.</p> <p>Relevant government authorities such as Ministry of Works, National Bureau of Standards; the District Environment Officer, and NEMA shall regularly inspect the fuelling stations.</p> | | | | |
| <p style="text-align: center;">OPERATION PHASE</p> <p>Upon commissioning of the transmission line, the camps may be maintained by the contractor until expiry of the deficit liability period after which they may be decommissioned. Meanwhile, most of the immigrant workers will have returned to their places of origin. The camp may be maintained by few technical staff. Decommissioning of all infrastructures constructed as a result of the transmission line works shall be guided by a compliance environmental audit that shall be commissioned by UETCL and conducted by Certified Environmental Auditors. A decommissioning plan for camp(s) shall be approved by NEMA in consultation with the District Environment Officer and District Engineer.</p> | | | | | |

9.4 ENVIRONMENT MITIGATION PLAN

Table 9.2 below presents and Environment Mitigation Plan

Table 9.2: Environmental Mitigation Plan

| Issue | Impact | Mitigation Measures | Status/Responsibility |
|---|---|---|-----------------------|
| SECTION 1: MITIGATION PLAN FOR THE TRANSMISSION LINE | | | |
| BIOPHYSICAL ENVIRONMENT | | | |
| PRE-CONSTRUCTION/CONSTRUCTION PHASE | | | |
| Crops with in the ROW & Wayleave | Destruction of crops while clearing the ROW & Wayleave | <ul style="list-style-type: none"> (i) Notify farmer at least 6 month in advance. (ii) Movement of equipment and construction crew to follow designated pathways or agreed upon access roads. (iii) Put in place a GRC to work with CGV & handle all damages & compensation issues before and during construction. (iv) All crops destroyed as a result of this project should be compensated for regardless of proximity to the power line. | UETCL & Contractor |
| Tower spots (bases) | Spot alteration of agricultural land use, grassland and wetlands by tower bases/spots | <ul style="list-style-type: none"> (i) Tower shifting should be used to maximise adverse impacts of tower sites and where applicable, towers should be as far as maximum span length. (ii) Accessing tower sites and stringing of lines to be done with due care to avoid damaging trees, crops & nearby homesteads. (iii) Compensate all damaged property as a result of this activity in accordance with the Land Act & World Bank Safeguard Policies. | UETCL & Contractor |
| Land under the ROW & Wayleave | Loss of land to the power line corridor | <ul style="list-style-type: none"> (iv) UETCL to work with all stakeholders and sensitize land owners about the intention & purpose of land acquisition. (v) Conduct a RAP to document all properties (land) and individuals affected and how much each PAP is entitled to be paid including revaluations for the time lag since the first valuation was done. (vi) Ensure all PAPs participate in the valuation exercise and address all irregularities raised. | UETCL & Contractor |
| Built up environment in the | Displacement of built up structures such | <ul style="list-style-type: none"> (i) UETCL to work with all stakeholders and sensitize land owners about the intention & purpose of land acquisition. (ii) Conduct a RAP to document all properties (structures) and individuals affected and | UETCL & Contractor |

ESIA study for the proposed Hoima-Kinyara Transmission Line across Hoima & Masindi districts

| Issue | Impact | Mitigation Measures | Status/Responsibility |
|---|--|---|-----------------------|
| transmission corridor | as homes, latrines, kiosks in the ROW & Wayleave. | how much each PAP is entitled to be paid including revaluations for the time lag since the first valuation was done. (iii) Ensure all PAPs participate in the valuation exercise and address all irregularities raised. | |
| Vegetation and animal habitats under the ROW & Wayleave | Destruction of vegetation and animal habitats during ROW & wayleave clearing | (i) Tower shifting should be used to maximise adverse impacts of tower sites and where applicable, towers should be as far as maximum span length. (ii) Accessing tower sites and stringing of lines to be done with due care to avoid damaging trees, crops & nearby homesteads. (iii) Compensate all damaged property as a result of this activity in accordance with the Land Act & World Bank Safeguard Policies. (iv) UETCL to contribute towards local environmental programs by remitting funds towards afforestation projects to compensate for the biomass lost during way leave clearing. | UETCL & Contractor |
| Earth works for tower foundations | Improper management of concrete residue due to tower foundations | (i) Works across wetlands to be undertaken with minimum effort to avoid siltation of water bodies. (ii) Where applicable, contractor to place gabions of stone boulders to check erosion and loose soil materials. (iii) Install proper storm water drainage facilities such as culverts where applicable. (iv) All cut to spoil disposal areas shall be approved by the resident engineer & district environment officer. (v) Inert debris such as concrete, brick, concrete block, uncontaminated soil, sand and gravel should be recycled and reused as clean fill material. (vi) NEMA shall clear waste disposal sites and where applicable through separate EIAs or Project Briefs. | UETCL & Contractor |
| Construction waste | Poor management of construction waste | (i) Contractor to collect and dispose or recycle all forms of waste generated during construction such as conductors, steel & tower members, insulators and other accessories associated with transmission lines. (ii) All human excreta shall be managed using mobile toilets. (iii) All waste shall be disposed in gazetted disposal areas in consultation with the District Environment Officer. | UETCL & Contractor |
| wetlands | Disturbance and degeneration of wetlands | (i) Maximum spanning of towers within the wetlands should be done to avoid interfering with sensitive areas. | UETCL & Contractor |
| Material sources for | Improper & poor exploitation and | (ii) Contractor and subcontractor to secure consent from landlords for borrow areas and have a Project Brief prepared and approved by NEMA before onset of activities. | |

| Issue | Impact | Mitigation Measures | Status/Responsibility |
|--|--|---|-----------------------|
| tower foundations | decommissioning of borrow areas | (iii) Access to such areas to be surveyed for any hidden resources such as graves, shrines and others and compensated for in accordance with the Land Act and World Bank Safeguard policies | |
| OPERATION PHASE | | | |
| Electromagnetic Fields (EMF) | Health effects associated with electric and magnetic fields | (i) UETCL to compensate all land owners of all land structures under the transmission corridor and ensure no future settlements are under the line. (ii) All settlements under the line to be demolished after compensating all owners. (iii) It is advised that the entire corridor be marked using permanent marks such as the concrete pillars used by UNRA to mark road reserves. | UETCL & Contractor |
| Aquatic habitats and associated flora and fauna | Potential disturbance of aquatic habitats during maintenance of ROW | (i) Perform regular maintenance on wetlands during dry season. (ii) Under take selective cutting of the vegetation in order to maintain low plant species that do not present a risk to the power line. (iii) Spillage of cut to spoil waste into wetlands should be avoided during wayleave maintenance. (iv) Use of herbicides to control vegetation should be forbidden. | UETCL & Contractor |
| Birds | Electrocuting birds in flight | (i) Implement a bird mortality monitoring program. (ii) If it is discovered that bird mortality is high in particular areas, consider installing bird diverters in such spots. | UETCL & Contractor |
| SOCIAL ECONOMIC ENVIRONMENT | | | UETCL & Contractor |
| PRECONSTRUCTION/CONSTRUCTION PHASE | | | |
| Displacement & resettlement Psychological impacts | Psychological Impacts such as stress, trauma, shock & fear associated with compensation, relocation & resettlement | (i) Use all local and national media such as radio stations, TVs, meetings and others to sensitize and address all people's fears before valuation, compensation and relocation. (ii) The intentions of land acquisitions must be purposed for the construction of the Hoima-Kinyara transmission line. (iii) All people with property in the vicinity of the powerline must be sensitized on the routing side that will be taken over by the steel towers. (iv) UECTL should inform the public that compensation and resettlement of all PAPs shall be done in accordance with the Land Act and World Bank OP 4.12. (v) UETCL shall implement the RCDAP in the RAP to store people's confidence in the whole exercise. | UETCL & Contractor |

| Issue | Impact | Mitigation Measures | Status/Responsibility |
|---|---|---|-----------------------|
| | | (vi) Give the local community first priority while recruiting casual labourers. | |
| Employment concerns | Exploitation of workers | (iv) Procure all staff under a well-recognised contract. (v) All workers and subcontractors must be paid as per the contract. (vi) All casual labourers shall receive a fair days pay for a fair days work. (vii) All workers must be paid promptly and correctly. | UETCL & Contractor |
| Physical cultural property | Failure to pay attention to cultural features such as shrines, graves. Damage to hidden archaeological and paleontological resources | (i) Compensate and relocate graves, shrines and other cultural features in accordance with the local norms of the project area. (ii) For sites or features that buried in the ground, implement a chance find procedure presented in chapter 9. | UETCL & Contractor |
| Impact on the existing electricity grid | Power outages due to interference. | (i) UETCL to collaborate with power operator(s)(UMEME) in the project and inform consumers of planned power outages. (ii) Avoid accidental outages by procuring experienced and competent contractors & subcontractors. | UETCL & Contractor |
| Impact on traffic | Diminished road safety due to Interference with traffic | (i) Stringing across roads or high ways should be conducted in hours or days with less traffic preferably at night or weekends. (ii) Install appropriate signages on the affected roads. (iii) Notify and work with police while stringing across roads. | UETCL & Contractor |
| Impact of water sources | Diminished water quality or quantity for the community | (i) In situations where interference with public water sources is inevitable, the contractor shall endeavour to prove an alternative water source to the users of the affected source. (ii) Avoid erecting towers in fragile ecosystems such as wetlands or streams. | UETCL & Contractor |
| Noise, air and water quality | Air & water pollution resulting from noise, exhaust fumes and dusts. | (i) All vehicles and construction machinery shall be operated properly, driven at controlled speeds and maintained through adequate servicing to minimise exhaust emissions and dusts. (ii) Water will be regularly sprinkled at the site using bowers and haulage trucks shall be covered with canvas to minimise dust emissions. | UETCL & Contractor |

| Issue | Impact | Mitigation Measures | Status/Responsibility |
|--|---|--|-----------------------|
| Cash compensation issues. | Misuse of cash compensation | (i) Sensitize PAPs on wise use of money (ii) RAP implementation consultant to take care and guide all vulnerable groups. (iii) There should be a procedure to generally guide and monitor how compensation money is spent as part of the RAP internal and external monitoring. | UETCL & Contractor |
| Immigration into villages where construction camps are | Risk of causing conflicts and spreading communicable diseases | (i) Implement and mainstream health, STD and HIV/AIDS as part of the awareness/training for the workforce. (ii) Contractor should ensure that the workplace has adequate access to medical facilities. (iii) Sensitize the local community to manage community expectations of the project. (iv) Provide all workers with adequate PPE (v) Workers and the community should be sensitized on protective behaviour. (vi) Provide surveillance and active screening and treatment of workers and the community where a communicable disease is discovered. (vii) Excessive alcohol abuse should be discouraged as one of the contractor's policy. (viii) Employ services of an independent NGO engaged in HIV/AIDS activities to sensitize the workers and the community. | UETCL & Contractor |
| Fires risks | Fire risks at work stations | (i) Workers should be sensitized on fire sources, possible causes and prevention (ii) Workers should be knowledgeable about use of fire fighting equipment and aware of various colour coding on fire extinguishers. (iii) Store and manage all hydrocarbons in NEMA gazetted centres with clear instructions on how such fuels should be handled. (iv) Smoking should only be allowed in designated low-risk areas. | UETCL & Contractor |
| Occupational health and safety issues | Child labour | (i) All children below 18 years shall not be recruited as workers either directly or indirectly at all levels during the construction of the Hoima-Kinyara transmission line. | UETCL & Contractor |
| | Sanitation | (ii) Sanitation facilities should be well equipped with supplies (e.g protective creams and soaps) and employees should be encouraged to wash frequently particularly those exposed to dust, chemicals or pathogens. (iii) All employees should be provided with suitable PPE, emergency eyewash and shower stations, ventilation systems, sanitation facilities for both sexes, pre-employment and scheduled periodic medical examinations. (iv) Periodic monitoring of workplace air contaminants relative to worker tasks and plant operations is required. (v) Workplace air quality monitoring equipment should be well maintained . | UETCL & Contractor |

| Issue | Impact | Mitigation Measures | Status/Responsibility |
|-------|-----------------------------------|---|-----------------------|
| | | <ul style="list-style-type: none"> (vi) Facilities must include locker rooms, an adequate number of toilets with washbasins, and a room dedicated for eating. Water supplied to areas of food preparation or for the purpose of personal hygiene must meet drinking water quality standards. (vii) Pre-employment and periodic medical examinations should be conducted for all personnel, and specific surveillance programs instituted for personnel potentially exposed to toxic or radioactive substances. (viii) All employees should be provided with suitable PPE, emergency eyewash and shower stations, ventilation systems, sanitary facilities, pre-employment and scheduled periodic medical examinations. (ix) When extraordinary protective measures are required, the employer shall provide appropriate and relevant health surveillance to workers prior to first exposure and at regular intervals thereafter. (viii) Shield guards or guard railings should be installed at all belts, pulleys, gears and other moving parts. (ix) | |
| | Medical examination | <ul style="list-style-type: none"> (i) Pre-employment and periodic medical examinations should be conducted for all personnel, and specific surveillance programs instituted for personnel potentially exposed to toxic or radioactive substances. (ii) All employees should be provided with suitable PPE, emergency eyewash and shower stations, ventilation systems, sanitary facilities, pre-employment and scheduled periodic medical examinations. (iii) When extraordinary protective measures are required, the employer shall provide appropriate and relevant health surveillance to workers prior to first exposure and at regular intervals thereafter | UETCL & Contractor |
| | Prevention of mechanical injuries | <ul style="list-style-type: none"> (i) Shield guards or guard railings should be installed at all belts, pulleys, gears and other moving parts. (i) Floors should be level, even and non-skid. (ii) Heavy oscillating, rotating or alternating equipment should be located in dedicated buildings or structurally isolated sections. (iii) Appropriate shields, guards or railings must be installed and maintained to eliminate human contact with moving parts or hot and cold items. | UETCL & Contractor |
| | Climbing towers | <ul style="list-style-type: none"> (i) Employees involved in climbing towers must be provided with non-slip footwear, gloves, helmets, face protection, leggings and other necessary protective equipment (ii) Hand, knee and foot railings must be installed on stairs, fixed ladders, platforms, permanent and interim floor openings, loading bays, ramps etc. Openings must be | UETCL & Contractor |

| Issue | Impact | Mitigation Measures | Status/Responsibility |
|-------|--|---|-----------------------|
| | | sealed by gates or removable chains (iii) Covers if feasible shall be installed to protect against falling items. | |
| | Prevention of falling injuries | (i) Elevated platforms and walkways, and stairways and ramps should be equipped with handrails, toe boards and non-slip surfaces. (ii) Hand, knee and foot railings must be installed on stairs, fixed ladders, platforms, permanent and interim floor openings, loading bays, ramps etc. Openings must be sealed by gates or removable chains (iii) Covers if feasible shall be installed to protect against falling items | UETCL & Contractor |
| | Site drinking water | (i) Water supplied to areas of food preparation or for the purpose of personal hygiene must meet drinking water quality standards. | UETCL & Contractor |
| | Safety program | (ii) A safety program should be established for construction and maintenance work (iii) All employees should be provided with suitable PPE, emergency eyewash and shower stations, ventilation systems, sanitary facilities, pre-employment and scheduled periodic medical examinations. (iv) Periodic monitoring of workplace air contaminants relative to worker tasks and plant operations is required. Workplace air quality monitoring equipment should be well maintained (v) The employer is responsible for planning, implementing and monitoring programs and systems required to ensure OHS on its premises. | UETCL & Contractor |
| | Protection from dust and hazardous materials | (i) Personnel should use special footwear, masks and clothing for work in areas with high dust levels or contaminated with hazardous materials (ii) Precautions must be taken to keep the risk of exposure as low as possible. Work processes, engineering and administrative control measures must be designed, maintained and operated to avoid or minimize the release of hazardous substances to the working environment (iii) The employer must ensure adequate and competent supervision of the work, work practices and the appropriate use of PPE. (iv) All waste to be removed by the contractor before decommissioning | UETCL & Contractor |
| | Handling, storage and labelling of hazardous materials | (i) All ignitable, reactive, flammable, radioactive, corrosive and toxic materials must be stored in clearly labelled containers or vessels (ii) All hazardous (reactive, flammable, radioactive, corrosive and toxic) materials must be stored in clearly labelled containers or vessels (iii) Hazardous materials must be packaged in a manner that keeps them from interacting | UETCL & Contractor |

| Issue | Impact | Mitigation Measures | Status/Responsibility |
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| | | <p>with each other or with the environment or from being tampered with, either purposefully or otherwise. Packaging labels must comply with standards acceptable. Unless otherwise specified by national regulations, it should contain the corresponding UN number preceded by the letter “UN” on each package.</p> <p>(iv) All chemicals and hazardous materials present are labelled and marked according to national and internationally recognized requirements and standards</p> <p>(v) International Chemical Safety Cards (ICSC), or Material Safety Data Sheets (MSDS) or equivalent data/information in an easily understood language must be readily available to exposed workers and first aid personnel. The employer must ensure adequate and competent supervision of the work, work practices and the appropriate use of PPE.</p> | |
| OPERATION PHASE | | | |
| Social cohesion | Impact on social cohesion during the pre-construction and construction phase activities | <p>(i) Communicate with communities effectively and involve their leaders.</p> <p>(ii) Restrict project land use during the operation phase to the line’s right-of-way to avoid project developer from conflict with local communities.</p> <p>(iii) Ensure all PAPs are identified and compensated.</p> <p>(iv) The RAP implementation consultant should try as much as possible to settle compensation issues outside court.</p> | UETCL & Contractor |
| Public safety | The Transmission lines & the safety of the public | <p>(i) Ensure there is proper communication and awareness of local populations.</p> <p>(ii) Educate local populations on safe behaviour around high voltage power lines.</p> <p>(iii) Install warning signs and anti-climbing devices on pylons.</p> <p>(iv) Use safety locks and bolts in order to minimize steel theft risks.</p> <p>(v) Ensure the development of local and regional emergency plans in case of infrastructure breakdowns, especially near roads or residential areas.</p> <p>(vi) Monitor and control illegal connections.</p> | UETCL |
| SECTION 2: MITIGATION PLAN FOR ACCESS ROADS PRE-CONSTRUCTION AND CONSTRUCTION PHASE BIOPHYSICAL ENVIRONMENT | | | |

| Issue | Impact | Mitigation Measures | Status/Responsibility |
|---------------------------------|---------------------|---|-----------------------|
| Vegetation | Vegetation loss | <ul style="list-style-type: none"> (i) Vegetation clearance will be restricted within the road reserves. The contractor will also ensure that: (ii) Clearing exercise is controlled and limited to what is necessary for opening up on new access road, quarry and camp sites; (iii) Earthworks will be kept to a minimum to limit disturbance to large amounts of soil. (iv) Where trees are cut, owners shall be compensated in accordance with the RAP findings. | UETCL & Contractor |
| Water resources | Water contamination | <ul style="list-style-type: none"> (i) Works across wetland areas could be undertaken with effort to ensure minimal siltation and transportation of loose soil materials. (ii) On some section across wetlands the contractor may place gabions and stone boulders to check erosion of loose soil materials. (iii) Raft foundations shall be used in wetland areas. (iv) In areas where it's not necessary to construct a permanent access road to the tower site, temporary access roads shall be constructed and after decommissioned and sites restored. (v) Decommissioning of such roads shall be supervised by the district Environment Officers and District Engineers. | UETCL & Contractor |
| Noise, dust & vibration impacts | | <ul style="list-style-type: none"> (i) Protect people's health from environmental risk and pollution through a number of measures such as; routine sprinkling of water on dust surfaces to suppress dust, availing workers with Personal Protective Equipment (PPE) such as masks, helmets, hand gloves, boots and ear muffs; (ii) Restrict construction activities to day time hours to minimize disrupting sleep in the nearby communities; (iii) All fresh sites for murrum excavation and quarries shall be approved by NEMA through a separate EIAs or Project Briefs. (iv) Dust control will be through routine sprinkling of water on the loose surfaces; (v) Observance of speed limits through speed control sections of the road with humps and related infrastructures. | UETCL & Contractor |
| Soil | Soil erosion | <ul style="list-style-type: none"> (i) Proper storm water drainage facilities (culverts) have to be designed at the various areas along the route to prevent any erosion that may contribute to the increase of suspended solids; (ii) Disposal of cut to spoil will be done under the direction of the Environment Officer and District Engineer who will approve disposal sites; (iii) Dumping of cut to spoil along the road reserves or streams will be prohibited; | UETCL & Contractor |

| Issue | Impact | Mitigation Measures | Status/Responsibility |
|--------------------------|------------------------------------|--|-----------------------|
| | | <ul style="list-style-type: none"> (iv) There will be controlled clearance of vegetation on only sections that are needed for the road works; (v) There will be bench terracing on the hill slopes to check issues of soil erosion and unstable slopes; and (vi) The client/contractor could consider a suitable indigenous cover grass preferably; Cyanodon, Setaria etc could be planted along the drainage channels to reduce scouring effect of water. Steep surfaces would also be kept under grass cover, or where applicable, such surfaces will be stone pitched to stabilize the slope and control erosion. | |
| sources of raw materials | Borrow pits & quarries | <ul style="list-style-type: none"> (i) Before exploitation of the borrow pits is undertaken, the Contractor will secure some lease consent from the landlords for borrow areas and have a Project Brief prepared and approved by NEMA before on set of activities; (ii) Access routes to the borrow pits will be surveyed for any hidden cultural resources (graves, shrines etc) and the route cleared of vegetation and other debris. These cleared materials shall be stockpiled for use during the restoration process of borrow areas and material extraction sites; (iii) Stock pile and cut to spoil materials will be kept in the vicinity of the borrow pits and with the approval of the District Environment Officer and District Engineer, the cut to stockpile materials could then be used in the eventual restoration of the borrow areas in the end. This option will be prioritized in order to reduce challenges relating to the management of cut to spoil materials; (iv) Landscaping and evening up of cliffs could be done on decommissioning of works. There will be efforts to ensure proper drainage of the site to avoid water logging in the areas; (v) Sequential restoration of borrow pits as when they are exhausted of materials; A detailed decommissioning plan will be prepared detailing how the contractor intends to restore the borrow pits after the completion of the project. The restored borrow pits at the end of the project have to be inspected and approved by the respective environment authorities and NEMA and UETCL at the end of the Project's Defects Liability Period; and (vi) Access routes to and from the borrow pits will be restored/ripped off and replanted with grass. | UETCL & Contractor |
| Stone quarry sites | Impacts of stone quarry operations | All quarry sites will be subjected to separate ESIA which will be approved by NEMA before blasting begins | UETCL & Contractor |

| Issue | Impact | Mitigation Measures | Status/Responsibility |
|---|---|---|-----------------------|
| Accidental fuel & oil spills and risks of fires | | <ul style="list-style-type: none"> (i) Spills greater than or equal to 100litres of flammable/combustible liquids or waste oil will be immediately reported to the police 999 and the Fire Brigade. Emergency preparedness will include critical examination of each of the construction to identify potential hazards (ii) Hazardous compounds will be stored in secure locked containers on site in secured enclosures. Compounds used in the curing of concrete, lubricants, and fuel for small equipment will be present on site and kept tidy especially after work; (iii) There is need for an internal alerting system in case of spills. This is because; timely and accurate reporting of accidental spills can help to ensure quick and efficient response. Alerting systems/plans will include clear and detailed information regarding sources and location of such risks; (iv) Principally, the purpose of such a response plan will be to initiate an immediate response with trained personnel and equipment to clean up and ensure containment, disposal, and monitoring, including details regarding equipment and personnel allocation, are also presented; and (v) Finally, the plan will contain a commitment for restoring the contaminated site to its previous state before the accidental spill. | UETCL & Contractor |
| Livelihoods | Loss of agricultural land, property, crops and business | <ul style="list-style-type: none"> (i) Adequate, fair, and prompt compensation and resettlement of PAPs will be implemented in the project; (ii) Communicating to the PAPs early enough on the schedules of the project so that, they can adjust on a number of their livelihoods plans; and (iii) Furthermore, the RAP will define mechanisms for the Resettlement of some of the PAPs as their needs may demand. The demands and needs of the PAPs may differ across the project and therefore, the Resettlement process will be responsive to the extent possible to the prevailing needs of the beneficiaries/PAPs. | UETCL & Contractor |
| <p>PRE-CONSTRUCTION AND CONSTRUCTION PHASE</p> <p>SOCIAL ECONOMIC ENVIRONMENT</p> | | | |
| Psychological impacts associated with land Surveying and mapping | | Sensitization of the local communities and awareness programmes will be implemented as part of the RAP to address such concerns. | UETCL & Contractor |

| Issue | Impact | Mitigation Measures | Status/Responsibility |
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| for access roads | | | |
| Noise and vibration impacts | | <ul style="list-style-type: none"> (i) Sprinkle water on dust surfaces to suppress dust on routine basis. (ii) Ensure all workers have adequate PPE (iii) Construction activities that generate a lot of noise should be restricted to day time. (iv) All fresh sites for murrum excavation and quarries shall be approved by NEMA through separate EIAs or Project Briefs. | UETCL & Contractor |
| Occupational Safety and Health for the workforce | | <ul style="list-style-type: none"> (i) First and foremost, the contractor has to put in place an OSH Plan as provided for under the General Specifications for Road and Bridge works, 2005; (ii) As a prerequisite, the usage of Personal Protective Equipment will be part of the employees' contract and the usage of PPE at work will be mandatory. (iii) It is the obligation of the contractor to provide adequate and quality PPE to all Workers such as masks, helmets, hand gloves, boots, overalls and ear muffs to protect them from dust, noise, sharp machines and other forms of hazards. PPE will be provided in pairs to enable cleaning and changing. (iv) All PPE provided will be of the standard type, fitting and comfortable to work and walk with. For hand tools, they will be sharp and with smooth handles; (v) All employees will be obliged to wear PPE before commencing work and this condition will be part of their employment contract; (vi) Workers will be trained and sensitized on safety measures while on the site and the need to take personal responsibility on one's health and safety; (vii) Guidelines and regulations on site safety will be communicated to all workers, suppliers and subcontractors and will be part of their employment; and (viii) There will be emergency response measures on the site and workers will be sensitized on use of fire fighting equipment. The fire fighting equipment will well service and ready to be used and strategically located in areas that they can be readily accessed in case of any safety problems on site. | UETCL & Contractor |
| OPERATION PHASE | | | |
| BIOPHYSICAL ENVIRONMENT | | | |
| Soils | Soil contamination | (i) Ensure that equipment and machinery are in good operating condition, clean (power | UETCL |

| Issue | Impact | Mitigation Measures | Status/Responsibility |
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| | | <p>washed), free of leaks, excess oil, and grease.</p> <p>(ii) Ensure that all stationary equipment and machinery are installed above spill containment facilities of sufficient capacity.</p> <p>(iii) Keep a Spill Containment Kit readily accessible onsite in the event of an accidental spill and ensure on-site staff is trained in spill response.</p> <p>(iv) Contain any spills onsite and clean up spills as soon as possible.</p> <p>(v) Document and report all spills</p> | |
| Land use concerns | | <p>(i) Compensate all affected PAPs in case wayleave maintenance crew destroys their crops.</p> <p>(ii) Plan for maintenance activities outside the growing or harvesting season.</p> <p>(iii) Allow grazing in the ROW and other agricultural activities in the wayleave, provided that plantations do not exceed 4 m in height.</p> | UETCL |
| <p>SOCIO ECONOMIC ENVIRONMENT</p> <p>Once access roads have been established, there are minor social economic impacts that can be anticipated now. However, once they occur, they shall be dealt with on case by case basis using village courts, bylaws or conventional courts. Such impacts may include people taking advantage of improved access to steal people's properties and food crops in the nearby gardens.</p> | | | |
| <p>SECTION 3: MITIGATION PLAN FOR THE SUBSTATION IMPACTS</p> <p>CONSTRUCTION PHASE</p> | | | |
| Impact on traffic | Possible interference with traffic especially Hoima substation | <p>(i) Construction vehicles will enter and leave the sites at controlled points.</p> <p>(ii) Using signs and barriers, the contractor and also with help of police especially at Hoima substation will direct pedestrians and vehicles traffic as needed around the construction zone.</p> <p>(iii) Some activities can be scheduled in off peak traffic times to minimize impacts</p> | UETCL & Contractor |
| Dust emissions | | <p>(i) To be controlled by wetting exposed soil and road areas with water</p> <p>(ii) Tarpaulins will be used to cover truck beds hauling soil and debris</p> | UETCL & Contractor |
| Solid waste and all forms of Environmentally deleterious materials | | All waste to be disposed in sites approved by the District Environment Officer or NEMA | UETCL & Contractor |
| Noise | | (i) UETCL needs to acquire enough land so as to create a large buffer zone and deter | UETCL & |

| Issue | Impact | Mitigation Measures | Status/Responsibility |
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| | | people from settling close to the substations in future. (ii) Activities likely to generate noise should be restricted to day time | Contractor |
| OPERATION PHASE | | | |
| Hazardous waste at substations including transformer waste oils | | Hazardous materials generated such as transformer oils will be disposed of through existing programs at the office of the Environment, Health and Safety Officer at UETCL which includes having such waste collected by licenced waste disposal service providers. | UETCL |
| SECTION 4: MITIGATION PLAN FOR THE LABOUR CAMPS | | | |
| CONSTRUCTION PHASE (PHYSICAL ENVIRONMENT) | | | |
| Soil | Soil erosion | (i) Vegetation clearing and site levelling activities will be limited to areas required for camp establishment only; (ii) Loose/open soil areas will be compacted to control erosion; and (iii) The contractor will plant ornamental trees and grass on the opened surface to provide vegetation cover and hence control soil erosion. (iv) The contractor should choose a site that is flat and away from streams or wetlands. | UETCL Contractor |
| Waste management at camp sites | Solid and liquid waste impacts | (i) Sort waste into biodegradable and non-biodegradable using various colour coded bins. (ii) Separate hazardous waste from non-hazardous. Hazardous waste to be disposed in Nakasongola and non-hazardous to be disposed in gazzeted municipal landfills. (iii) Plastic waste to be recycled or disposed as hazadous waste above. (iv) Human waste to be disposed temporarily in septic tanks and finally to gazette lagoons by licensed waste transportation and disposal companies. (v) Ensure campsites have separate bathroom & toilet facilities for both males and females. (vi) There shall be routine cleaning of the campsites and workers responsible should be provided with adequate PPE and equipment. | UETCL Contractor |
| Oil spills and leakages | Soil and water contamination | (i) The contractor will ensure that all underground fuel storage tanks are coated with a layer of tar and placed on a concrete slab as a precautionary measure against rusting; (ii) During construction, a qualified inspector will ensure that all the features that have | UETCL Contractor |

| Issue | Impact | Mitigation Measures | Status/Responsibility |
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| | | <p>been proposed to prevent leakage are properly incorporated in the finished job;</p> <p>(iii) Additionally, storage tanks shall satisfy national specifications and requirements such as: Cathode protection against rusting, easily cleaned and waste disposed responsibly and pressure testing to ensure that tanks and connecting pipes withstand pressures up to 50 Psi (equivalent of 350 kN/m²) done regularly.</p> | |
| Used engine oil | Impacts arising from poor disposal of used engine oil | <p>(i) The contractor will ensure that all spillage and oil-contaminated water be directed to the internal drainage system running through an oil-water separator;</p> <p>(ii) Oil-water separators (oil interceptors) require regular cleaning and maintenance and records of these activities will be kept;</p> <p>(iii) Care will be taken however to ensure that the interceptor is not overloaded with surface waters from areas where there are no risks of contamination; and</p> <p>(iv) Old engine oil to be temporarily stored in leak proof containers/drums</p> <p>(v) All spent oil could be sent back to the oil companies (agents supplying oil and petrol to the Contractor for proper recycling.</p> | <p>UETCL</p> <p>Contractor</p> |
| CONSTRUCTION PHASE (SOCIAL ECONOMIC ENVIRONMENT) | | | |
| Welfare of workers and public health concerns | | <p>(i) The contractor or subcontractors shall procure a secure and descent accommodation (with male & female units) for all resident staff either through renting the existing structures in the project area or by constructing new houses in consultation with UETCL.</p> <p>(ii) The floors of the housing units will be cemented and they will have be approved by the District Health Inspectors from the host district;</p> <p>(iii) The contractor's top management will note the need for cordial and harmonious relations with its workers and the communities;</p> <p>(iv) There will be decent & adequate toilet facilities for the workers in the camp site and work place catering for both sexes.</p> <p>(v) The developer will provide workers with protective gears/wears during construction work to prevent injury and where necessary to avoid contracting germs and or diseases;</p> <p>(vi) Workers and the community should be sensitized on protective behaviour and practices during work by distributing appropriate education materials to workers and the surrounding community.</p> <p>(vii) The developer will establish a first aid facility at the construction site to treat injury cases whenever they occur.</p> <p>(viii) The project contractor is also advised to employ services of an independent</p> | <p>UETCL</p> <p>Contractor</p> |

| Issue | Impact | Mitigation Measures | Status/Responsibility |
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| | | <p>NGO engaged in HIV/AIDS activities to sensitize and treat both the project workers and the communities around the work site. This should be included in the bill of quantities during procurement as part of main streaming HIV/AIDS prevention in the project.</p> <p>(ix) High risk groups such as the youths especially students should be continuously sensitized on the dangers of casual sex, consequences of early marriages, teenage pregnancy and monitored to ensure that such groups are not at risk of falling victims.</p> <p>(x) Provide surveillance and active screening and treatment of workers and the community where a communicable disease is discovered.</p> <p>(xi) All impacts of public health nature should be mitigated using a well-coordinated approach that must involve health units in the affected sub-counties including collaborations with local NGOs involved in similar activities to pool resources (especially human resources) and increase efficiency of mitigation measures being instituted.</p> <p>(xii) Excessive alcohol abuse should be discouraged as a company policy among power line construction workers.</p> <p>(xiii) Other aspects of health and safety should be should be adhered to as presented in the Health and Safety Management plan (section 9.8).</p> | |
| Campsite security | | <p>(i) Entrance to the camp site will be controlled through guards and vehicles entering and leaving the camp site will be subject to checks;</p> <p>(ii) All visitors to the camp will wear visitors cards which are exchanged with their identity cards which they surrender to security at the gate;</p> <p>(iii) Proper lighting will be ensured to supplement the security system.</p> <p>(iv) The project management and staff will be keen on idlers in the camp site;</p> <p>(v) The management of the project will liaise with nearby police units to reinforce their security;</p> <p>(vi) The contractor could ensure security personnel hired will be from a reputable local security firm with good record.</p> <p>(vii) The entire camp boundaries should be defined and securely fenced.</p> | UETCL Contractor |
| Campsite generator | Noise impact from the generator | <p>(i) A good design of the generator room and good positioning of the exhaust pipe will minimize noise from the generator.</p> <p>(ii) The generator will be housed in a concrete house to buffer noise impacts.</p> <p>(iii) The generator will be operated till 10pm to avoid disrupting sleep in the neighbourhood.</p> <p>(iv) The contractor could install a silenced generator model to control noise level.</p> | UETCL Contractor |

| Issue | Impact | Mitigation Measures | Status/Responsibility |
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| Fire | Accidental fires and impacts | <ul style="list-style-type: none"> (i) Fire warning notices/stickers/signs will be up on pillars of the pump island warning motorists not to smoke while at the facility, to switch off mobiles and any such electric/electronic gadgets such as cameras and motor engines while refuelling. (ii) The workers will be trained in fire fighting, fire control and first aid skills. First Aid facilities will be provided on site and accessible to all personnel; and there will be in place a Spill Prevention, Counter Measure and Control Plan (SPCC); (iii) There will be fire extinguishers; and two sand-buckets per fuel pump properly positioned at all times for emergency fire. Additionally, all electrical installations or future modifications on service station shall conform to accepted national safety standards; (iv) Tank building design, materials and methods shall be adopted that reduce, and/or eliminate, the occurrence of fire. In addition, insulation materials for fuel pumps/stations shall be used that have a limited potential to be either ignited, or support flame. (v) Tanks shall be covered and at a distance of 10-15m from the pumping point. And fuelling station shall have a minimum of two exit points, which shall not be locked during working hours; (vi) Fuel spills shall be avoided and when they occur they shall be cleaned immediately (vii) During the night, there will be a security guard on duty daily to guard against intruders and wrong elements; and (viii) The camps must have part of the site designated as a fire evacuation/assembly area. (ix) Smoking should only be allowed in designated low-risk areas. No smoking must be allowed near fuel storage areas. (x) The camp should maintain a 10-metre strip of bare ground to act a fire barrier around the camps. (xi) All hydro carbons shall be stored and managed in NEMA gazetted centers with clear instructions on how such fuels should be handled. (xii) Relevant government authorities such as Ministry of Works, National Bureau of Standards; the District Environment Officer, and NEMA shall regularly inspect the fuelling stations. | |
| OPERATION PHASE | | | |
| Upon commissioning of the transmission line, the camps may be maintained by the contractor until expiry of the deficit liability period after which they may be decommissioned. Meanwhile, most of the immigrant workers will have returned to their places of | | | |

| Issue | Impact | Mitigation Measures | Status/Responsibility |
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| <p>origin. The camp may be maintained by few technical staff. Decommissioning of all infrastructures constructed as a result of the transmission line works shall be guided by a compliance environmental audit that shall be commissioned by UETCL and conducted by Certified Environmental Auditors. A decommissioning plan for camp(s) shall be approved by NEMA in consultation with the District Environment Officer and District Engineer.</p> | | | |
| <p>DECOMMISSIONING A decommissioning fame work has been presented in section 2.3.</p> | | | |

9.5 TRAFFIC MANAGEMENT PLAN

9.5.1 Overview

The EPC Contractor's Traffic Management Plan (TMP) should include recommended practices for moving equipment and persons to, from and along the way leave. It also contains provisions for management of connection points between way leave access roads and the main public highways, and for any upgrading work to be carried out. The TMP specifies the procedures for monitoring construction-generated traffic movements, and associated environmental problems.

The TMP contains procedures for:

- ✓ Parking on site traffic movement
- ✓ Training, testing, of heavy equipment operators and drivers, including vision tests, and record training
- ✓ Use of project vehicles/buses to transport workers to reduce pressure on existing public transport
- ✓

The TMP should provide the framework for smooth traffic flows and prevention of accidents as well as risks to workers, visitors, and the community by ensuring proper and safe traffic flows. The TMP should be implemented in accordance with the Traffic and Road Safety of 1998 and the workers compensation Act of 2000, Occupational Safety and Health Act 2006 and the HIV/AIDS at work policy of 2007.

Purpose

The scope of the TMP covers the actions to be taken by all Contractor project personnel (including Sub-contractors personnel) involved in the operation of motor vehicles and provides measures to be implemented by the EPC Contractor to ensure safety of the project personnel and the public.

Responsibility

The Safety Site Coordinator will have the following responsibility:

- ✓ Check and ensure the drivers have the right qualifications and experience
- ✓ Ensure lane closures against traffic flows which can unduly affect capacities to an unacceptable level
- ✓ Ensure works are undertaken in a safe manner by having a guide to manage traffic flows
- ✓ Make sure the project site is properly delineated at all times
- ✓ Ensure all entry and exit movements to and from traffic streams are in accordance with the requirements of safe working practices
- ✓ Ensure that a 40 km/hr. speed restriction is imposed at the work site and in accordance with traffic guides
- ✓ Ensure that the traffic control layout at each work site location is detailed in the traffic control plans

9.5.2 Traffic Assessment

9.5.2.1 Overview

The works will be undertaken during day from 0800 to 1700 hours. However, the lane closure will need to be maintained at all times while excavation is in place. If the traffic data indicates that the traffic volumes will exceed the recommended lane capacity requirements, work can be undertaken during periods when traffic volumes are anticipated to be lower. Drivers will also take alternative route where possible once they are aware of the potential for delays. Information related to this will be communicated to using appropriate media e.g. FM radio stations and local newspapers.

9.5.2.2 Hazard Identification and Risk Identification

The following approach will be used for identifying and controlling hazards:

- ✓ Elimination
- ✓ Substitution
- ✓ Engineering
- ✓ Administration
- ✓ PPE

Elimination

Potential hazards associated with the interaction of road traffic such as motor vehicles, pedestrians, cyclists will be eliminated where practical by excluding such traffic from entering the work site. Adequate road signs to warn pedestrians and motorists of construction activities and or/diversions

Substitution

Once methods prove unfeasible, then an alternative method would be proposed to complete the work without compromising the national and international safety and work practice standards.

Engineering

Project vehicles and equipment existing and entering work sites will be fitted with flash warning lights and hazard lights. All vehicles and construction equipment will be required to have reversing alarms for operations within the work site. Work sites and lanes will be cordoned off from traffic by the placement of cones and signage in accordance with the Uganda Traffic standards. All project vehicles and equipment will be fitted with flashing amber warning and hazard lights, and will be required to have reverse alarms.

Administration

The Contractor will issue safe working procedures for the project workers and vehicles required to enter and leave the construction site into trafficked lanes. Site induction training will take place to advise workers of the potential hazards associated with traffic environment. Traffic control plans and instruction for the setting out, maintenance and removal of signs, cones, temporary pavement markings and other traffic control devices will be prescribed. Procedures and work practices relating to the monitoring, evaluation,

and review of the traffic controls will be prescribed. Communication programs and advance warning signs will be required to inform affected stakeholders of the potential hazards associated with the work site.

Personnel Protective Equipment (PPE)

All workers at the project will be required to wear the appropriate PPE. Traffic controllers will be required to wear high visibility protective clothing and reflective vests as well as steel capped safety boots. When workers on site are required within a specific construction site, traffic controllers may be required to wear additional PPE (hard hats, ear protection, and safety glasses). Traffic controllers will be required to meet the minimum PPE requirements set out by the client prior to entering the work site.

Minimizing Air Pollution

In order to minimize the air pollution, the following measures will be followed to control exhaust emissions

- ✓ Equipment will be maintained in good running condition, no vehicles that generate excessive black smoke should be allowed
- ✓ Vehicle load restrictions will be in force to avoid excessive emissions from engine overloads
- ✓ Where practical, engines should be switched off when not in use
- ✓ Access roads shall be sprinkled with water at least five times a day in settled areas to suppress dust emissions

Procedures for Risks Assessment

- ✓ The procedure for undertaking an on-going risk assessment will be
 - Evaluation; Each worksite will be checked by the site engineer to assess the risk prior to set out
 - Work site changes; any changes will be made by the site engineer after the risk assessment has been checked. All changes to work site will be documented in the daily diary
 - Monitoring of work site; the work site engineer will be responsible for monitoring the site hazards and changes to be made according as per matrix. Upon completion, all access roads shall be ripped rehabilitated, and in specifically in wetlands removed.

Traffic Management Implementation

Sequence and Staging

Traffic management requirements must be observed at all times as indicated in the TMP. Details will be provided for all activities relating to installation, staging and removal of signage, lane closures and work activities. These activities will be recorded in the Daily diary detailing that the time at which they occur.

- ✓ Erection approach and departure advisory signage on approaches to site
- ✓ Lane closure
- ✓ Undertake and complete installation of 132 kV cable
- ✓ Removal of delineation devices and reopening of closed lanes traffic
- ✓ Removal approach and departure advisory signage

- ✓ Installing road condition advisory signature

9.5.3 Risk Control

The EPC contractor will eliminate all potential hazards associated with the interaction of road traffic and work site personnel through speed restrictions, lane closures and delineation devices to ensure that hazards associated with the mingling of this traffic and work will not occur. Modifying the approach signage layout and installing repeater speed zone signs will minimize potential increase in rear end crashes that may rise should the queue length of traffic on the approaches to the work site extent beyond the proposed advisory signage layout. All project vehicles and equipment will be fitted with flashing amber warning lamps and hazard lights, and will be required to have reversing alarms for operations within the project site. Work sites and lanes will be cordoned off from through traffic by the placement of cones and signage in accordance with National Standards.

The following measures will be taken:

- Speed zones shall be put in place where required.
- Safe working procedures will be followed by vehicles required to enter and leave the construction site into trafficked lanes.
- Traffic control plans and instruction for the setting out, maintenance and removal of signage, cones and other traffic control devices will be prescribed. Documentation of this will be recorded in daily diary.
- All workers will be required to wear high visibility protective clothing and reflective vests.
- Where Traffic controllers are used, they are to be relieved at two hourly intervals and are to be in two-way communication with each other for the duration of the work shift. Traffic controllers are to use night wands in conjunction with the stop/slow bat for night works.
- Site foreman and Site Safety Coordinator will be in two-way communication with each other and the traffic controllers for the duration of the work shift.

9.5.4 Flashing Arrow Signs

Where flashing arrow signs are required to better delineate lane tapers, these will comprise a matrix of lamps or light emitting elements in the form of an arrow that is flashed in a cyclical manner to provide advanced warning. The sign shall have a minimum dimension of 2400 mmx 1200mm. and conform to international standards. The Site Safety Coordinator/Works Supervisor shall ensure that all equipment used meets the National standards.

9.5.5 Temporary Signs and Delineation

Requirements for signage

All signs used shall conform to the designs and dimensions and the national and International traffic standards and codes. Prior to installation, all signs and devices shall be checked to ensure that they are in good condition and meet the following requirements:-

- *Mechanical condition* – Items that are bent, broken or have surface damage shall not be used.
- *Cleanliness* – Items will be free from accumulated dirt, road grime or other contamination
- *Colour of fluorescent signs* – Fluorescent signs whose colour has faded to a point where they have lost their daylight impact shall be replaced.
- *Retro reflectivity* – Signs for night time use whose retro reflectivity is degraded either from long use or surface damage and does not meet the national standards shall be replaced.
- *Battery Operated Devices* – shall be checked for lamp operation and battery condition. Where signs do not conform either to the requirements standards or would fail to pass any of the above checks, they shall be placed on notice from the Site Environmental Coordinator. All signs shall be positioned and erected such that they:-
 - ✓ are properly displayed and securely mounted;
 - ✓ are within the driver's line of sight;
 - ✓ cannot be obscured from view;
 - ✓ do not obscure other devices from the driver's line of sight;
 - ✓ do not become a possible hazard to workers or vehicles; and
 - ✓ do not deflect traffic into an undesirable path.

Signs will be placed clear of the travelled path and erected in accordance with the installation plans. Advanced warning signs; other warning signs; Regulatory and other signs; Delineation devices such as cones shall be placed in the same sequence, i.e. those furthestmost in advanced placed first. Signs and devices that are erected before are required shall be covered by a suitable opaque material.

9.5.6 Daily Routine Tasks and Record Keeping

The Site Safety Coordinator will ensure that all temporary signs, devices and controls are maintained at all times. To achieve this, procedures in line with the requirements outlined above will be instituted. The monitoring program shall incorporate inspections;

- Before the start of work activities on site,
- During the hours of work,
- Closing down at the end of the shift period, and
- After hours.
- A daily record of the inspections shall be kept indicating;
- When traffic controls were erected,
- When changes to controls occurred and why the changes were undertaken,
- Any significant incidents or observations associated with the traffic controls and their impacts on road users or adjacent properties.

Where an incident is observed or reported associated with the site incident reporting and investigation procedures; will be instigated in accordance with the Health and Safety Management Plan.

After working hours and on non-work days the traffic management layout must be checked at least every six hours and the frequency increased if traffic management elements such as signs, bollards, traffic cones or crash barriers have been disturbed. Any disturbance of such elements must be recorded with sufficient detail to identify the elements involved and the traffic management plan restored to full effectiveness.

Delineation

For short-term lane closures operating for less than 24 hours, cones will be used for delineation. All cones will be at least 700mm in height and constructed from fluorescent orange or red material that is resilient to impact and will not damage vehicles when hit at low speed. Cones shall be designed to be stable under reasonably expected wind conditions air turbulence from passing traffic. Cones will be inspected at intervals necessary to ensure any miss-alignment or displacement is identified and corrected prior to this causing disruption to traffic. For long term works where delineation will be required for more than 2 weeks, fixed base bollards shall be installed to ensure that the temporary median island created by the bollards remain in place for the duration they are required.

9.5.7 Contingency Arrangements

Road accident or vehicle breakdown within the project area will be attended to immediately and remedial measures taken. Road works that may impact on any services requiring access the project area will be cleared from the area quickly as necessary. Project traffic controllers, supervisors and foreman will be equipped with mobile communications to advise and/or liaise with emergency services to ensure a prompt response will the need arise. There will be a site nurse to assist where required. The Contractor shall when necessary, advise the authorities (Police, Fire brigade and other emergency Services) in the event of an emergency during the proposed works and traffic management arrangements

Pedestrian Access

- Location of access roads/detours shall be done in consultation with the local community especially in important or sensitive environments.
- Access roads shall not traverse wetland areas.
- Pedestrian access will be restricted at times throughout the proposed works. The existing layout of the pedestrian pathway system will be such that there is no existing pedestrian crossing the site. Detours to other footpaths will be signposted.
- After consultations with the Local communities, mechanisms will be put in place to take care of persons that might use the pedestrian crossing.
- Designated walkways must be used to prevent contact with mobile project such as forklifts and vehicles

Public Transport

Public transport will be directed past the work site as part of the general traffic stream. Parking space will be secured outside the construction area. Care will be taken in deploying the traffic management devices to ensure that traffic rules are not compromised.

Traffic Flows

Accredited traffic controllers shall be called to monitor traffic in peak periods. Any drivers that do approach the project area will be able to legitimately make all manoeuvres before the construction site. The Site Safety Coordinator must call on additional traffic controllers if this situation is likely to occur regularly on weekdays.

Monitoring and Revisions

The Site Safety Coordinator will monitor driver's conduct and performance, to ensure high safety standards are maintained. Disciplinary measures, including verbal, written warnings or dismissal, will be used in the event of driving infractions. The TMP will also address construction traffic volume and the impact on local road conditions aimed at identifying required improvements and maintenance.

The Contractor will endeavour to monitor the traffic situation carefully especially on the first few days of operation to ensure that future monitoring is proper. Any minor adjustments to improve performance and safety will be made and recorded as specified. If significant issues arise then the plan will be promptly reviewed. This includes pedestrian safety matters, detour arrangements, signage and lighting.

9.5.8 Public Awareness Campaign

The Contractor will undertake a public awareness campaign prior to commencement of the works to advise all road users of the forthcoming works, the likely timeframe of the works and road conditions likely to be encountered. This campaign will be broad enough to reach the general motoring public and will consist of a combination of the following options:

- Erecting advance advisory signage in the form of a black and yellow temporary sign erected on the approaches to the work site 10 days prior to commencement of works indicating the type of work to be undertaken, and the time and date of the works.
- Place notices in the local newspapers and FM radio stations.
- Install variable message signs to warn traffic of possible congestion at the work area.
- Liaise with emergency services (i.e. Police, Fire brigade and other emergency Services).
- Liaise with the Ministry of Works, Housing and Communication and police where public transport is likely to be affected;
- Liaise with Local Authorities regarding local issues and possible disruption of commercial services
- Liaise, if necessary, with affected business proprietors and/or residents to make appropriate provisions.

Newspaper/Radio and Notices

A newspaper notice will be placed in popular daily newspapers and local FM radios for two consecutive weeks immediately before the commencement of given works that are likely to affect road transport.

Other Requirements

Prior to the finalisation of any traffic control plan, the contractor shall liaise with the Police, Ministry of Works, Housing and Communication, Local Authority and any other affected stakeholder to ensure all concerns are considered and appropriate strategies to address those concerns are embodied into the relevant traffic control plans.

9.5.9 Records

Daily set out and implementation of traffic control devices, lane closures and delineation as per the Traffic Control Diagram specific to the stage of works and site, shall be documented in a daily diary. Any variation to the Traffic Management Plan and/or Traffic Control Diagram shall be documented, state the nature of the variation and state the reasons that the variation was necessary.

9.6 WASTE MANAGEMENT PLAN

9.6.1 Purpose of the Waste Management Plan

The Contractor should strive to achieve accepted international best practice of waste handling and management. Achieving best practice means that waste generation is minimised, recycling is practiced wherever possible and that the disposal of wastes is undertaken in a responsible manner. The waste management plan has been developed based on best practice principles of cleaner production. It is a three tiered system aimed at:

- minimising the creation of waste through efficient use of resources,
- maximising reuse and recycling of waste materials,
- Appropriately disposing of all generated waste materials to prevent environmental harm and minimise volumes disposed to a designated area.

The disposal of waste has the potential to adversely affect the natural and physical environment and amenity values of the project. The Waste Management Plan (WMP) Plan specifies provisions for disposal, re-use or recycling and disposal of wastes including solid and hazardous waste. The scope of WMP includes actions to be taken by Contractor (including Subcontractors personnel) for the management and proper and safe disposal of waste materials generated by the project activities.

Specifically the purpose of the WMP is to:

- Identify the different types of waste likely to be generated by the BIP
- Define their segregation methods
- Provide information on local waste transportation and disposal regulations and permitting requirements;
- Define responsibility for waste management handling including safe disposal; and
- Comply with EPC Contractors environmental requirements, policies and procedures and with Environmental laws, rules and regulations applicable in Uganda regarding Waste Management.
- Establish a system of colour coded bins to segregate waste at its source.
- Develop a system whereby any new chemical that is not currently used on site is approved first by UETCL
- Zero hazardous wastes disposed to landfill.

Proper waste management will be accomplished through:

- Reduction
- Reuse
- Recycling
 - Recovery
 - Treatment; and

- Responsible disposal

Responsibility

The Contractor should ensure that the health, safety and welfare of its employees, subcontractors, and members of the public and achieving sustainable environmental objectives at all sites. During the implementation the Contractor will be responsible for the collection, storage, treatment and transportation of all types of waste generated during the course of project activities. The Contractor will provide all the necessary planning, materials, equipment, tools and training required to ensure appropriate project waste management. For project activities in the field all waste generated will be collected and disposed of at a recommended waste disposal site after consulting relevant authorities.

9.6.2 Waste Management Guidelines

The Contractor should be committed to integrated waste management and aware that consent may be required for any discharge of waste to public sewerage or storm water drainage systems. As a result the Contractor will put in place the following measures:

- Encouraging re-use of materials where possible.
- Separating re-usable and recyclable materials from non-recyclable materials prior to disposal.
- Providing adequate space on-site for storage of separated material.
- From time to time, undertaking a review of waste stream to identify the types and quantities of wastes generated.
- Monitoring waste stream to minimise unnecessary waste and to reduce the cost of oversupply and waste disposal.
- When purchasing materials and equipment the Contractor will take into account the cost of disposing of additional or unnecessary packaging, as well as the type of packaging.
- The Contractor will purchase materials that have recyclable content where possible.
- Avoiding discharging of waste to sewerage or storm water drainage systems where possible.

9.6.3 Waste Minimisation

The Contractor's waste management plan will be in compliance with the applicable Ugandan regulations.

Waste types to be generated during the project period will include:

1. Non-hazardous waste: This is waste that is not hazardous and may consist of recyclable and non-recyclable components. Non-hazardous waste can be a combination of putrescible and non hazardous waste materials.
2. Hazardous Waste: these are wastes which by virtue of their concentration of constituents and characteristics (such as ignitability, corrosiveness, reactivity, toxicity, radioactivity etc.) pose a hazard to human or environmental health if improperly managed e.g. waste oil and lubricants. The Contractor will dispose of Hazardous waste in compliance with national and international requirements.

9.6.4 Waste Reduction and Disposal

Activities within the project can generate significant quantities of waste. The contractor will ensure that the collection, recycling, recovery, treatment and disposal of wastes have positive and no adverse effects on the environment. A reduction in waste volume will reduce the scale and intensity of those effects. Some wastes will be treated or processed so that it is no longer waste.

Waste reduction is an important means of promoting sustainable management and supports the Waste Management Plan under the National Environment (waste Management) Regulations (1999). Under regulation 5(1), a person who owns or controls a facility or premises, which generate waste, shall minimize the waste generated by adopting cleaner production methods like incorporating environmental concerns in the design and disposal of a product.

The Contractor will ensure that solid waste volumes reduced by:

- Reduction in the volume of solid waste generated.
- Reduced consumption and reduced waste of resources.
- Reduction in environmental pollution and land contamination through better management and disposal of solid waste.
- Recovery of resources that will yield economic and social benefits to the community.
- Appropriate siting, design and management of waste management activities.
- Practices that reduce the volume of solid waste generated and disposed of in an environmentally friendly manner should be promoted.
- Waste should be minimised where possible, or re-used or recycled.
- Encouraging community involvement and private enterprise participation in the reduction, collection and recycling of solid waste. However for the communities, this will be done in consultation with local councils.

The Contractor will ensure that any sub-contractor hired to effect of solid waste collection, recycling, recovery, transfer, treatment and disposal operations will minimise social and environmental impacts. To achieve this, the Contractor will ensure that solid waste collection, recycling, recovery, storage, treatment and disposal activities are properly sited, designed and managed to avoid, remedy or mitigate adverse effects on the environment, amenity values. In particular negative impacts on health and safety, high quality soils, landscapes, and ecologically and culturally sensitive areas will be minimised.

9.6.5 Waste Management Activities

The Contractor will collect, treat and dispose of waste. Wastes will be collected in temporary, clearly labelled containers. Efforts will be made to recycle the wastes and only disposal off those that cannot be recycled. Waste management facilities will be appropriate designed and managed to minimise adverse effects. The effects vary with the receiving environment and type of waste. Waste containing hazardous substances can pose health and safety risks and will be dealt with as indicated in the Hazardous Waste Management Plan.

The philosophy of waste minimisation, recycling, treatment and disposal (as a last resort option) applies to each of the categories of waste that will be generated during the Interconnection Project. These include:

- Regulated or Hazardous wastes

- Food Wastes also known as putrescible waste
- Non-hazardous recyclables
- Non-hazardous non-recyclables
- Metallic wastes/scrap

The disposal options for major regulated waste streams that are likely to be generated at the project are as outlined below.

Disposal of chemical containers and leftover chemicals will be an important consideration in the granting of environmental approval. If possible the need to dispose of containers should be totally eliminated by using bulk systems (e.g. for oils, acids, reagents and detergents).

The Contractor will keep a database of all chemicals and this is used to assist in the management of chemicals on site. The database will be held in the Health and Safety Department. This system will be supplemented by regular inspections to ensure chemicals are correctly stored, labelled, transported and disposed.

Oil Waste

The primary emphasis will also be on minimising the generation of oily waste. Strategies that will be developed to assist this process include:

- Bulk storage of lubricating, hydraulic and gear oils to eliminate the need for drums.
- The use of water-based, quick-break degreasers and detergents that effectively clean and enable oil/water separator systems to work effectively
- Storage of all oils that are being used in concrete bunded areas to minimise the potential of contaminating soil with oil.
- An effective planned maintenance system to minimise the chances of hydraulic hose rupture.
- Orderly storage of oils in stores yard i.e. no leaking drums, no storage of drums on its side, wooden pallets in good condition.

Recycling/Disposal Waste oil

Waste oil will be removed from machinery and a mixture of hydraulic, lubrication and gear oils will be combined in waste oil tanks situated in bunded at selected areas. The oil will be periodically collected by the supplying oils companies.

Oily Rags and Oil Filters

Oily rags and oil filters are placed into labelled drums. They will be disposed off in consultation with District Environment Officer and preferably they will be taken for incineration.

Medical Waste

Medical waste that will be generated from the project or onsite treatment will be placed in labelled medical waste containers by the Medical staff. Disposal of medical waste will be via burning in an incinerator (under supervision of Medical staff at a given incinerator location).

Batteries

The Contractor will produce a limited number of used batteries each year. Efforts and negotiations will be made so that used batteries can be taken to Uganda Batteries for recycling.

Tyres

All used tyres will be collected by a designated local contractor.

Sewerage

Depending on the location, sewage disposal may be to a public sewer system or a septic tank connected to a soak way pit. No sewage or any other untreated waste water will be discharged to the surrounding streams and environment. For the work force while in the field, mobile toilets will be provided. They will be emptied as soon as they feel up and the contents taken to given public wastewater treatment facility. Food wastes generated from different project sites including canteens and field sites. These wastes will be put in labelled containers and disposed off to a given municipal disposal facility.

Non-Hazardous Recyclables

All non-hazardous materials with the potential for recycling are segregated and either recycled on-site or sent off-site.

Cardboard/Paper

Cardboard and paper is placed into labelled and colour-coded bins. As a result this material is burned to prevent it being scattered outside of the rubbish tip.

Wood

The main source of waste wood is packing crates and pallets. Wood is collected into bins and sold or given away to the local community.

Scrap Metal

Scrap-metal will be separated and put in labelled and colour-coded scrap metal bins and will be periodically collected by a designated local contractor who will be advised to take it for recycling (scrap for cash).

Non-Hazardous Non-Recyclables

General non-hazardous waste not suitable for recycling includes general litter and a range of plastic wrappings. These items are placed in general refuse bins and disposed at appropriate designated sites.

9.6.6 Logistics and Temporary Storage

Bins

Each work area will be equipped with a range of colour coded and labelled bins and primary segregation of rubbish will take place in the work-place as indicated in Table 9.3.

Table 9.3: Possible Rubbish Bin Colour Codes and Labelling

| COLOUR | COLOUR NAME | MEANING |
|---|-------------|--|
|  | Green | Food Wastes (Marked FOOD WASTES ONLY) |

| COLOUR | COLOUR NAME | MEANING |
|---|-------------|--|
|  | Yellow | Paper/Cardboard (Marked PAPER/CARDBOARD ONLY) |
|  | Light Blue | Plastic/General Waste (MARKED PLASTIC/GENERAL WASTE ONLY) |
|  | Orange | Medical wastes (Marked MEDICALWASTES ONLY) |
|  | Grey | Scrap Metal (Marked METAL ONLY) |
|  | Red | Oily Wastes including Filters (Marked OILY WASTES ONLY) |
|  | Brown | Wood (Marked WOOD ONLY) |

Primary pick-up

The Safety Department will be responsible for ensuring that bins are emptied on a regular basis and that segregated waste is taken to its appropriate location.

Removal

Waste removal will be undertaken routinely by a number of contractors and delivered to the appropriate off-site locations.

9.6.7 Regulatory Methods

The Contractor will conform in all respects, with the national rules namely;

- Those requiring the provision of space for waste minimisation and storage of recyclable materials in comprehensive residential developments.
- Those that control activities by reference to location, scale and intensity of solid waste management activities, and hours of operation.
- Rules that control the storage, use, disposal and collection of hazardous wastes and other wastes.

Information, Advocacy and Education

The Contractor will:

- Provide information to encourage, promote and support waste minimisation.
- Increase public awareness of ways to reduce waste disposal and increase diversion.
- Promote waste management guidelines for non-residential activities.
- Increase public awareness of appropriate disposal of building and demolition materials.

9.7 LABOUR FORCE MANAGEMENT PLAN

9.7.1 Purpose

This Labour Force Management Plan (LMFP) is to comply with the minimum Government of Uganda and International Labour Standards, which include:

- Freedom of association and collective bargaining;
- Non-discrimination and equality of opportunity;
- Freedom from child labour;
- Freedom from forced labour;
- Retrenchment of which the core requirement of which is to have a retrenchment plan based on consultation and non-discrimination;
- Working relations which should include documentation and communication of conditions;
- Working conditions which should comply with collective bargains or, where these are not in place, national law minimums on matters such as pay, hours, etc;
- Grievance mechanisms whereby an appropriate procedure must be in place for workers; and,
- Human resource policy where the Contractor is expected to have a human resource policy in place.

The Contractor will ensure that the management of all employees working on the Project including those who are indirectly employed:

- Complies with Ugandan law and meets the requirements of the African Development Bank Performance Standards;
- Optimises the benefits associated with construction employment; and,
- Mitigates where possible any negative impacts that might occur as a result of construction employment or subsequent retrenchment.

This LFMP seeks to achieve the above objectives through clear and manageable plans and procedures, underpinned by the explicit guiding principles detailed below. This LFMP is applicable to the direct and indirectly-employed workforce (i.e. subcontractors), at all skill levels working on the project.

9.7.2 ILO Principles

Within this LFMP nine labour standards are addressed. The first four of these are stated in the Declaration on Fundamental Principles and Rights at Work adopted by the International Labour Organization (“ILO”) in 1998. Unlike an international labour convention that binds only members that ratify it, the Declaration applies automatically to all countries that have accepted the ILO Constitution. This means the Contractor should promote and realize these four fundamental standards outlined below:

- Freedom of Association and the effective recognition of the right to collective bargaining;
- Elimination of all forms of forced or compulsory labour;
- Effective abolition of child labour; and,
- Elimination of discrimination in respect of employment and occupation.

In addition to these standards, the Contractor will ensure recognition of the action points that cover five further standards based on other international conventions of the ILO and on provisions contained in regional and national law including:

- Health and safety including HIV/AIDS prevention;
- Wages to be paid in full and on time, to meet legal minima and be sufficient for basic needs;
- Paying for hourly workers, working hours to be limited, and overtime;
- No repeated casualisation to avoid meeting wages and other legal benefits; and,
- Ensuring that relevant social security regimes to be applied.

9.7.3 Compliance with Laws

The Contractor will conform in all respects, including by the giving of all notices and the paying of all fees, with the provisions of:

- Any national or state statute, ordinance, or other law, or any regulation, or by-law of any local or other duly constituted authority in relation to the execution and completion of the project and the remedying of any defects therein; and,
- The rules and regulations of all public bodies and companies whose property or rights are affected or may be affected in any way by the project.

9.7.4 Responsibilities

The Contractor will be responsible for the implementation of this LFMP.

The following sections outline the principles and measures that the Contractor will take to address each of the standards and policies outlined above.

9.7.5 Employment

The Contractor will employ technical staff who are skilled and experienced in their respective callings and such foremen and leading hands as are competent to give proper superintendence of the project. The skilled, semi-skilled and unskilled labour is necessary for the proper and timely fulfilling of the construction, including implementation of planned mitigation and community development measures for the project.

The Contractor will also ensure that local residents are given first priority for job opportunities for which they are qualified, before workers from outside the region are hired. Details of specific job opportunities will be released and information provided on application procedures.

9.7.6 Freedom of Association

The Contractor should recognize the freedom of its employees, the non-employee workers of the project, and the EPC Contractor employees and their sub-contractors to be members of registered trade unions and to participate in collective bargaining agreements. Workers shall be allowed to establish and join work-based organizations if they wish to negotiate wages and other working conditions.

The Ugandan Labour Unions Act (2006) regulates the establishment, registration and management of labour unions and provides for other related matters. The Government of Uganda Labour Disputes (Arbitration and Settlement) Act, 2006, outlines the process for the resolution of disputes with regard to Labour. ILO conventions C87-Freedom of Association and Protection of the Right to Organise 1948; C98- Right to Organise and Collective Bargaining 1949; and C135 - Workers Representatives Convention 1971 will apply.

9.7.7 Equality of Treatment

The ILO conventions to be applied include the C 100 - Equal Remuneration 1951; and C111 -Discrimination (Employment and Occupation 1958) conventions. Discrimination

means denying someone a job or training on the basis of a factor, which does not affect their ability to perform that job. For example, because they are from a particular region, ethnic group, or because they are women. In practice discrimination is often justified in terms of culture, e.g. “our women like to carry concrete”, implying they will not be considered for other jobs. Such an attitude is discriminatory if it results in limiting employment opportunities for a particular group.

The Contractor should commit to ensuring that men and women hired for work on the project receive equal rates of pay for equal types of work. They will not discriminate in its hiring and employment practices on any basis of sex, race, culture, religion, sexual orientation, or other aspect as per ILO convention.

9.7.8 Wages

ILO standards deal with the issue of wage protection: Protection of Wages Convention (No. 95) and Recommendation (No. 85). They also deal with protection of workers' claims in case of their employer's bankruptcy or judicial liquidation: Protection of Workers' Claims (Employer's Insolvency) Convention (No. 173) and Recommendation (No. 180). Where there is a current national minimum wage, this wage can be used as a standard. However, high inflation may mean that the rate is out of date. In this case, the rate agreed in the relevant collective agreement should be applied. If there is no such agreement, the rate used by a similar company known for good practice may be an alternative reference point. The Contractor should ensure that Wages are paid in cash, not in kind in accordance to ILO Convention (ILO conventions C131 – Minimum Wage Fixing Convention; C95 - Protection of Wages Convention 1949); The Contractor will further display notices to inform workers about their contract condition in accordance to C94 t - Labour Clauses on Public Contracts.

The Contractor will determine Wages in accordance to The Minimum Wages Advisory Boards and Wages Councils Act, Cap. 221 established by the Government of Uganda that provides for the establishment of minimum wages advisory boards and wage councils for the regulation of the remuneration and conditions of employment and employees.

9.7.9 Minimum Wages

The Contractor will establish rates of wages and observe conditions equitable to those established for the trade or industry where the work is carried out. In the absence of trade or industry-established rates of wages or conditions of labour, the he shall pay rates of wages and observe conditions of labour which are equitable to the general level of wages and conditions observed by other employers engaged in trades or industries similar.

9.7.10 Timeliness of Payment

Section 10 of the Minimum Wages Advisory Boards and Wages Councils Act, Cap. 221 established by the Government of Uganda establishes the timing for the payment of wages. The Contractor will pay employees promptly and regularly at the customary intervals and ensure that all employees are paid in full.

Working Hours

The Contractor will employ both salary and non-salary staff. The provisions below apply mainly to non-salary staff being paid on an hourly basis.

National law specifies the working week, – but it is usually 40 – 42 hours. Overtime should be paid above this rate according to the national legal formula. Regulations should ensure that the use of task-based/piecework do not lead to self-exploitation and workers having to spend longer hours than specified in the legislation (ILO conventions C14 – Weekly Rest (Industry) 1921, C1 - Hours of Work (Industry) 1919, also C47).

Due to the nature of the large infrastructure construction project, The Contractor employees will be required to perform overtime work. Hours of work will be compliant with the Ugandan Employment Act 2006, Section (53), and subsection (4):

Subsection (5) states that where persons are employed in shifts, it shall be permissible to employ persons in excess of 10 hours in any one day, or 48 hours in any one week, where the average number of hours over the period of 3 weeks exceeds neither 10 hours per day nor 56 hours per week.

Where employee's are required to work overtime, and in the absence of other accommodations, they will be compensated in compliance with Section (53), subsection (8) of the Ugandan Employee Act (2006).

The Contractor will ensure that work for the project is not carried out on locally recognized days of rest and public holidays and all recognized festivals, and religious or other customs, except when work is unavoidable or previously scheduled with amenable staff. Where employees are required to work on public holidays they will be remunerated or otherwise compensated consistent with Section 54 of the Ugandan Employee Act (2006). The provisions of this paragraph shall not be applicable in the case of any work which is carried out in multiple shifts which may include night shifts.

9.7.11 Health and Safety

The Contractor should commit to the safety of its employees and non-employee workers at the worksite and will operate in collaboration with and to the requirements of the local health authorities.

The Contractor will comply with the Government of Uganda's Workers' Compensation Act, 2000 which outlines the compensation to workers for injuries suffered and Scheduled diseases incurred during the course of employment.

Ugandan regulations require basic protective clothing for construction including proper foot protection, overalls where needed, protective gloves, and raincoats for wet weather work.

The Contractor health and safety policies will comply with applicable provisions of the Ugandan Occupational Safety and Health Act, 2006, as well as applicable ILO clauses C155 - Occupational Health and Safety 1981; C167 – Safety and Health in Construction 1988, and ILO Code of Practice on Safety and Health in Construction 1992 which covers safety and health planning, co-ordination and compliance.

PPE

In accordance with Section 19 of the Uganda Occupational Safety and Health Act, 2006, the Contractor will provide and equip all employees with the appropriate personal protective equipment (PPE) to adequately protect them from hazards associated with

their specific occupation. All PPE including protective clothing and equipment purchased for use by its employers is manufactured to such a nationally and internationally recognized standard as to ensure adequate protection against injury and accident. Any sub-contractors involved with the construction phase of the project provide the appropriate level of PPE to their employees.

First Aid

In accordance with Section 55(1-8) of the Uganda Occupational Health and Safety Act of 2006, the Contractor will provide and maintain adequate first aid facilities appropriate to the conditions of work being undertaken for the project. Scale of first aid facilities will be related to the size of the job. In the event of a medical emergency, the Contractor will also make arrangements to evacuate injured persons to a health centre.

Measures against Insect and Pest

The Contractor is committed to taking the necessary precautions to protect all employees and non-employee workers on the worksite from insect nuisance, rats and other pests and reduce the dangers to health and the general nuisance occasioned by the same.

Epidemics

In the event of any outbreak of illness of an epidemic nature, the Contractor will comply with and carry out such regulations, orders and requirements as may be made by the Government, or the local medical or sanitary authorities, for the purpose of dealing with and overcoming the epidemic.

Burial of the Dead

The Contractor will make all necessary arrangements for the transport, to any place as required for burial, of any of his expatriate employees or members of their families who may die in Uganda. The Contractor will also assist with appropriate arrangements with regard to burial of any of its local employees who may die while engaged in work.

Accident and Injury to Workers

Except as required by Ugandan Law, the Contractor will be liable for or in respect of any damages or compensation payable to any employee from injury resulting from any act or default of the Contractor, his agents or servants.

Reporting Accidents

The Contractor will ensure any sub-contracts established with non-employee workers for the project will outline the responsibilities to report details of any accident as soon as possible after its occurrence. In the case of any fatality or serious accident, the Contractor would ensure that the sub-contractors are aware of the importance to notify immediately by the quickest available means following an accident.

Records of Safety and Health

The Contractor will maintain safety and health records and make reports concerning safety, health and welfare of persons and damage available to the appropriate authorities.

Amenities

In accordance with Section 50 of the Uganda OSHA, 2006, the Contractor will in so far as is reasonably practicable, having regard to local conditions, provide on the worksite

an adequate supply of potable drinking water for the use of his employees and non-employee workers.

In accordance with Section 49 of the Uganda OSHA, 2006, the Contractor will provide and maintain adequate sanitary latrine accommodation for the use of the employees and non-employee workers for the interconnection project and shall keep the whole of the facility and latrines in a clean and sanitary condition in accordance with the requirements of the Health Authorities of the Government.

In accordance with Section 54 of the Uganda OSHA, 2006, the Contractor shall provide suitable facilities appropriately furnished for the consumption of food. With respect to expatriate workers, the Contractor shall provide and maintain such accommodation and amenities as may be considered necessary for employees or non-employee workers employed for the purposes of or in connection with the project.

9.7.12 Engagement of Labour

The preference is to employ local staff where possible and with the required qualifications and experience.

The Contractor will make arrangements for the engagement of expatriate labour and for the housing, health, welfare and repatriation of the same. The Contractor will be responsible for the return of expatriates to the place where they were recruited following the termination of their employment. The Contractor will comply with the applicable provisions of ILO policies regarding avoidance of forced labour.

The Contractor may from time to time employ casual / temporary labour for the project. The Contractor will keep records to include information on casual / temporary labour and intends to avoid long term status of casual workers.

Damage to Persons and Property

The Contractor will ensure that any sub-contractor hired during the construction phase of the project is obligated under their sub-contractual agreements with the Contractor to indemnify the Contractor against all losses and claims in respect of:

- Death of or injury to any person; or,
- Loss of or damage to any property, which may arise out of or in consequence of the execution of the project and the remedying of any defects therein, and against all claims, proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

Employment of Children

The ILO definition of a child is a person of 14 years of age or under. If hazardous work is involved then the minimum age is 18 years. Applicable conventions adopted by the ILO to be applied include C138 -Minimum Age 1973; and C182 - Worst Forms of Child Labour 1999.

In accordance with the Ugandan Employment Act (2006) Section 32, the Contractor will forbid the employment of anyone under the age of 18. Ugandan Law forbids the employment of any child under the age of 12 or under the age of 14 unless it is light work, does not interfere with schooling and only under the direct supervision of a person age 18 or over.

Records

Section 18 of the Minimum Wages Advisory Boards and Wages Councils Act, Cap. 221 established by the Government of Uganda addresses record and notice requirements for employers where a wages regulation order applies. Section 21 of this act addresses penalties for false entries or records. Section (50) of the Ugandan Employment Act stipulates the requirement of the employer to provide pay statements.

The Contractor will keep proper records of the time worked by every employee engaged on the project irrespective of the employee's method of payment (hourly or salary), the class of work on which employed and the wages paid. The Contractor will keep proper records for every employee engaged, their gender, the class of work in which employed, whether as a casual or permanent employee, and the wages (and allowances if any), paid in accordance with Ugandan regulations. These records will be available at any time for inspection by authorized lender representative or authorised representative of the government. The Contractor will produce, if required, other records that may be necessary to provide evidence of their compliance with the requirements of this paragraph.

9.7.13 Others

No Alcoholic Liquor, Drugs, and Firearms

The Contractor will not import, sell, give, barter or otherwise dispose of any alcoholic liquor or illegal drugs, or permit or suffer any such importation, sale, gift, barter or disposal by its employees, labour or contractors.

Festivals and religious Customs

In all dealings with his staff and labour, the Contractor will have due regard to all recognised festivals, days of rest and religious or other customs. It is recognized that some form of construction activities will be required during these times and will managed as described in the section on Working Hours.

Disorderly Conduct

The Contractor will at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst his staff and labour and for the preservation of peace and protection of people and property in the neighbourhood of the project.

Illegal Hunting

To avoid illegal hunting, the Contractor will:

- Prohibit project workers from hunting bush meat during working hours or on project work sites.
- Prohibit project workers from possessing firearms, snares and other hunting equipment when on project work sites.
- Prohibit transport of bush meat on project vehicles.
- Pay workers an adequate wage so that they can buy their food without augmenting it with illegally obtained bush meat.

9.7.14 HIV/AIDS Policy

The ILO's Code of Practice on AIDS recognizes HIV/AIDS as a workplace issue and goes beyond raising awareness to include non-discrimination, confidentiality, care and support. UNAIDS and other agencies produce guidelines of employer good practice with regard to HIV/AIDS. The Contractor will also follow applicable Ugandan national policy on HIV/AIDS.

The Contractor will arrange for its employees to attend an HIV awareness programme provided in accordance with the SEA and UNAID guidelines by a third party organisation such as The Aids Support Organisation ("TASO"). The programme will take place during its employee's normal working hours. HIV/AIDS management programmes will be subject to the normal monitoring process of the project. Further information about the HIV awareness programme is provided below.

The Contractor will:

- Sub-contract with an Approved Service Provider to provide an HIV Awareness Programme to Employees and the Local Community;
- Give any representative of the Approved Service Provider all reasonable access to the worksite in connection with the HIV Awareness Programme;
- Instruct Employees to attend the HIV Awareness Programme in the course of their employment and during their normal working hours or any period of overtime provided for in the relevant employment contracts and uses all reasonable endeavours to ensure this instruction is followed;
- Provide suitable space for delivery of the HIV Awareness Programme; and,
- Referral to testing, counselling and advice on AIDS in compliance with UNAIDS guidelines.

The Contractor will treat HIV/AIDS the same as other life-threatening illnesses and handicaps in terms of our policies and benefits where they apply. The Contractor should not discriminate against a qualified individual with regard to job application, hiring, advancement, discharge, compensation, training, or other terms, conditions or privileges of employment.

The Contractor should recognise that an employee with HIV/AIDS or another life-threatening illness may wish to continue in as many of his/her normal pursuits as his/her illness allows, including work. The Contractor will be supportive of and make reasonable accommodation for the employee who is medically able to perform his/her job. An employee's medical information is personal and will be treated as confidential.

While accommodating employees with life-threatening diseases and other disabilities, however, The Contractor should provide a safe work environment for all employees. The Contractor should be sensitive and responsive to co-worker's concerns and will emphasize employee education:

- People with AIDS or HIV infection are entitled to the same rights, benefits and opportunities as people with other serious or life-threatening illnesses.
- Employment practices comply with local laws and regulations and/or the practices of the parent company, whichever is greater, and where applicable.
- Employment practices are based on the scientific and epidemiological evidence that people with AIDS or HIV infection do not pose a risk of transmission of the virus to co-workers through ordinary workplace contact.

- Senior management unequivocally endorses non-discriminatory employment practices and education programs or information about AIDS the contractor will communicate policies and practices to employees in simple, clear, and unambiguous terms.
- The contractor will provide employees with sensitive, accurate and up-to-date information about risk reduction in their personal lives.
- The contractor will protect the confidentiality of employee's medical insurance information.
- To prevent work disruption and rejection by co-workers of an employee with AIDS or HIV infection, the contractor will undertake education for all employees before such an incident occurs and as needed thereafter.
- The contractor does not require HIV screening as part of pre-employment or general workplace physical examinations.

9.8 HEALTH, SAFETY and ENVIRONMENTAL MANAGEMENT

9.8.1 Overview

For the period during project implementation, the EPC Contractor will develop and maintain a HS&E Management System to ensure that project activities comply with regulatory, reporting, operational and document control requirements. A comprehensive HS&E management system will be developed by the EPC Contractor and will include the following components:

- The HSE&S Policy.
- HSE&S target and objectives.
- Organization and responsibilities.
- HSE&S documents and communication.
- HSE&S operation control.
- Training, awareness and competence.
- Management of change.
- Monitoring, compliance audit and corrective actions
- Management review

During the construction period, HS&E management objectives are briefly summarised as;

HS&E Policy

The EPC Contractor should commit to achieving the required standards of health, safety, environment within its operational areas for the construction period. The Employer's needs and expectations for this period are anticipated and will be met through safe and timely operating procedures, actions and solutions that will minimize risk of accidents and harm to people and the environment.

9.8.2 HS&E Documentation and Communication

Documentation and records for this project shall meet the requirements of the contract. Records and documents shall ensure verification of project compliance including training, audits, inspections, incident reports, reviews, meetings, risk management studies and management of change. Where required obsolete documents will be removed or updated in line with the Document Control Procedures.

A communication policy will be developed for effective record keeping and for easy accessibility. All HS&E meetings will be recorded in formal minutes of meetings, which will be made available promptly for review by the Owner. These minutes will record duration, location, attendees, agenda, key findings and agreed actions.

Communication with communities is also important with particular respect to specific issues. The official project language will be English. HS&E signage will be posted in the local language of a particular site where required.

Responsibility

The Project manager and the Construction Manager in conjunction with the Safety Coordinator will be responsible for the implementation of the HSMP. The Project manager and the Construction Manager are responsible for the implementation of the HSMP while the Social and Environment Manager will have responsibility of verifying its implementation. All supervisors should be sensitised and trained on how to achieve the plan. In implementing the plan, the EPC contractor will:

- Provide adequate resources to facilitate the implementation of the plans
- Identify hazards, assess, and control the risk
- Develop, maintain, implement safe working procedures
- Provide training, information and instruction to employees
- Implement and injury management program

Employee Responsibilities

- Employees must cooperate with the Contractor to implement the HSMP
- Employees must follow the correct work procedures
- All sub contractors either on site or at any location are required to comply with requirements of this HSMP

9.8.3 Safety Meetings

There will be safety meetings to review the progress of implementation of HSMP once every week Chaired by Construction Manager. The meeting will:

- Find solutions to any safety issues unresolved during the previous meeting
- Identify problem areas and work out suggestions to resolve them
- To investigate accidents that occurred and plan ways to avoid them in the future
- Review the implementation of the safety plan
- Appraise employees on various specific needs at the work place

Training Plan

The Contractor will ensure:

- HSE Officer conducts safety awareness program for the site supervisory staff before they are deployed on site
- The safety officer will provide induction safety induction to all workers and records
- Weekly toolbox meetings will be conducted as required
- Daily work instruction to the workmen will consist of hazards likely encountered while executing work and precautions to be taken

9.8.4 Tool Box Talk

There will be weekly briefings on health and safety precautions conducted by supervisors and foremen to their respective workforce. The HSE Officer will maintain a record of the meetings where the job specific hazards and precautions to be taken to be taken. Subjects to be covered will include:

- Unsafe working conditions and safe acts noted during the previous week
- Lessons learnt from the near misses, accidents if any
- Safety precautions to be taken in the coming week

- Safety systems and procedures to be followed
- Safety checklists
- Role of employees in preventing accidents
- Other precautions include
 - ✓ Safe use of scaffolds, ladders, power tools
 - ✓ Electrical safety requirements
 - ✓ Fire precautions
 - ✓ Safe usage of hand tools
 - ✓ Safe handling of mechanical materials
 - ✓ Safety rules related to housekeeping and tidiness
 - ✓ Safety access to the workplace
 - ✓ Materials storage and transportation requirements
 - ✓ Safety during excavation
 - ✓ Working near construction equipment and machinery
 - ✓ Emergency evacuation procedures
 - ✓ Health hazards
 - ✓ Personal Protection Equipment (PPE) use
 - ✓ Working at heights
 - ✓ Safety while crossing power lines
 - ✓ Temporary earthing
 - ✓ Guying arrangements of scaffolds
 - ✓ Ageing of tools and maintenance

Insurance

The Contractor will secure liability insurance to cover for injuries and ill health to employees. This will include insurance for accidents involving vehicles and third party and building insurance. The costs covered by insurance can include sick bay, damage to plant and equipment, overtime working and temporary labour, production delays, investigation time.

9.8.5 Control & Use of Personal Protective Equipment

The EPC Contractor will provide the following Personal Protective Equipment (PPE) to workers:

- Head protection gear
- Goggles for eye protection.
- Muffs for hearing protection.
- Boots for foot protection.
- Gloves for hand protection.
- Mask for respiratory protection.
- Helmets
- High visibility vests.
- Life jackets.
- Heavy lift jackets.
- Shields (i.e. for grinding and welding).

PPE will be supplied free of charge to all EPC Contractor personnel on the project. The EPC Contractor will ensure that PPE is:

- Suitable for intended use.
- Clean and replaced when damaged or no longer effective.
- Properly used and maintained by personnel.

Personnel will be provided with training, information and instruction on PPE use and maintenance and will be supervised to ensure that it is used correctly. Sub-contractors shall also be required to provide appropriate PPE to their workers.

9.8.6 STDs, HIV/AIDS, and Welfare of Workers

Prior to the commencement of construction work, hygiene awareness will be carried out. The workers and local community residents will be sensitised on health risks associated with the HIV/AIDS pandemic. Two trained people will be made available at each site. They will be assisted by a site nurse. Enough first aid boxes should be available at site. Other requirements include:

- An emergency vehicle will always be available at site. However, the facilities of the police department or hospital will be called in to handle major injury.
- Temporary facilities should be provided with garbage bins with lids to dispose all waste generated on site
- The accommodation facilities of the workforce will be maintained in an acceptable hygienic condition for the convenience of workers
- Enough toilets and urinals should be installed at assigned locations on site and should be maintained clean and dry. The facilities should be contained to avoid environmental pollution
- Safe potable drinking water will be provided on site and workers will be encouraged to drink enough water during hot weather
- Scrap metal generated on site should be collected in scrap bins
- Flammable wastes such as empty paint containers, insulation glue, adhesives will not be disposed in scrap bins. They will be collected and stored separately for such purposes
- The garbage bins will be removed and disposed off at approved locations
- A skip will maintained on site to dispose all solid waste materials and shall be removed through authorised agencies at regular intervals
- The drainage lines from the offices and washrooms will be connected to the existing drainage lines. Any leakage to the drainage should be attended to immediately. The septic tanks and soak pits will be used appropriately as required.
- All necessary first aid arrangements will be available on site
- Wide awareness on safety, health and Environment should be implemented.

9.8.7 Treatment of Workers

- A clinic will be set up at various project sites

- A qualified nurse will be on-site and should be provided with adequate first aid supplies to stabilise a patient until transferred offsite to a local medical facility if required
- The Contractor should have a formal contract with a local doctor to support any medical treatment that may be required
- Emergency procedures and communication protocols should be in place prior to construction

Visitors on Site

- All visitors must sign the Contractor/visitor sign-in register on entering sites
- A performance logbook for recording all work performed on site should be on site
- All workers should sign-in and out on each working day
- All visitors should be given safety orientation and should be escorted at all times when on site. All sub contractors should adhere to these procedures and should submit their training records
- Visitors should be issued with a visitor's badge on all sites.

9.8.8 Work Method Statement

- The Contractor must complete a Work Method Statement for all works. A Work Method Statement is a document which describes the job to be carried out, steps involved, the hazards associated, controls to be implemented to ensure that the work is completed safely
- Permits should be given for hot work permits and confined work, fire equipment impairment notices and hazardous work permits as well as government

9.8.9 Fire Protection

- The Contractor must provide up to date safety data sheet (MSDSs) for all chemicals used on site or brought onto the site and stored at the site. They must include police emergency contact details
- The Contractor should include all chemicals that they store permanently on the site chemical register. The chemicals should be stored in a manner that is:
 - ✓ Secure in position from unauthorised people
 - ✓ Free from risk of falling and being knocked over
 - ✓ Away from food
 - ✓ Appropriately labelled

9.8.10 Scheduling of Works

When an activity included in the scope of the contract has a high risk of exposure to the public or employees, the contractor should schedule the activities outside the site's opening hours. For 24-hour sites, the contractor must arrange to complete high risk activities at off-peak times.

9.8.11 Project Equipment

For all equipment on site the contractor must ensure that:

- The employees to use the equipment are licensed and have competency based training
- No electric operated equipment/tools are used during working hours without permission
- All equipment should be operated without risk to employees or the public
- Equipment should be stored, operated, and maintained in accordance with the national legislation
- Equipment should not be left un attended to and must be out of reach of children
- Noise levels from equipment and working areas should in accordance with Ugandan noise standard

9.8.12 Contractors Management

- The sub contractors should read safety appliances , access equipment inspected by HSE officer or any other responsible person before deploying
- S/he should get all machinery, power tools, safety appliances, access equipment inspected before deploying them
- The entire workforce should be oriented on safety, health and environmental issues
- Details of accidents during work should be maintained separately.

9.8.13 Accident, Incident, and Near Miss Investigation and Reporting

All accidents, incidences and “near-misses” shall be recorded, investigated and reported.

Effectiveness of the reporting system will be ensured by:

- An immediate notification to the Employer and Engineer.
- Investigating an incident to determine the facts and circumstances related to it and determining recommending remedial actions.
- Ensure that all personnel are aware of the reporting protocol.
- Reviewing incident / accident reports to establish trends so that appropriate remedial actions can be taken
- ✓ Following up any corrective actions recommended.

9.8.14 Temporary Facilities

Hazards including fire, electric shock, and hygiene related hazards should have the following precautions:

- ✓ All electrical connections should be routed through the earth leakage circuit breaker
- ✓ Make shift wiring will not be allowed at any site
- ✓ The platform and walls of the pantry, where the above is located will be covered gypsum boards or steel sheets
- ✓ Fire extinguishers are supposed to be provided in all buildings and will be inspected by the HSE officer every month to keep them in good working condition
- ✓ Disposable wastes which can cause fire will not be allowed close to fire places
- ✓ Dustbins will be provided in the offices, stores, and rest areas to prevent employees from disposing waste materials indiscriminately

9.8.15 Excavation

Hazards including men/material falling into pit, collapse of the sides, breakage of buried service lines, hazards should have the following precautions:

- ✓ Before excavation, necessary approval shall be taken from relevant authorities to ensure that there are no buried services in the area
- ✓ Sides of the excavations must be sloped or casing used to a safe angle not steeper than the angle of repose of the particular soil
- ✓ If the excavations or the earthwork is close to the foundation of any adjoining building, adequate steps should be taken to prevent damage to the existing structure
- ✓ Every accessible part of the excavated pit, into which there is a danger of person falling, shall be suitably fenced with a barrier as close to the edge of the excavation as possible . Warning signs and lamps should also be provided along the fence , if the excavation is a public place
- ✓ No under cutting at the side of excavation shall be allowed
- ✓ All construction machinery used in the excavation should have reverse horn and authorised personnel should operate the
- ✓ Proper de-watering facilities will be ensured at site of evacuating water at the time of drilling

9.8.16 Concreting

Hazards including collapse of casing while pouring concrete, persons falling of working platform, hygiene problems, and environmental threat require the following precautions:

- ✓ All workmen involved in pouring the concrete shall be required to use adequate PPE
- ✓ Delivery hose of the concrete pump or the concrete shall be controlled properly to avoid dumping excess concrete at one location which may overload the shutter
- ✓ Power cables of the vibrator, trowels, should not have any joint and shall be provided with industrial plugs
- ✓ Safe handling of concrete will be ensured with trained workforce
- ✓ Spilling of concrete will be checked and cleaning should be ensured after works

9.8.17 Painting

Hazards including fire hazards, spillage, and fall from height require the following precautions:

- ✓ Painters should use correct working platforms and scaffolds or ladders should be provided. The platforms should be inspected regularly
- ✓ Paint cans should always be closed unless in use
- ✓ Painters should be trained about the above hazards and ways of fire fighting in case there is as fire
- ✓ Empty cans of paints should collected and removed from site and disposed correctly

Painters should be instructed to wash their hands before handling any eatables and should be provided with cleaning solutions, and should use gloves and masks to prevent exposure to paint and its vapours

9.8.18 Scaffoldings

Hazards including collapse, electrical induction to structures, and fall of persons from height require the following precautions:

- ✓ All scaffolds should be inspected every week and records kept. If found to be defective, they would be labelled as such to caution the people not to use it
- ✓ The height of scaffolds should be limited to 3.5m times its minimum base width
- ✓ All workmen in the platform will be asked to get down before moving the working platform
- ✓ Suitable approach in the form of ladders will be provided to the working platform of the scaffolds wherever required
- ✓ Proper anchoring of scaffolds will be ensured and checked
- ✓ Proper lighting should be provided at night

9.8.19 Ladders

Hazards including collapse of ladders and fall of persons and persons from height require the following precautions:

- ✓ All ladders should be registered to ensure that they are inspected at regular intervals. Site made timber ladders will not be allowed on site
- ✓ Technicians should be warned about the danger of using the top two rungs and the effect of overreaching while using ladders in the tool box meeting
- ✓ Metallic ladders will not be used where there is a risk of electrical parts contact
- ✓ Portable and extension ladders, if any, will have to be tied at the top and its angle of inclination will not be less than 75 degrees

9.8.20 Tower Erection

Hazards including persons/material falling, failure of lifting accessories, trapping limbs, and being hit by swinging load require the following precautions:

- ✓ The foreman/supervisor should check that slings used should be of adequate capacity in configuration in which it is being used and free from defects. The crane and all lifting tackles should have a valid test certificate
- ✓ The mobile crane should be inspected
- ✓ The tower members loaded in the trailers/trucks will be secured to avoid movement and falling in transit. The vehicle should be checked to avoid overload.
- ✓ During erection all workers should use safety belts, helmets, and safety shoes
- ✓ The cranes should have test certificates and operated by qualified personnel
- ✓ Cranes should be operated when properly levelled and positioned
- ✓ In case of missing member, the incomplete tower will be indicated by red flag at offending item. All vehicles, mobile cranes will carry first aid boxes

Towers will not be released for stringing unless properly tightened

9.8.21 Conductor Stringing

Hazards including electric shock, persons/materials falling, injury to onlookers and workmen, damage to public property, require the following precautions:

- ✓ Engineer in charge will ascertain that the necessary permits have been issued and earthing bonds issued where applicable
- ✓ All scaffolds will be securely erected and positioned to required clearances. Scaffolds will be checked for sufficient strength to withstand applied loads and earthed
- ✓ Roadside scaffolds will be provided with warning lights and signs
- ✓ While stringing, both tensioner and puller should be suitably earthed
- ✓ All workmen will use adequate PPE and body harness safety belts
- ✓ Back staying of towers or conductors will be in accordance with approved techniques and checked daily
- ✓ Jumpers will be left disconnected until conductor work of all line is complete, in order to reduce risk of accidents due to lightning strike
- ✓ Adequate communication equipment will be available to warn stringing crew/gang about approaching storm
- ✓ Spacing chairs will be of approved design
- ✓ Conductors will not be left in position without adequate warning signs and lights
- ✓ Onlookers will not be allowed to come near tensioner/puller and under moving stringing and sagging operations
- ✓ Appropriate signalling signs and communications equipment will be used during stringing and sagging operations
- ✓ Periodic checks on all tools will be ensured

9.8.22 Power Tools

Hazards including electric shock, hit by rotating object, foreign body falling in the eye, require the following precautions:

- ✓ An identified electrician at site will check all portable power tools before releasing it to the site, and in addition make sure that the power tools are regularly inspected and a record is maintained
- ✓ If a power tool is unsafe to use during the regular inspection, it shall be marked/tagged to that effect and returned to stores for repair and replacement
- ✓ All power cables will be provided with industrial plug and sockets for power distribution
- ✓ The guards provided in the power shall not be removed either by the technicians or by the maintenance electrician

The power tools shall be returned to the stores at the end of the day or shall be stored properly at site to prevent its damage

9.8.23 Hand Tools

Hazards including tools falling, hit by sharp edges, hit by flying objects, slipping and falling due to use of worn out tools, require the following precautions:

- ✓ The storekeeper will inspect all the hand tools before issuing it out to ensure that they are in good working condition

- ✓ Defective tools should be identified with reference to broken handles, blunt edges, worn out heads, cracked parts. If found, damaged tools should be removed, returned to store, or destroyed
- ✓ Technicians will be reminded of misuse of tools in tool box meetings and the need to report tool defects
- ✓ Technicians must use goggles while carrying out chipping, hammering and similar operations
- ✓ Use of tools to perform tasks for which they are not made is prohibited

9.8.24 Fire Prevention and Fighting

- ✓ Smoking will not be allowed at site and substation or any other prohibited places
- ✓ Fire extinguishers should be installed and maintained on site and stores wherever there is a potential fire hazard
- ✓ Fire surveys will be conducted frequently on site to assess the fire load, type of prevention, and fighting plan required
- ✓ Flammable liquids such as paints, insulation compounds should be clearly labelled and barricaded provided with fireproof walls
- ✓ All used flammable liquid containers should be collected and removed from site
- ✓ Packaging materials should be removed on the same day from site, whenever removed from a consignment
- ✓ Training on use of fire extinguishers shall be conducted to all employees as part of induction session and it will be repeated at the tool box meeting

9.8.25 Alcohol, Intoxicants, and Non Prescribed Medicine

- ✓ Alcohol, Intoxicants, and Non Prescribed Medicine shall not be permitted on any site
- ✓ While on job, the use of intoxicants (sedatives, tranquilizer) will be not be permitted

9.8.26 Housekeeping

- ✓ Smoking will not be permitted in site store and office
- ✓ Trash containers will be kept near the rest area and workers advised to dispose lunch, soft drink, bottles in trash containers
- ✓ All materials at site will be neatly stacked in the assigned location provided with suitable enclosures
- ✓ Scrap generated at site will be removed on a day to day basis by the respective personnel at the end of the shift everyday
- ✓ Packaging materials, if any, shall be removed from the site immediately after opening the boxes
- ✓ Gas cylinders shall be kept in the floors in such a way that it cannot be tipped inadvertently
- ✓ Welding cables, power cables will be laid in such a way that they will not cause trip hazard

9.9 POLLUTANT SPILL CONTINGENCY PLAN

9.9.1 Purpose

Pollutant Spill Contingency Plan (PSCP) has been prepared by the Contractor to provide procedures for proper handling of pollutants and the procedures to be taken in the event of a spill. The scope of the PSCP is to minimise the risk of spills during project construction activities as well as to provide information about equipment and materials available to undertake immediate remedial actions.

The purpose of this Contingency Plan is to establish a mechanism for mutual assistance, under which management of the Contractor employees on the project, including those who are indirectly employed will co-operate in order to co-ordinate and integrate their response to pollution incidents likely to affect the construction of the transmission line and substations.

PSCP covers the actions that will be taken by all workers in the event of an accidental release of hazardous substances, fuels or any other potentially polluting materials. These actions include:

- Materials needed to contain and clean-up spilled hazardous materials, which will be maintained on-site at all times. A material quality sufficient to contain and clean the spilled materials will be available.
- All weather sealed containers will be used to store hazardous materials. These containers will be colour coded and labelled as *Hazardous Material Spill Supplies*.
- All containers will be labelled in relation to their contents.
- Earth and/or water contaminated by the spilled hazardous materials will be secured in all weather sealed containers for transport to an approved waste receptor site.

Responsibilities

The Contractor in conjunction is responsible for the implementation of the PSCP. The Contractor is responsible for the implementation of PSCP. While the Contractor shall have overall responsibility for the implementation of this plan, the Project Social and Environmental Manager will have the responsibility to verify its implementation. All supervisors will be made aware of and sensitised about this plan.

The general objective of the Plan is to organise a prompt and effective response to oil spills affecting or likely to affect the area of responsibility of the project and facilitate their co-operation in the field of oil and chemical pollution preparedness and response. The specific objectives are to:

- define areas of responsibility of the parties to the Plan;
- determine the extent of co-operation for the implementation of the Plan between the responsible authorities, at the operational level;
- specify the type of assistance which might be provided and the conditions under which it will be provided;
- divide the responsibilities and to provide for the transfer of responsibilities
- establish the principles of command and liaison, and to define the corresponding structures;

- determine in advance the financial conditions and administrative modalities related to co-operative actions in case of emergency.

9.9.2 Response Elements

The lead role in the implementation of the plan shall be assumed by the Contractor whose area of responsibility has been affected or is likely to be affected by a pollution incident.

For the purpose of this plan the contractor shall set up an Emergency Response Centre (ERC) manned 24 hours a day, which will be equipped with appropriate communications system and have necessary facilities to be used as the operations room of the Operational Command in case of Joint Response Operations (JRO).

9.9.3 Command Structure

The command structure for Joint Response Operations should consist of:

Operational Command which is responsible for overall co-ordination and control of *Joint Response Operations* and consists of taking decisions concerning response strategy and defining the tasks of various concerned parties.

Operational Control which is direct control over personnel, means and units taking part in the response operations, including giving orders to specific groups of teams and units for execution of response operations, in accordance with the strategy and the tasks defined by the Operational Command.

Tactical Command which consists of directing and supervising the execution of specific tasks by teams or units on the scene. Tactical Command is exercised by the Leader of each team taking part in the response operations.

9.9.4 Communications Arrangements

For effective communication, record keeping and easy accessibility, English language shall be used in all communications related to the implementation of the plan. Important communications by radio or telephone should be confirmed by fax, telex or e-mail. This is to include the activation of the plan, requests for assistance, offers of assistance, estimated costs of assistance, acceptance of requests, instructions by the command for the movement and deployment of assisting units, tasks assigned to units and termination of operations.

Response to a pollution incident within the area of responsibility of the Contractor shall be conducted in accordance with the provisions of National Legislations. In order to facilitate smooth proceeding of Joint Response Operations, the Parties shall inform each other about relevant parts of their National Contingency Plan (NCP) and, in particular, those parts describing:

- national response organisation;
- likely sources of oil spills, vulnerable resources and priorities for protection;
- resources for responding to accidental pollution, available at the national level;
- rules concerning the use of dispersants; and
- logistic support available within Uganda.

Maps showing possible sources of pollution, environmentally sensitive areas, priorities for protection and areas where the use of dispersant is allowed, restricted or forbidden, will be included in the National Contingency Plans (NCPs).

9.9.5 Response Strategy

Deciding upon the response strategy to be applied in each particular pollution incident and planning of specific operations shall be the responsibility of On Scene Coordinator (OSC). In taking such decision the OSC shall follow the outline given below.

- assessment of the severity of the incident,
- activation of the National Contingency Plan and notification of other Parties;
- selection of appropriate response methods;
- evaluation of available and required response resources;
- request for assistance;
- implementation of selected response methods, making use of national resources and resources from assisting Parties;
- re-assessment of the situation and making necessary modifications in response actions;
- termination of response operations;
- de-activation of the plan;
- returning equipment and other means rendered as assistance by the other Parties.

9.9.6 Response Operations

Response Phases

For the purpose of this Contingency Plan, pollution response operations have been divided into three distinct phases:

Phase I - Notification

Phase II - Evaluation and activation of the Plan

Phase III - Joint response operations

It is understood that according to circumstances entire phases or parts thereof, may take place concurrently with one or more other phases.

Phase I

Notification and verification of information concerning pollution incidents shall be done, at the national level. When a major pollution incident has occurred, that is one requiring counter-pollution resources to be mobilised, the Contractor shall inform the relevant stakeholders through their National Contact Point immediately after receiving and verifying the incident report, regardless of the need for the activation of the Plan. The relevant Operational Authority in this context is that of the Party in whose area of responsibility the incident has occurred.

Judgement must be used when there has been an incident which may cause pollution but has not yet done so. If the pollution would threaten neighbouring water bodies the responsible management authorities should be informed.

Phase II

The Contractor shall assess the pollution and determine the type and level of response required and whether or not to activate the Plan.

- inform the Operational Authorities of the other Parties, through their designated National Contact Points, who has been appointed OSC;
- activate its own Emergency Response Coordinator (ERC) which shall assume the role of Joint Emergency Response Coordinator (JERC);
- activate its own Support Team;
- through the On Scene Coordinator (OSC), with the advice of the Support Team, formulate the strategy to deal with the incident and evaluate the need for assistance from other Parties.

Phase III

The main objectives of Joint Response Operations are to stop the spillage of the pollutant from the source, to restrict its spreading and movement and to remove as much pollutant as possible. Joint Response Operations at BIP shall be conducted in accordance with the procedures described by Contractor Units team leaders.

9.9.7 Spill Monitoring

The monitoring of the spill and its movement and transmission of relevant reports is the responsibility of the contractor. Following the activation of the Plan this responsibility rests with SOSC, who shall take all necessary measures to ensure regular monitoring of the spill and its movement and behaviour, in order to properly assess the situation and decide on adequate response measures.

Requests for Assistance

Following the activation of the PSMP, the Party who has activated the Plan may request assistance from the other Parties, in form of;

- trained response personnel and, in particular, strike teams;
- specialised pollution combating equipment;
- pollution treatment products; and
- other means, including, in particular, self-contained units such as vessels and other equipment.

9.9.8 Reporting

Any polluting incident presenting a potential threat shall be reported to the emergency centre as soon as possible. The exchange of information concerning pollution incidents, the Parties shall use the international pollution reporting system (POLREP); the contractor shall endeavour to transmit a POLREP, at least once a day.

Post Incident Reports will include description of the pollution incident and development of the situation; description of response measures taken; description of assistance rendered; assessment of the complete response operation; assessment of assistance rendered by others; costs incurred during the response; an estimate of environmental and economic damage; description and analysis of problems encountered in responding to the pollution incident; recommendations regarding possible improvement of existing arrangements and, in particular, provisions of the Plan.

9.10 HAZARDOUS MATERIALS MANAGEMENT PLAN (HMMP)

9.10.1 Purpose

Management of hazardous materials is great concern worldwide. As a result the Contractor has prepared a Hazardous Materials Management Plan (HMMP) whose aim is to:

- ensure safe and proper use of hazardous chemicals
- provide personnel with a program to reduce the risk of accidents involving hazardous chemicals and/or wastes
- describe the process of how the contractor will provide and maintain a safe and supportive environment for workers and those providing services for the project

The Contractor is committed to maintaining programs designed to prevent and reduce the risks on workers, visitors and the community by ensuring proper handling and disposal of hazardous materials and wastes.

9.10.2 Hazardous Waste

A hazardous waste is an unwanted substance that can damage the environment and pose a threat to human safety. Hazardous wastes come in many physical shapes and forms, from PCBs to battery acid, paints and solvents. They may be wastes left over from a complex manufacturing process such as making plastic or chemicals. They could be fluids used in electrical transformers. Hazardous wastes can't be recycled, reused or safely disposed of in industrial or municipal landfills.

ILO Principles

The 77th Conference of the International Labor Organization (ILO) met in Geneva, Switzerland, in June of 1990. Highlights of the conference included the adoption of new labour standards on nightwork and the use of hazardous chemicals in the workplace.

The International Labour Organization (ILO) welcomed the Seoul Declaration on Safety and Health at Work adopted in The world congress on Safety and Health that was held in Seoul, Republic of Korea, 2008. ILO emphasized, "The ILO, in partnership with the International Social Security Association (ISSA) and the Korean Occupational and Safety Health Agency, are determined to continue tangible progress towards reducing the number of occupational accidents and diseases". Recognizing that improving safety and health at work has a positive impact on working conditions, productivity and economic and social development, the Declaration also emphasizes that the right to a safe and healthy working environment should be recognized as a fundamental human right. The Declaration also states that promotion of occupational safety and health and the prevention of accidents and diseases at work is a core element of the ILO's founding mission and of the Decent Work Agenda.

Responsibilities

The Contractor is responsible for the implementation of the HMMP. All supervisors will be made aware of and sensitised to this plan.

9.10.3 Procedure

The Contractor should be committed to safeguarding worker rights and will implement good practice in relation to labour and working conditions of the project. The following presents the minimum requirements to ensure safe and proper use of hazardous and non-hazardous chemicals and to provide employees and non-employee workers of the

project with a program to reduce the risk of accidents involving hazardous chemicals and/or wastes.

9.10.4 Management of Hazardous Materials

For proper management of hazardous materials the Contractor will first, determine how much hazardous waste is generated each month in order to determine how much to store and how long to store it. The following practices:

The Contractor will at all times maintain proper storage in compatible containers by:

- Maintaining containers in good condition.
- Prevent leaks, ruptures and accumulation of rainwater on tops of drums.
- Transferring waste to a new container in case of leakage.
- Keeping containers closed. Use self-closing funnels will be used when adding waste. Wastes will not be allowed to evaporate by covering them properly.
- Making sure that wastes must be compatible with the container. For example, use high density polyurethane plastic containers for corrosive wastes.
- Making sure that incompatible wastes (e.g., acids and bases) are not put together in same container to avoid chemical reactions from taking place.

9.10.5 Storage of Hazardous Materials

The Contractor will ensure proper storage of hazardous materials through the following:

- Maintaining adequate aisle space between container rows to allow inspection for leaks and damages.
- Storing ignitable and reactive wastes at least 50 feet from property boundaries.
- Storing containers with incompatible wastes in separate areas.
- Minimizing inventory and use a “first-in, first-out” system to prevent the need for disposal of unused materials.
- Putting a sign indicating; “Do not discharge hazardous wastes to the ground surface or to septic tanks”.
- Managing wastes in an appropriate manner to prevent discharges to the environment by keeping containment structure valves closed.
- Keeping soiled shop towels in a clearly labelled, closed container.
- Storing partially used absorbents in closed, labelled containers for reuse.
- Use drip pans under leaking cars, machinery and pipes or under removed parts rather than cleaning them up with absorbents.
- Pre-cleaning parts with a squeegee, rag or wire brush. This approach helps minimize or possibly eliminate the use of hazardous solvents and prolongs the life of cleaning solutions.
- Having a contract with approved recycling services for used antifreeze, lead-acid batteries, used oil and oil filters.
- Using separate receptacles for draining used oil and antifreeze.
- Educating employees about recommended maintenance schedules and replacing fluids only when necessary.

9.10.6 HM Preventive Measures

This checklist will help in preventing the most common hazardous waste violations. The Contractor will facilitate training of the employees reduce hazardous wastes through sensitising and training on the following list of preventive measures:

- Saving money on waste management costs.

- Reducing concerns about penalties and liability.
- Creating a safer, healthier workplace.
- Promoting positive public relations with clients, customers and the local community.
- The Project manager and supervisors must be committed to waste minimization and pass that commitment on to the employees.
- Evaluate where wastes are generated or originating from and identifying areas where changes can be made.
- Involving employees in designing and implementing pollution prevention measures.
- Reducing or eliminating solvent use by determining whether cleaning is really necessary.
- Using a multi-purpose solvent to reduce the types of hazardous waste that need to be managed.
- Substituting detergent-based solution for caustic solution when cleaning; substitute water-based cleaners for solvent cleaners.
- Considering switching to a water-based cleaner instead of using chlorinated spray cans of brake cleaner or carburettor cleaner.
- Using solvent sinks properly: using drip trays, allowing more drainage time, using filters to prolong solvent life and keep lids closed when not in use.
- Replacing solvent only when necessary.
- Using dedicated equipment to minimize cross-contamination.
- Keeping used oil and other vehicle fluids segregated from solvent wastes and carburettor cleaner.
- Storing large quantities of batteries in an isolated area with no floor drains. Storage area should be sealed with an acid-resistant material.
- Labelling containers clearly to prevent contamination of non-hazardous wastes.
- Leaving containers that containing explosive material open
- Keeping accurate inspection records
- Identifying and recording quantities of hazardous waste monthly.
- Use proper containers to collect and store wastes or products.
- Labelling all containers whether product or waste as to their contents.
- Keeping all hazardous waste or products containing regulated solvents closed at all times unless actively removing from or adding to it.
- Posting emergency information near each phone.
- Develop a contingency plan for emergencies.
- Using manifests for all waste transported for disposal.

9.10.7 Receiving and Delivering

The Contractor will maintain a Hazardous Materials Management Plan and will also ensure delivery of all chemicals and hazardous materials in compressed gases. The Contractor will ensure that damaged materials are not delivered to the project site and no storage of damaged materials in receiving area for more than 6 hours.

9.10.8 Transportation

The Contractor will transport hazardous materials in accordance with Hazardous Material Transportation regulations and maintain policies and procedures for the same. Employees will also be trained in the requirements of hazardous material transportation.

9.10.9 Storage and Disposal

The Contractor will not purchase excessive quantities of hazardous materials, properly store hazardous materials and chemicals. The Contractor will not dispose of hazardous materials in the drainage systems.

The Contractor will make sure that the following are followed:

- Making sure that transport and disposal facility have identification numbers.
- Use manifests for all hazardous wastes shipped off-site. Keep the manifests on-site.
- Inspecting containers at least once a week and keep a written log of container inspections.
- Keeping a record of larger spills and use this information to identify the spill prevention options that might help to reduce related impacts.
- Keeping training and inspection records for three years.
- Keeping manifests and shipping receipts for three years.
- Keeping land disposal restriction forms for three years from the date the waste was last shipped.
- Labelling every container with the type of waste and whether it is hazardous or non-hazardous or used oil.
- Including the accumulation start date (the date when waste was first placed in the drum).
- Training all employees to identify, reduce and properly handle wastes.
- Training new employees before they handle hazardous wastes.

9.10.10 Personnel Training

The Contractor will ensure personnel training in their area in the receiving, transportation, proper storage, handling, disposal and use of hazardous materials in accordance with the requirements of this plan.

9.10.11 Hazardous Materials Handling

The Contractor will:

- (i) Ensure that hazardous wastes they are dealing with are made public and more importantly to the District Environment Officer.
- (ii) Ensure that hazardous and infectious materials are labelled so that adequate instructions and standard danger symbols on them are visible, clear, and appropriate.
- (iii) Ensure that all people involved in transport and storage hazardous wastes are adequately trained and protected and made aware of the dangers involved and how to mitigate them.
- (iv) Provide appropriate safety wear for people handling hazardous wastes in the various places of the project.
- (v) Treat the infected workers to stop spread of diseases and disinfect contaminated places and materials.
- (vi) Regular medical checkups for the staff are mandatory.
- (vii) Immunization against Hepatitis B and other blood borne diseases is mandatory.

THE Contractor will keep District Environment Officers in the project areas informed of the methods that are used to handle, treat and dispose off all hazardous waste.

9.10.12 Security Measures

All chemical storage areas should be kept locked when unattended.

Hazard labelling

- The only hazard warning labels on chemical containers are those that the manufacturers/suppliers place on the containers.
- The Manufacturer/Supplier may place identification labels on some containers.
- The Manufacturer/Supplier may place Hazardous Material Identification System Labels on some containers.
- Transportation hazard Class Labels may be on containers and packages as sent by the manufacturer/supplier.
- Hazardous waste containers are labelled as specified by a given Hazardous Waste Program.

Warning Signs

Hazardous waste will have warning signs depending on the type as indicated below:

| Type of Hazardous Material | Required Warning Sign |
|-----------------------------------|--|
| Hazardous Waste | "Danger Hazardous Waste Unauthorized Personnel Keep Out" |
| Compressed Gases | "Danger Compressed Gas Storage" |
| Flammable Liquid Storage Areas | "Danger Flammable Liquids" |
| Flammable Liquid Storage Cabinets | "Flammable – Keep Fire Away" |
| Asbestos | "Danger Contains Asbestos Fibres Avoid Creating Dust Cancer and Lung Disease Hazard" |

9.10.13 Inspections

The frequency of hazardous materials storage area inspections will be specified in the document entitled HS&E Inspections once every week and whenever there is need.

Records

Environmental Health and Safety maintain all hazardous material inspection records.

Emergency Equipment

In case large quantities of hazardous wastes the Contractor will have a written plan that includes:

- Emergency response arrangements with police, fire, hospitals and emergency response contractors.
- Emergency coordinator's name, address and phone number.
- On-site emergency equipment descriptions and locations.
- Evacuation plan and routes, including a site diagram.
- Spill reporting procedures.
- Post Emergency Information
- Post the following information near every telephone:
 - Fire department phone number.
 - Locations of fire alarms and extinguishers.
 - Locations of spill control materials.

The Contractor will ensure that this HMMP is reviewed by relevant authorities every year. Recommendations for plan compliance and improvements shall be made to the Director of Environmental Health and Safety.

Emergency Coordinator

This person must know what to do in case of fire, spill or other emergency and must be on the premises or on call 24 hours a day.

Notify local authorities

Police and fire departments and local hospitals that would respond to an emergency need to know that there are hazardous wastes on the Contractor project properties.

9.10.14 Disposal of Used Oils and Other Contaminates

The Contractor will ensure that Lead acid batteries that are not recycled or are managed in a manner not to allow possible discharge of hazardous wastes. Engine coolant that is not recycled will be tested prior to disposal because often it is a hazardous waste because of lead or solvent content. The Contractor will ensure that it is not discharged directly to the environment.

Because they have a low flashpoint (less than 140 degrees Fahrenheit) or may be toxic, spent parts cleaners and washers are considered hazardous wastes. Solvents become hazardous wastes because they are contaminated with heavy metals such as lead, cadmium, chromium or barium. The Contractor will ensure that spent solvents do not mix with used oil because mixing a hazardous cleaner with another substance may make the mixture hazardous. Training of employees to this effect will be a priority.

The Contractor will make sure that rags contaminated with used oil or solvents that may be hazardous waste are discharged to a publicly-owned sanitary sewer, not in storm sewer, septic tank or cesspool. Used oil that is not recycled or is rendered un-recyclable will be regulated as a hazardous waste. To avoid ground water contamination problem the Contractor will ensure that oil spilled on the ground is cleaned up immediately.

9.11 CHANCE FIND PROCEDURE

The following procedural guidelines should be considered in the event that previously unknown heritage resources are exposed or found during the life of the project.

9.11.6 Initial Identification and/or Exposure

Heritage resources may be identified during construction or may be accidentally exposed. The initial procedure when such sites are found aim to avoid any further damage. The following steps and reporting structure must be observed in both instances:

1. The person or group (identifier) who identified or exposed the burial ground must cease all activity in the immediate vicinity of the site;
2. The identifier must immediately inform his/her supervisor of the discovery;
3. The supervisor must ensure that the site is secured and access is controlled; and response time/scheduling of the Field Assessment is to be decided in consultation with UETCL and the environmental consultant.

The Field Assessment could have the following outcomes:

- If a human burial, the appropriate authority is to be contacted. The find must be evaluated by a human burial specialist to decide if Rescue Excavation is feasible, or if it is a Major Find.
- If the fossils are in an archaeological context, an archaeologist must be contacted to evaluate the site and decide if Rescue Excavation is feasible, or if it is a Major Find.
- If the fossils are in a palaeontological context, the palaeontologist must evaluate the site and decide if Rescue Excavation is feasible, or if it is a Major Find.

9.11.7 Rescue Excavation

Rescue Excavation refers to the removal of the material from the “design” excavation. This would apply if the amount or significance of the exposed material appears to be relatively circumscribed and it is feasible to remove it without compromising contextual data. The time span for Rescue Excavation should be reasonable rapid to avoid any undue delays, e.g. one to three days and definitely less than one week. In principle, the strategy during the mitigation is to “rescue” the fossil material as quickly as possible. The strategy to be adopted depends on the nature of the occurrence, particularly the density of the fossils. The methods of collection would depend on the preservation or fragility of the fossil and whether in loose or in lithified sediment. These could include:

- On-site selection and sieving in the case of robust material in sand; and
- Fragile material in loose sediment would be encased in blocks using Plaster-of-Paris or reinforced mortar.

If the fossil occurrence is dense and is assessed to be a “Major Find”, a carefully controlled excavation is required.

9.11.8 Major Finds

A Major Find is the occurrence of material that, by virtue of quantity, importance and time constraints, cannot be feasibly rescued without compromise of detailed material recovery and contextual observations.

Management options for major finds

In consultation with UETCL and the environmental consultant, the following options should be considered when deciding on how to proceed in the event of a Major Find.

Option 1: Avoidance

Avoidance of the Major Find through project redesign or relocation. This ensures minimal impact to the site and is the preferred option from a heritage resource management perspective. When feasible, it can also be the least expensive option from a construction perspective. The find site will require site protection measures, such as erecting fencing or barricades. Alternatively, the exposed finds can be stabilised and the site refilled or capped. The latter is preferred if excavation of the find will be delayed substantially or indefinitely. Appropriate protection measures should be identified on a site-specific basis and in wider consultation with the heritage and scientific communities. This option is preferred as it will allow the later excavation of the finds with due scientific care and diligence.

Option 2: Emergency Excavation

Emergency excavation refers to the “no option” situation where avoidance is not feasible due to design, financial and time constraints. It can delay construction and emergency excavation itself will take place under tight time constraints, with the potential for irrevocable compromise of scientific quality. It could involve the removal of a large, disturbed sample by an excavator and conveying this by truck from the immediate site to a suitable place for “stockpiling”. This material could then be processed later. Consequently, the emergency excavation is not the preferred option for a Major Find.

9.11.9 Exposure of Fossil Shell Beds

Response of personnel

The following responses should be undertaken by personnel in the event of intersection with fossil shell beds:

Action 1: The site foreman and Environment Consultant (EC) in charge must be informed;

Action 2: The responsible field person (site foreman or EC) must record the following information:

- Position (excavation position);
- Depth of find in hole;
- Digital image of the hole showing the vertical section (side); and

- Digital images of the fossiliferous material.

Action 3: A generous quantity of the excavated material containing the fossils should be stockpiled near the site, for later examination and sampling;

Action 4: The Environmental Consultant is to inform UETCL who must then contact the archaeologist and/or palaeontologist contracted to be on standby. The Environmental Consultant is to describe the occurrence and provide images via email.

Response by Palaeontologist

The palaeontologist will assess the information and liaise with UETCL and the Environmental Consultant and a suitable response will be established. This will most likely be a site visit to document and sample the exposure in detail, before it is covered up.

9.11.10 Exposure of Fossil Wood and Peats

Response of personnel

The following responses should be undertaken by personnel in the event of exposure of fossil wood and peats:

Action 1: The site foreman and Environmental Consultant must be informed;

Action 2: The responsible field person (site foreman or Environmental Consultant) must record the following information:

- Position (excavation position);
- Depth of find in hole;
- Digital image of the hole showing the vertical section (side); and
- Digital images of the fossiliferous material.

Action 3: A generous quantity of the excavated material containing the fossils should be stockpiled near the site, for later examination and sampling;

Action 4: The Environmental Consultant is to inform the developer who must then contact the archaeologist and/or palaeontologist contracted to be on standby. The Environmental Consultant is to describe the occurrence and provide images via email.

Response by Palaeontologist

The palaeontologist will assess the information and liaise with the developer and the Environmental Consultant and a suitable response will be established. This will most likely be a site visit to document and sample the exposure in detail, before it is covered up.

9.11.11 Monitoring for Fossils

A regular monitoring presence over the period during which excavations are made, by either an archaeologist or palaeontologist, is generally not practical. The field supervisor or foreman and workers involved in digging excavations must be encouraged and informed of the need to watch for potential fossil and buried archaeological material. Workers seeing potential objects are to report to the field supervisor who, in turn, will report to the Environmental Consultant. The Environmental Consultant will inform the archaeologist and/or palaeontologist contracted to be on standby in the case of fossil finds.

To this end, responsible persons must be designated. This will include hierarchically:

- The field supervisor or foreman who is going to be most often in the field;
- The EC for the project;
- The Project Manager

Should the monitoring of excavations be stipulated in the Archaeological Impact Assessment and/or the Heritage Impact Assessment, the contracted Monitoring Archaeologist (MA) can also monitor for the presence of fossils and make field assessment of any material brought to attention. The monitoring for fossils is usually sufficiently informed to identify fossil material and this avoids additional monitoring by a palaeontologist. In shallow coastal excavations, the fossils encountered are usually in an archaeological context. The monitoring for fossils then becomes the responsible field person and fulfils the role of liaison with the palaeontologist and coordinates with the developer and the Environmental Consultant. If fossils are exposed in non-archaeological contexts, the palaeontologist should be summoned to document and sample/collect them.

9.11.12 Chance Find Procedures (Burial Ground and Grave-BGG)

In the event that previously unidentified BGG are identified and/or exposed during construction or operation of the Hoima-Kinyara powerline, the following steps must be implemented subsequent to those outlined under “Initial Identification and or Exposure” above.

1. The Project Manager (UETCL) and/or the HRM Unit must immediately be notified of the discovery in order to take the required further steps:

i. The Uganda Police will be notified on behalf of UETCL;

ii. UETCL in association with the Environmental Consultant will deploy a suitably qualified specialist to inspect the exposed burial and determine in consultation with Uganda police;

- The temporal context of the remains, i.e.:
 - a. forensic,
 - b. authentic burial grave,
 - c. archaeological (older than 100 years); and
- If any additional graves may exist in the vicinity.

2. Should the specialist conclude that the find is a heritage resource, UETCL shall notify Uganda Museum who may require that an identification of interested parties be done through adequate consultations in order to relocate the grave.

9.11.13 Major institutions to contact while dealing with Chance Finds

Commissioner Uganda Museum
The Department of Museums and Monuments
Kira road, Kamwokya, Kampala
+256 772485624

The Environment Officer
Uganda Electricity Transmission Company Ltd
10 Hannington Road, Kampala
Tel +256 41 4233433
+25641 4250677

9.12 GRIEVANCE REDRESS MECHANISM

9.12.6 Grievance Procedure

9.12.6.1 Stage I: Grievance Resolution Committee

GRC Composition

The grievance resolution committees (GRC) shall be established at Sub-county level and include representatives from sub-county and village administrative levels as well as community representatives. There are 4 Sub-counties affected by the proposed line thus 4 grievance committees will be instituted. The committees will comprise of the following members:

- LCIII Chairperson/a representative;
- Sub-county Chief/ a representative;
- Chairperson Area Land Committee / a representative;
- LCI Chairpersons for all the affected villages in the sub-county;
- 5-10 Project Affected Persons (5 Males and 5 Females) as recommended by the PAPs in the sub-county;
- Any other person(s) recommended by the PAPs;

Presence of female members on the GRCs is crucial in order to ensure better consideration of gender issues for conflict resolution. The PAP representatives will be democratically chosen by the PAPs with the help of their leaders. The same committee shall also participate in the verification of PAPs during disclosure. Therefore this committee will be set up before disclosure of compensation packages

Accessibility and On-The-Spot Resolution

Village / LC1 members of the grievance committee will act as GRC focal persons at the village level in order to handle/receive complaints in order to enable access to GRC by any person at level of proximity. This will make the mechanism more functional, as well as allowing for on-the-spot clarification of issues that may only need clarification and

guidance. Such on-the-spot clarifications can avoid formal sitting of a GRC for such minor issues. At this level, issues lodged, registered and retired/cleared would not need investigation. The possibility for the LC3 chairperson to appoint a representative for complaints management guarantees accessibility of LC3-level persons in the GRM process.

Complaints Lodging and Recording

The GRC will record and handle all complaints including those that are not related to compensation. Such grievances may relate to other aspects of the working environment such as labour, noise, dust, unsafe excavations, unsocial behaviour of the contractor or subcontractors, sexual harassment, defilement, elopement with people's wives and others. Complaints of PAPs on any aspect of compensation or addressed losses shall first be lodged in writing to the LC1 Committee representatives. If the PAP is illiterate, the complaint will be made verbally to the LC1 Committee representative which will put it on paper. Complaints could also be made anonymously in petition collection boxes that will be put in accessible places, with an intake form for complaints. However, communities must be aware of the consequences of filing an anonymous complaint: no personal response can be provided and it will be difficult to evaluate if insufficient information is provided. Complaints originating from vulnerable households (minor-headed households, elderly, terminally ill, physically handicapped) will be treated with priority. Experience has also shown that GRCs receive issues beyond the project. In such cases, GRCs should seek the help of UETCL to redirect concerns to relevant agencies and units that are not project related. Additionally, consistent documentation for the system and its process is recommended - i.e. all complaints are registered and all resolutions reached at all stages are documented.

Investigation and Resolution of Complaints By GRC

Any complaint that cannot be resolved on-the-spot through clarification and guidance by the LC1 members of the grievance committee will require investigation by the GRC, including the relevant LC3 Chairperson or its representative. These complaints will be resolved by use of customary rules.

After receiving a complaint, the Grievance Resolution Committee will work hand in hand with the members of the project implementation team i.e. the Project Liaison Officer, Sociologist / RAP Specialist, Valuer, Surveyor and a Legal Officer. The project implementers (Project Implementation Unit) will also verify claims on the ground with the assistance of the grievance committee. If unresolved then the PAP can seek legal redress through the courts of law. Constant communication will be maintained throughout the negotiation process between the Committee and the concerned PAP(s), in order to allow for efficient negotiations. The grievance mechanism will ensure that all project affected persons including vulnerable groups – the elderly, women, the disabled can easily access help at no cost.

GRCs will have to pay special attention and consider emerging land and property issues especially in Hoima due to the oil exploration and drilling activities in the region. Land use disputes have also been reported and documented in some communities in the vicinity of the line route especially those along Biseruka road and other nearby areas. Thus, steps leading to final arrangements prior to the construction could stress some communities, reviving old quarrels. Moreover, the distribution of compensations among claimants (e.g. landlord, tenants, family members) can create tensions inside an outside the impacted households.

Recommended solutions to both conflict-related and “regular” land conflicts during resettlement converge towards proper communication of compensation rules and procedures to all interested parties and implementation of mechanisms involving all parties to the conflict with as well as local representatives in discussions aiming towards mediation and peaceful conflict resolution. Such negative impacts can be mitigated by ensuring the collaboration of legitimate leaders and proper communication of compensation rules and procedures to all interested parties. Therefore, the grievance redress mechanism to be implemented during and after RAP implementation, as well as during the whole construction phase will enable to address conflicts that may arise.

9.12.6.2 Stage II: Courts Of Law

The constitution allows a right of access to the courts of law by any person who has an interest or right over property. If the grievance procedure fails to provide a settlement, complainants can still seek legal redress in courts of law as a last resort. The grievance system will operate from the disclosure of the census and asset inventories’ results, up until one year after the completion of the RAP implementation process.

Grievance Resolution Process

Figure 6.1 presents a visual representation of the grievance resolution process.

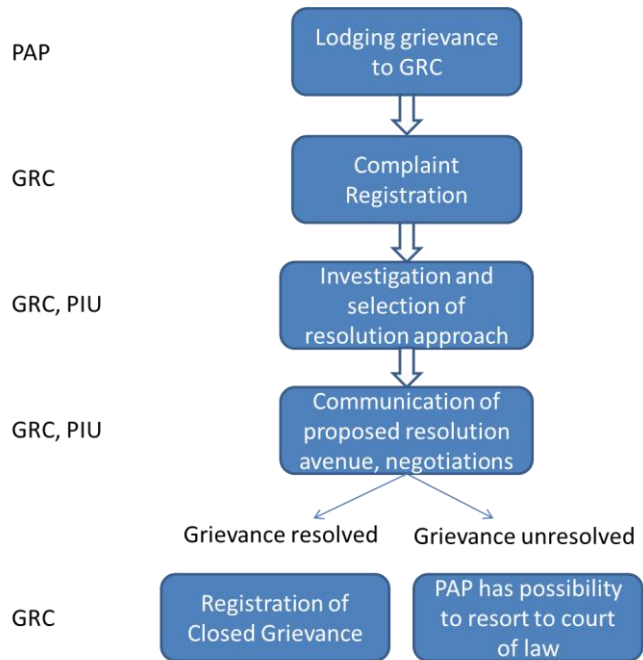


Figure 6.1: Grievance Resolution Process Flow Chart

The PAPs will be informed of the different grievance mechanisms in place for them to lodge their complaints and dissatisfactions through sensitization meetings. The grievance procedure will be simple and administered as far as possible at the local levels to facilitate access, flexibility and ensure transparency. All the grievances will be channelled through the Grievance Resolution Committees. Complaints will be filed in a Grievance Resolution Form. After registration of the complaint, an investigation will be carried out by the committee members to verify its authenticity thereafter a resolution approach will be selected based on the findings. The decisions of the action to be taken will be communicated to all involved parties mainly in written form.

The project implementing team responsible for grievance resolution will include a Project Liaison Officer, a Sociologist / RAP Specialist, a Surveyor, a Valuer and a Legal Officer. These will work together with the grievance resolution committee to solve grievances and to ensure that grievances and clear solutions are properly recorded. Thus, all grievances received by the Grievance Resolution Committees will be forwarded to the implementing team. A way forward or grievance approach for each grievance will be selected together by the committee and project team or in close consultation.

All measures will be undertaken to ensure that the grievance is solved amicably between the concerned parties and the courts will be the last resort. Efficiency in solving the grievances will be of paramount importance. Grievances shall be resolved within a maximum period of 60 days after the date of registration. A grievance database clearly showing the date the grievance was registered, the selected approach to resolve it and the status of the grievance shall be maintained by the project team.

All the selected grievance resolution committee members shall undergo a capacity building training about their roles and requirements of the RAP before commencement of grievance resolution.

9.12.6.3 Monitoring Complaints

In addition to the Grievance Resolution Form, a Grievance Log will be kept by the project implementers, indicating the date the complaint was lodged, a brief description of the grievance, actions to be taken, status of the resolution etc. The Project Liaison Officer or RAP Specialist will monitor and document the progress of all complaints through monthly grievance resolution reports.

There is a high probability of complaints arising within and outside the construction sites. Site Disciplinary Committees (SDCs) proposed in **Annex 16** shall be established to receive and resolve such complaints. Any complaints that may be handled by the SDCs shall be referred to the mainstream government institutions such as Uganda Police with the guidance of the area Local Council (LC) leadership. The LCs shall be represented in each SDC committee.

9.13 COMPLIANCE WITH VARIOUS PERMITS AND REGULATIONS

Before construction works commence, the developer (UETCL) will have to ensure all the necessary permits pertinent to the Hoima-Kinyara transmission line and associated substations are obtained through coordination with the issuing agencies. UETCL shall also coordinate with the contractor and ensure all conditions stated in each permit are adhered to and or implemented. Table 9.. below presents the various permits applicable to this project;

| No | Type of Permit | Issuing Agency |
|----|---|---|
| 1 | Environmental and Social Impact Assessment Certificate of Approval/Permit | National Environment Management Authority (NEMA) in consultation with other Lead Agencies |
| 2 | Wetlands permit | NEMA |
| 3 | Pollution permit | NEMA |
| 4 | Roads permit | Uganda National Roads Authority |

As presented in chapter 3, the contractor shall abide and comply with other policies and laws applicable. Such regulations and policies include the need to recruit and employ all workers in accordance with the Employment Act, Occupational Health and Safety Act, the need to observe the HIV/AIDS Policy, the Land Act and others.

9.14 INSTITUTIONAL ARRANGEMENTS FOR PROJECT IMPLEMENTATION

9.14.6 Pre-Construction / Construction Phase

Responsibilities for ESMP implementation and monitoring are shared between multiple stakeholders including UETCL, relevant public authorities and project contractor(s). **Figure 9.1** illustrates the mechanics of the proposed institutional arrangement for the project preconstruction / construction phases. The following sections also describe each stakeholder's roles and responsibilities during the construction period.

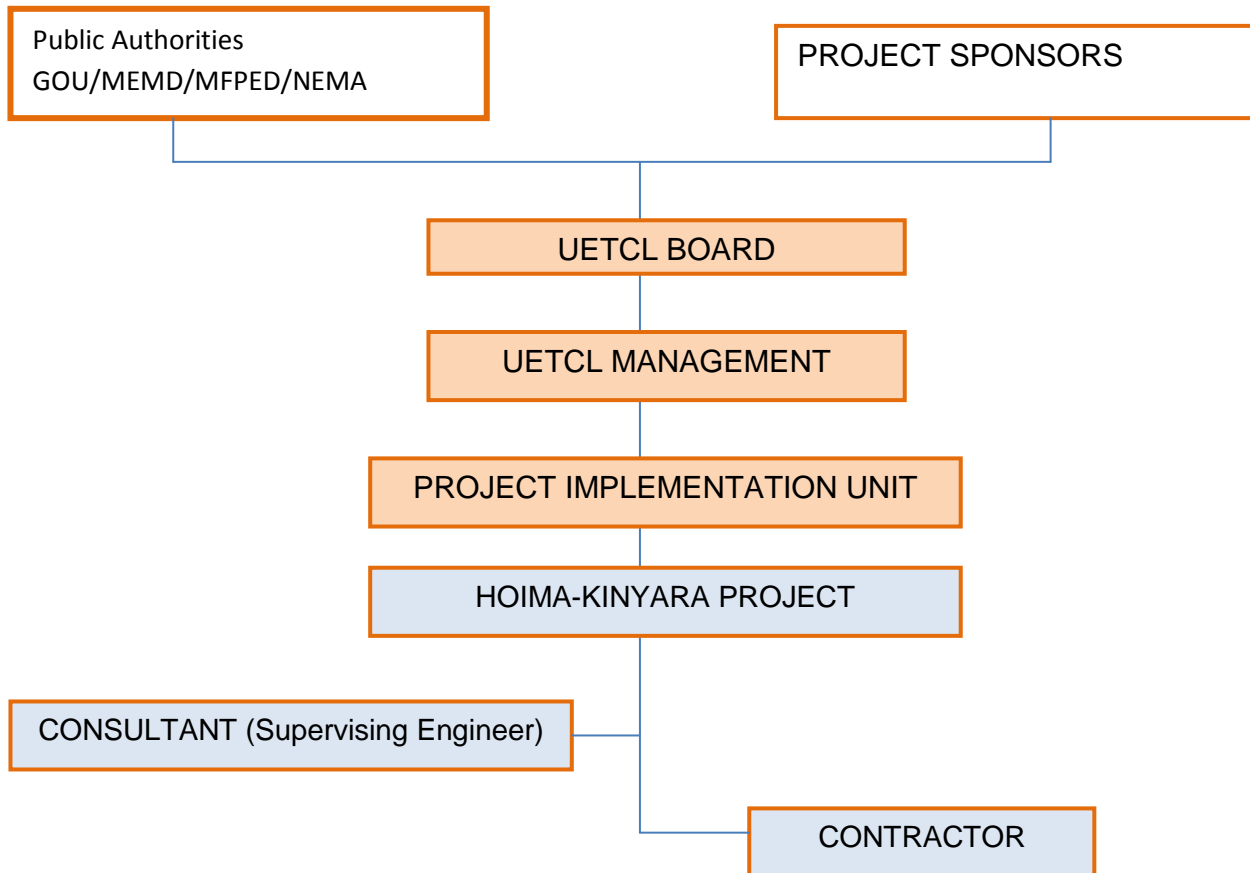


Figure 9.1: Institutional arrangements for implementation of the ESMP during construction phase

9.14.6.1 Government of Uganda and Project Sponsors

The Government of Uganda oversees the project's high level planning, financing and implementation via the Ministry of Energy and Minerals Development and the Ministry of Finance, Planning and Economic Development. Independent oversight of ESMP implementation and respect of applicable laws and regulations shall be done by NEMA, in collaboration with other agencies (including MoGLSD, LGs, etc.) and CSOs. Financial partners for their part also contribute to the project's high level planning before financing its

construction. Their environmental and social safeguards provide guidance regarding project design and implementation mechanics, in order to minimize and properly manage its environmental and social impacts.

9.14.6.2 Project Owner: UETCL Board and Management

As the project owner, UETCL will have direct responsibility for proper project and ESMP implementation. Under the structure illustrated above, the roles attributed to its Board and

Management team would be the following:

- Be the interface between UETCL and financial partners regarding environmental and social issues;
- Ensure that applicable financial partner safeguard policies are implemented and respected, by analyzing E&S monitoring reports received from the PIU E&S specialist and other partners, and identifying gaps against financial partners' safeguard policies;
- Take ultimate technical decisions about environmental and social problems raised or observed by other project stakeholders, if need be
- Guide and support the top management/technical management for everything that relates to the project's environmental management;
- Ensure that the environmental and social management process is working well and that no significantly negative and irreversible impact are produced by the project;
- Centralize all information and documentation regarding the project's E&S management.

9.14.6.3 Project Implementation Unit

UETCL will create a Project Implementation Unit (PIU) within UETCL, consisting of technical and environmental/social staff. Technical staff would be composed of technical experts able to ensure compliance with construction standards included in the project plans and specifications, bidding documents and contracts. This team would be composed of national engineers and experts, supervised by UETCL's Principal Projects Engineer.

Environmental and social staff would be composed of experts from the fields of environment, ecology, agronomy and sociology, etc., and ensure proper implementation of the environmental and social management measures contained in the ESMP, but also the RAP. These experts could come from UETCL's professional staff. PIU's environmental staff would act under the authority of UETCL's Principal Environment Officer. Given the importance of social issues, the PIU is required have qualified Social scientist to attend to all social issues including RAP implementation. They will lead the social dialogue, risk assessment and guide the implementation of the social issues including land acquisition, compensation and resettlement. PIU's environmental and social team would be responsible for monitoring of ESMP implementation during the project pre-construction and construction phases. As such, its main responsibilities would be as follows:

Pre-construction phase

- Coordinate E&S aspects of project procurement, *inter alia* inclusion of E&S aspects (ESMP & RAP, as well as the World Bank's *General Environmental Management Conditions for Construction Contracts*) in contractor(s) and supervising engineer tender documents and contracts.
- Coordination of population resettlement & compensation, as well as implementation of other RAP measures;
- Conduction of additional consultations prior to the project's implementation, with representatives from the Ministry of Gender, Labour and Social Development's to involve Community Development Officers in project supervision and monitoring during implementation..
- Strengthen inter-agency collaboration including UETCL and:
 - Affected/benefiting Local Government Departments including: Education, Community Development, Gender, Probation, Labor and Health;
 - Lower LCs;
 - CSOs operating in the area;
 - MoLG, MoGLSD, Law enforcement agencies at the LG, etc.

Construction phase

- Supervise proper implementation of ESMP & RAP when relevant during construction.

In order to achieve the objectives above, it is recommended that PIU environmental staff conducts field inspections on a monthly basis in order to monitor proper implementation of relevant E&S measures by the contractor, and proper monitoring by the supervising engineer. In the case of an incident that could potentially cause serious damage to the environment or equipment, PIU environmental staff will be authorized to stop work or to give instructions to the head contractor to ensure that impacts are minimized or eliminated.

9.14.6.4 Consultant (Supervising Engineer)

The supervising engineer's general role is to represent UETCL in order to monitor proper project implementation. As such, the supervising engineer would monitor proper implementation of the project's technical, environmental and social aspects. Generally, its role would include verification/approval of technical execution studies/drawings, as well as supervision and monitoring of the project construction works.

The supervising engineer would appoint qualified environmental and social specialists. Given the importance of social issues, the supervising engineer's social scientist will attend to all social issues including RAP implementation. They will lead the social dialogue, risk assessment and guide the implementation of the social issues including land acquisition, compensation and resettlement.

The supervising engineer's E&S specialists would be responsible for the following main tasks:

Prior to initiation of construction:

- Verification/approval of lead contractor's candidates as environmental specialists', based on their qualifications;

- Verification/approval of the detailed ESMP and RAP implementation plan during the project construction phase, for elements under the Contractor's control (Project Worksite ESMP) to be prepared by the lead contractor's environmental specialists;
- Verification/approval of training provided to the lead contractor and subcontractors' staff;
- Review of Contractors' Method Statements to ensure that environment and social risks are assessed and mitigations put in place before any activity commences;

During construction:

- Review of Contractors' Method Statements to ensure that environment and social risks are assessed and mitigations put in place before any activity commences;
- Monitor adequate implementation of the Worksite ESMP by the lead contractor and subcontractors, with systematic controls;
- Control the quality and quantity of E&S reports produced by the lead contractor;
- Monitor ongoing project environmental and social impacts;
- Oversee communications done by the contractor against the worksite's ESMP, control the way the contractor manages the complaints issued by the public.
- Handle/keep record of complaints under its competence;
- Produce by-weekly E&S monitoring reports for the PIU. Report contents:
 - Analysis of contractor's environmental management reports;
 - Results of the surveillance of complaints and critical incidents/accidents handled by the contractor;
 - Complaints handled directly;
 - Level of implementation of the project's ESMP / worksite's ESMP and observed deviations; Identification of unanticipated impacts (not identified in the ESMP);
 - Results of the controls done regarding the communications and awareness activities done/planned by the contractor.
- Oversee complaints issued by the contractor;
- When necessary, take decisions concerning the implementation of the Worksite ESMP.

The supervising engineer's assignment should come to an end at the end of the project preconstruction/ construction phase.

9.14.6.5 Lead Contractor

The lead contractor shall appoint qualified environmental and social specialists and submit their CVs to the supervising engineer who will assess sufficiency of their qualifications for ESMP implementation. After approval of their qualifications, contractor environmental and social specialists will be responsible for daily implementation and management of all relevant E&S measures provided in the ESMP and RAP, during the whole construction phase.

Given the importance of social issues, the lead contractor's social scientist will attend to all social issues including RAP implementation. They will lead the social dialogue, risk assessment and guide the implementation of the social issues including land acquisition, compensation and resettlement.

The lead contractor's E&S specialists would be responsible for the following main tasks:

Prior to initiation of construction

- Preparation of detailed ESMP and RAP implementation plan for the project construction phase, for elements under the Contractor's control (Project Worksite ESMP);
- Preparation of all plans and policies required by the ESMP;
- Training of relevant contractor and subcontractor staff on Worksite ESMP in order to ensure integration in general planning of works;

During construction

- Measurement of monitoring indicators listed in the Environmental and Social management Plan.
- Those measurements are to be done before, during and after conduction of works at a given site in order to assess efficiency of mitigation measures;
- Ensure permanent field E&S surveillance of construction works conducted by contractor / subcontractors;
- Environmental management of the worksites and monitoring of works, particularly of the respect of the Worksite ESMP by foremen and workers;
- Produce weekly E&S reports to the supervising engineer detailing state of ESMP implementation;
- Declare accident/incidents/events that may affect the quality of the environment and/or the human environment;
- Answer and take necessary actions regarding complaints by affected population (when the complaint is related to the contractor).

It should be noted that the lead contractor is to be held accountable for all H&S infractions, E&S infractions, and ESMP infringements caused by its sub-contractors. The Lead Contractor should also appoint health & safety staff who would be responsible for application of health and safety obligations and reporting on H&S issues. All applicable national health & safety regulations, as well as UETCL standards, will have to be respected. In the absence of specific rules, it is suggested to use, where appropriate, the WHO or World Bank standards.

The Lead Contractor must hold all necessary licenses and permits before the work begins. It will befall on them to provide UETCL and PIU with all the required legal documents, among which the signed agreements with owners, authorisations for borrow pits, authorisations for temporary storage sites, etc. The Lead Contractor's contract should come to a close at the end of the project pre-construction / construction phase.

9.14.7 Operation Phase

As project owner and operator, UETCL should be the only body directly concerned with ESMP implementation at project operation phase. Its current internal structures will therefore be responsible for following through and implementing all mitigation and monitoring measures provided in the ESMP for that phase.

9.15 General Environmental Management Conditions for Construction Contracts

General

1. In addition to these general conditions, the Contractor shall comply with any specific Environmental Management Plan (EMP) or Environmental and Social Management Plan (ESMP) for the works he is responsible for. The Contractor shall inform himself about such an EMP, and prepare his work strategy and plan to fully take into account relevant provisions of that EMP. If the Contractor fails to implement the approved EMP after written instruction by the Supervising Engineer (SE) to fulfill his obligation within the requested time, the Owner reserves the right to arrange through the SE for execution of the missing action by a third party on account of the Contractor.
2. Notwithstanding the Contractor's obligation under the above clause, the Contractor shall implement all measures necessary to avoid undesirable adverse environmental and social impacts wherever possible, restore work sites to acceptable standards, and abide by any environmental performance requirements specified in an EMP. In general these measures shall include but not be limited to:
 - (a) Minimize the effect of dust on the surrounding environment resulting from earth mixing sites, asphalt mixing sites, dispersing coal ashes, vibrating equipment, temporary access roads, etc. to ensure safety, health and the protection of workers and communities living in the vicinity dust producing activities.
 - (b) Ensure that noise levels emanating from machinery, vehicles and noisy construction activities (e.g. excavation, blasting) are kept at a minimum for the safety, health and protection of workers within the vicinity of high noise levels and nearby communities.
 - (c) Ensure that existing water flow regimes in rivers, streams and other natural or irrigation channels is maintained and/or re-established where they are disrupted due to works being carried out.
 - (d) Prevent bitumen, oils, lubricants and waste water used or produced during the execution of works from entering into rivers, streams, irrigation channels and other natural water bodies/reservoirs, and also ensure that stagnant water in uncovered borrow pits is treated in the best way to avoid creating possible breeding grounds for mosquitoes.
 - (e) Prevent and minimize the impacts of quarrying, earth borrowing, piling and building of temporary construction camps and access roads on the biophysical environment including protected areas and arable lands; local communities and their settlements. In as much as possible restore/rehabilitate all sites to acceptable standards.
 - (f) Upon discovery of ancient heritage, relics or anything that might or believed to be of archeological or historical importance during the execution of works, immediately report such findings to the SE so that the appropriate authorities may be expeditiously contacted for fulfillment of the measures aimed at protecting such historical or archaeological resources.
 - (g) Discourage construction workers from engaging in the exploitation of natural resources such as hunting, fishing, and collection of forest products or any other activity that might have a negative impact on the social and economic welfare of the local communities.
 - (h) Implement soil erosion control measures in order to avoid surface run off and prevents siltation, etc.

- (i) Ensure that garbage, sanitation and drinking water facilities are provided in construction workers camps.
 - (j) Ensure that, in as much as possible, local materials are used to avoid importation of foreign material and long distance transportation.
 - (k) Ensure public safety, and meet traffic safety requirements for the operation of work to avoid accidents.
3. The Contractor shall indicate the period within which he/she shall maintain status on site after completion of civil works to ensure that significant adverse impacts arising from such works have been appropriately addressed.
 4. The Contractor shall adhere to the proposed activity implementation schedule and the monitoring plan / strategy to ensure effective feedback of monitoring information to project management so that impact management can be implemented properly, and if necessary, adapt to changing and unforeseen conditions.
 5. Besides the regular inspection of the sites by the SE for adherence to the contract conditions and specifications, the Owner may appoint an Inspector to oversee the compliance with these environmental conditions and any proposed mitigation measures. State environmental authorities may carry out similar inspection duties. In all cases, as directed by the SE, the Contractor shall comply with directives from such inspectors to implement measures required to ensure the adequacy rehabilitation measures carried out on the bio-physical environment and compensation for socio-economic disruption resulting from implementation of any works.

Worksite/Campsite Waste Management

6. All vessels (drums, containers, bags, etc.) containing oil/fuel/surfacing materials and other hazardous chemicals shall be banded in order to contain spillage. All waste containers, litter and any other waste generated during the construction shall be collected and disposed off at designated disposal sites in line with applicable government waste management regulations.
7. All drainage and effluent from storage areas, workshops and camp sites shall be captured and treated before being discharged into the drainage system in line with applicable government water pollution control regulations.
8. Used oil from maintenance shall be collected and disposed off appropriately at designated sites or be re-used or sold for re-use locally.
9. Entry of runoff to the site shall be restricted by constructing diversion channels or holding structures such as banks, drains, dams, etc. to reduce the potential of soil erosion and water pollution.
10. Construction waste shall not be left in stockpiles along the road, but removed and reused or disposed of on a daily basis.
11. If disposal sites for clean spoil are necessary, they shall be located in areas, approved by the SE, of low land use value and where they will not result in material being easily washed into drainage channels. Whenever possible, spoil materials should be placed in low-lying areas and should be compacted and planted with species indigenous to the locality.

Material Excavation and Deposit

12. The Contractor shall obtain appropriate licenses/permits from relevant authorities to operate quarries or borrow areas.
13. The location of quarries and borrow areas shall be subject to approval by relevant local and national authorities, including traditional authorities if the land on which the quarry or borrow areas fall in traditional land.

14. New extraction sites:

- (a) Shall not be located in the vicinity of settlement areas, cultural sites, wetlands or any other valued ecosystem component, or on high or steep ground or in areas of high scenic value, and shall not be located less than 1km from such areas.
- (b) Shall not be located adjacent to stream channels wherever possible to avoid siltation of river channels. Where they are located near water sources, borrow pits and perimeter drains shall surround quarry sites.
- (c) Shall not be located in archaeological areas. Excavations in the vicinity of such areas shall proceed with great care and shall be done in the presence of government authorities having a mandate for their protection.
- (d) Shall not be located in forest reserves. However, where there are no other alternatives, permission shall be obtained from the appropriate authorities and an environmental impact study shall be conducted.
- (e) Shall be easily rehabilitated. Areas with minimal vegetation cover such as flat and bare ground, or areas covered with grass only or covered with shrubs less than 1.5m in height, are preferred.
- (f) Shall have clearly demarcated and marked boundaries to minimize vegetation clearing.

15. Vegetation clearing shall be restricted to the area required for safe operation of construction work. Vegetation clearing shall not be done more than two months in advance of operations.

16. Stockpile areas shall be located in areas where trees can act as buffers to prevent dust pollution. Perimeter drains shall be built around stockpile areas. Sediment and other pollutant traps shall be located at drainage exits from workings.

17. The Contractor shall deposit any excess material in accordance with the principles of these general conditions, and any applicable EMP, in areas approved by local authorities and/or the SE.

18. Areas for depositing hazardous materials such as contaminated liquid and solid materials shall be approved by the SE and appropriate local and/or national authorities before the commencement of work. Use of existing, approved sites shall be preferred over the establishment of new sites.

Rehabilitation and Soil Erosion Prevention

19. To the extent practicable, the Contractor shall rehabilitate the site progressively so that the rate of rehabilitation is similar to the rate of construction.

20. Always remove and retain topsoil for subsequent rehabilitation. Soils shall not be stripped when they are wet as this can lead to soil compaction and loss of structure.

21. Topsoil shall not be stored in large heaps. Low mounds of no more than 1 to 2m high are recommended.

22. Re-vegetate stockpiles to protect the soil from erosion, discourage weeds and maintain an active population of beneficial soil microbes.

23. Locate stockpiles where they will not be disturbed by future construction activities.

24. To the extent practicable, reinstate natural drainage patterns where they have been altered or impaired.

25. Remove toxic materials and dispose of them in designated sites. Backfill excavated areas with soils or overburden that is free of foreign material that could pollute groundwater and soil.

26. Identify potentially toxic overburden and screen with suitable material to prevent mobilization of toxins.

27. Ensure reshaped land is formed so as to be inherently stable, adequately drained and suitable for the desired long-term land use, and allow natural regeneration of vegetation.
28. Minimize the long-term visual impact by creating landforms that are compatible with the adjacent landscape.
29. Minimize erosion by wind and water both during and after the process of reinstatement.
30. Compacted surfaces shall be deep ripped to relieve compaction unless subsurface conditions dictate otherwise.
31. Revegetate with plant species that will control erosion, provide vegetative diversity and, through succession, contribute to a resilient ecosystem. The choice of plant species for rehabilitation shall be done in consultation with local research institutions, forest department and the local people.

Water Resources Management

32. The Contractor shall at all costs avoid conflicting with water demands of local communities.
33. Abstraction of both surface and underground water shall only be done with the consultation of the local community and after obtaining a permit from the relevant Water Authority.
34. Abstraction of water from wetlands shall be avoided. Where necessary, authority has to be obtained from relevant authorities.
35. Temporary damming of streams and rivers shall be done in such a way avoids disrupting water supplies to communities downstream, and maintains the ecological balance of the river system.
36. No construction water containing spoils or site effluent, especially cement and oil, shall be allowed to flow into natural water drainage courses.
37. Wash water from washing out of equipment shall not be discharged into water courses or road drains.
38. Site spoils and temporary stockpiles shall be located away from the drainage system, and surface run off shall be directed away from stockpiles to prevent erosion.

Traffic Management

39. Location of access roads/detours shall be done in consultation with the local community especially in important or sensitive environments. Access roads shall not traverse wetland areas.
40. Upon the completion of civil works, all access roads shall be ripped and rehabilitated.
41. Access roads shall be sprinkled with water at least five times a day in settled areas, and three times in unsettled areas, to suppress dust emissions.

Blasting

42. Blasting activities shall not take place less than 2km from settlement areas, cultural sites, or wetlands without the permission of the SE.
43. Blasting activities shall be done during working hours, and local communities shall be consulted on the proposed blasting times.
44. Noise levels reaching the communities from blasting activities shall not exceed 90 decibels.

Disposal of Unusable Elements

45. Unusable materials and construction elements such as electro-mechanical equipment, pipes, accessories and demolished structures will be disposed of in a

manner approved by the SE. The Contractor has to agree with the SE which elements are to be surrendered to the Client's premises, which will be recycled or reused, and which will be disposed of at approved landfill sites.

46. As far as possible, abandoned pipelines shall remain in place. Where for any reason no alternative alignment for the new pipeline is possible, the old pipes shall be safely removed and stored at a safe place to be agreed upon with the SE and the local authorities concerned.
47. AC-pipes as well as broken parts thereof have to be treated as hazardous material and disposed of as specified above.
48. Unsuitable and demolished elements shall be dismantled to a size fitting on ordinary trucks for transport.

Health and Safety

49. In advance of the construction work, the Contractor shall mount an awareness and hygiene campaign. Workers and local residents shall be sensitized on health risks particularly of AIDS.
50. Adequate road signs to warn pedestrians and motorists of construction activities, diversions, etc. shall be provided at appropriate points.
51. Construction vehicles shall not exceed maximum speed limit of 40km per hour.

Repair of Private Property

52. Should the Contractor, deliberately or accidentally, damage private property, he shall repair the property to the owner's satisfaction and at his own cost. For each repair, the Contractor shall obtain from the owner a certificate that the damage has been made good satisfactorily in order to indemnify the Client from subsequent claims.
53. In cases where compensation for inconveniences, damage of crops etc. are claimed by the owner, the Client has to be informed by the Contractor through the SE. This compensation is in general settled under the responsibility of the Client before signing the Contract. In unforeseeable cases, the respective administrative entities of the Client will take care of compensation.

Contractor's Health, Safety and Environment Management Plan (HSE-MP)

54. Within 6 weeks of signing the Contract, the Contractor shall prepare an EHS-MP to ensure the adequate management of the health, safety, environmental and social aspects of the works, including implementation of the requirements of these general conditions and any specific requirements of an EMP for the works. The Contractor's EHS-MP will serve two main purposes:
 - For the Contractor, for internal purposes, to ensure that all measures are in place for adequate HSE management, and as an operational manual for his staff.
 - For the Client, supported where necessary by a SE, to ensure that the Contractor is fully prepared for the adequate management of the HSE aspects of the project, and as a basis for monitoring of the Contractor's HSE performance.
55. The Contractor's EHS-MP shall provide at least:
 - a description of procedures and methods for complying with these general environmental management conditions, and any specific conditions specified in an EMP;
 - a description of specific mitigation measures that will be implemented in order to minimize adverse impacts;

- a description of all planned monitoring activities (e.g. sediment discharges from borrow areas) and the reporting thereof; and
- the internal organizational, management and reporting mechanisms put in place for such.

56. The Contractor's EHS-MP will be reviewed and approved by the Client before start of the works. This review should demonstrate if the Contractor's EHS-MP covers all of the identified impacts, and has defined appropriate measures to counteract any potential impacts.

HSE Reporting

57. The Contractor shall prepare bi-weekly progress reports to the SE on compliance with these general conditions, the project EMP if any, and his own EHS-MP. An example format for a Contractor HSE report is given below. It is expected that the Contractor's reports will include information on:

- HSE management actions/measures taken, including approvals sought from local or national authorities;
- Problems encountered in relation to HSE aspects (incidents, including delays, cost consequences, etc. as a result thereof);
- Lack of compliance with contract requirements on the part of the Contractor;
- Changes of assumptions, conditions, measures, designs and actual works in relation to HSE aspects; and
- Observations, concerns raised and/or decisions taken with regard to HSE management during site meetings.

58. It is advisable that reporting of significant HSE incidents be done "as soon as practicable". Such incident reporting shall therefore be done individually. Also, it is advisable that the Contractor keep his own records on health, safety and welfare of persons, and damage to property. It is advisable to include such records, as well as copies of incident reports, as appendixes to the bi-weekly reports. Example formats for an incident notification and detailed report are given below. Details of HSE performance will be reported to the Client through the SE's reports to the Client.

Training of Contractor's Personnel

59. The Contractor shall provide sufficient training to his own personnel to ensure that they are all aware of the relevant aspects of these general conditions, any project EMP, and his own EHS-MP, and are able to fulfil their expected roles and functions. Specific training should be provided to those employees that have particular responsibilities associated with the implementation of the EHS-MP. General topics should be:

- HSE in general (working procedures);
- emergency procedures; and
- social and cultural aspects (awareness raising on social issues).

Cost of Compliance

60. It is expected that compliance with these conditions is already part of standard good workmanship and state of art as generally required under this Contract. The item "Compliance with Environmental Management Conditions" in the Bill of Quantities covers these costs. No other payments will be made to the Contractor for compliance with any request to avoid and/or mitigate an avoidable HSE impact.

Example Format: HSE Report

Period of reporting

HSE management actions/measures

Summarize HSE management actions/measures taken during period of reporting, including planning and management activities (e.g. risk and impact assessments), HSE training, specific design and work measures taken, etc.

HSE incidents

Report on any problems encountered in relation to HSE aspects, including its consequences (delays, costs) and corrective measures taken. Include relevant incident reports.

HSE compliance

Report on compliance with Contract HSE conditions, including any cases of non-compliance.

Changes

Report on any changes of assumptions, conditions, measures, designs and actual works in relation to HSE aspects.

Concerns and observations

Report on any observations, concerns raised and/or decisions taken with regard to HSE management during site meetings and visits.

Signature (Name, Title Date)

Contractor Representative

10 ENVIRONMENTAL MONITORING PROGRAMME

10.1 Overview

The general approach to effects of monitoring is to compare the pre- and post- project situations, measuring relevant environmental impacts against baseline conditions. Baseline data establish a reference basis for managing environmental impacts throughout the life of the project. Monitoring process will therefore to be introduced to check progress and the resultant effects on the environment as the construction of building proceeds.

The Contractor and UETCL will undertake the necessary monitoring measures for short- and long-term monitoring programme respectively. However, during monitoring close links should be maintained with other relevant lead agencies. Much of the work during the construction stage can form part of the contractor's routine inspection activities that will be included in construction contract. The planned mitigation measures indicated in 5.1 should, therefore, be included on the list of contractual items. These should be planned and checked against their effectiveness in reducing the negative impacts/or enhancing the benefits identified in this report.

The process should also include regular reviews of the impacts that cannot be contemplated at the time of doing this Environment Impact Assessment. Action shall be taken in response to the unforeseen changes and subsequently scale up the mitigation and monitoring measures. Monitoring should undertake appropriate new actions to mitigate any negative effects.

To achieve this, a two-stage programme is proposed:

- iii) Stage I Short-term monitoring programme
- iv) Stage II Long-term monitoring Programme

The issues to monitor may include the following:

- Monitoring and supervision of the excavations for tower locations
- Forestation of new land and regeneration of opened up areas
- Monitoring of traffic safety;
- Monitoring the fate of solid waste/debris disposal and other wastes after they have left the site.
- Monitoring resettlement of families
- Monitoring compensation for land, crops, trees, structures etc
- Valuation forms possessed by all PAPs
- Monitoring of livelihood of displaced persons
- Relocation of water sources
- Water quality
- Integrity of wetlands
- Behavioural changes
- Occupational health

- Public health concerns such as prevalence of communicable diseases including HIV/AIDS
- Emerging concerns from the community on the activities of the contractor
- Child labour
- Misuse of compensation cash
- Fire fighting preparedness among others.

The contractor shall be required to develop their own ESMP to guide implementation of the construction phase and including pre and post construction phase.

10.2 Short -Term Environmental Monitoring programme

This programme is aimed at monitoring environmental impacts that will last up to end of construction period. These are:

- Activities associated with planning including resettlement and compensation which are mainly undertaken by the developer (UETCL).
- Actual construction activities which are mainly under taken by the Contractor.

On completion of the ESIA, some activities must be undertaken, and these include but not limited to: Preparation of tender documents that should include environmental issues as identified in this report; these should emphasize that most activities related to implementation of the mitigation measures should be undertaken by contractor since he is a major player in this phase.

Once implementation begins, monitoring also starts. The Contractor (SEO) will carry out daily and weekly readings and assessments which are filled in a form and submits to the Consultant (Environmental specialist – ES) monthly. The Consultant (ES) will work on behalf of the Developer (UETCL) who has the overall environmental responsibility of his project. ES will make regular visits to the site once or twice a month, to cross-check with what has been put down in the forms by the contractor. The ES will make Quarterly reports to be submitted to the NEMA/DEO and the Client.

A mid-term review of environmental issues scheduled at the midpoint of the contract is recommended. This will have the objective of reviewing environmental monitoring and management activities as well as making recommendations for long-term environmental monitoring requirements.

An overall short-term monitoring report should be submitted to DEO, Client and NEMA at the end of the liability period.

10.3 Long-term environmental monitoring Programme

This involves long term monitoring and action programme during operation and maintenance of building. Some of the issues will need to be monitored beyond liability period as will have been recommended in the mid-term review or by the Consultant and the compliance team. These issues may include

- Water flow; monitoring flow of water will continue for about 1 year after construction.
- Monitoring of maintenance of the new plantations to replace the forests affected until about 5 years when fast growing trees are ready for harvesting
- Livelihood; income restoration will have to be monitored beyond liability period because it is a slow process and may require about 5 years to get positive results.

The programme should be drawn in the light of the success of inter-agency cooperation and ensure that there is a suitable master plan which is well coordinated with plans of other organisations.

The first long-term monitoring report is proposed to be submitted 1 year after liability period. A yearly report will be required and an overall long term monitoring report should be submitted at end of 5 years after construction. An environmental Audit shall be carried on completion of the project and before commissioning to verify compliance with the mitigation measures recommended and if the contractor has complied with his Environment Management Plan. **Table 9.4** below presents an environment monitoring plan.

10.4 Environmental Monitoring plan

| Parameter to be Monitored | Reason for Monitoring | Monitoring Location | Timing | Monitoring Method | Responsibility | Budget EST. (USD) |
|--|--|--|---|--|------------------|-------------------|
| SECTION 1: TRANSMISSION LINE | | | | | | |
| BIO-PHYSICAL ENVIRONMENT | | | | | | |
| PRE-CONSTRUCTION PHASE/CONSTRUCTION | | | | | | |
| Loss of crops within transmission corridor | To ensure transmission works do not compromise the livelihoods of the PAPs | Along the transmission corridor and the immediate vicinity | Before and during construction | Community meetings with PAPs to assess the completeness of the compensation and resettlement exercise. | UETCL Contractor | 3,000 |
| Spot alteration of agricultural land use, grassland and wetlands by Tower spots | To ensure towers are not located in sensitive or controversial areas | Along the transmission corridor | During construction and post construction | Visual inspection | UETCL Contractor | 4,000 |
| Loss of Land to the power line in the corridor | To ensure transmission works do not compromise the livelihoods of the PAPs | Land ownership along the transmission corridor | Before construction | Community meetings with PAPs to assess the completeness of the compensation and resettlement exercise. | UETCL Contractor | 10,000 |
| Displacement of built up structures (homes, Kiosks, commercial buildings, latrines) in the Right of Way and Wayleave | To ensure transmission works do not compromise the livelihoods of the PAPs | Transmission corridor and the immediate vicinity | Before construction | Community meetings with PAPs to assess the completeness of the compensation and resettlement exercise. | UETCL Contractor | 10,000 |

| Parameter to be Monitored | Reason for Monitoring | Monitoring Location | Timing | Monitoring Method | Responsibility | Budget EST. (USD) |
|--|---|---|---|---|------------------|-------------------|
| Loss of vegetation and animal habitats by vehicle traffic, clearing of Wayleaves and access roads. | To ensure construction works are restricted to the ROW & wayleave | Transmission corridor and the immediate vicinity | During construction | Visual inspection | UETCL Contractor | 3,000 |
| Earth works and concrete residues due to tower foundations | To ensure all waste concrete and cut to spoil is well disposed | Along the transmission corridor | During construction and post construction | Visual inspection and interviews with the local, sub-county and district leadership | UETCL Contractor | 5,000 |
| Waste disposal during construction | To ensure all waste generated is properly disposed | Along the transmission corridor | During construction and post construction | Visual inspection and interviews with the local, sub-county and district leadership | UETCL Contractor | 5,000 |
| Aquatic ecosystems & hydrological functions of wetlands | To prevent water contamination and or pollution | Streams, wetlands and community water sources crossed by the T-line | During construction and post construction | -Visual inspection, -Water quality tests -Interviews with local leadership | UETCL Contractor | 10,000 |
| OPERATION PHASE | | | | | | |
| Health hazards associated with Electric and Magnetic Fields (EMF) from the conductors. | To prevent long term community exposure to EMF which could future illnesses | Under the transmission corridor | During construction but mainly after construction | Visual inspection to identify any structures under the wayleave/ROW | UETCL | 4,000 |
| Aquatic ecosystems | To prevent water contamination and or pollution | Streams, wetlands and community water sources crossed by the T-line | After construction | -Visual inspection, -Water quality tests -Interviews with local leadership | UETCL | 4,000 |

| Parameter to be Monitored | Reason for Monitoring | Monitoring Location | Timing | Monitoring Method | Responsibility | Budget EST. (USD) |
|--|---|--|--|---|---------------------|-------------------|
| Impact on birds | To prevent bird mortality caused by power line | Under the transmission line and its immediate vicinity | After construction | -Visual inspection -Interviews with local people -Interviews with institutions involved in conservation activities | UETCL | 7,000 |
| SOCIO-ECONOMIC ENVIRONMENT | | | | | | |
| PRE-CONSTRUCTION/CONSTRUCTION PHASE | | | | | | |
| Psychological impacts such as stress, trauma, shock and fear associated with displacement and resettlement | To ensure all PAPs affected by the transmission line are compensated and or resettled timely and reasonably | Transmission corridor and the immediate vicinity | Before construction | Community meetings with PAPs to assess the completeness of the compensation and resettlement exercise. | UETCL | 10,000 |
| Workers conditions | To ensure the contractor abides by the Employment Act and other labour laws & policies | All work stations | During construction | Interview with the workers to assess the level of employment opportunities extended to the local people and visual inspection to assess the working conditions. | UETCL Contractor | 20,000 |
| Physical cultural property | Prevention of damage or destruction to cultural resource during construction. | Tower locations where the foundations will be excavated and the substation construction footprint. | Pre-construction and during construction | Content of the construction reports for each tower as assessed by an onsite Archaeologist | UETCL Contractor | 5,000 |
| Interference with local grid | To prevent accidental power outages and uncoordinated | Towns, Trading centres with in the project area that | During construction | Interviews with business people in trading centres to assess the routine and | UETCL Contractor | 4,000 |

| Parameter to be Monitored | Reason for Monitoring | Monitoring Location | Timing | Monitoring Method | Responsibility | Budget EST. (USD) |
|--|---|--|--|--|------------------|-------------------|
| | outages. | have access to the power grid | | causes of power outages | | |
| Impact on traffic and road safety | To prevent accidents | At road crossings | During construction | -Visual inspection -Testimonies from the locals | UETCL Contractor | 3,000 |
| Impact on community water sources | To prevent contaminating community water sources | At the various water sources in the immediate vicinity of the power line | During construction | -Visual inspection -Testimonies from the locals | UETCL Contractor | 6,000 |
| Noise & air quality impacts from vehicles and trucks | To prevent Nuisance or excessive noise | Adjacent to wayleave and substations. | Pre-construction | Collect base line ambient noise & air quality measurements | Contractor UETCL | 4,000 |
| Misuse of cash compensation | To ensure PAPs are not worse off than they were economically | New homesteads & land holdings of PAPs | Pre-construction | Interviews with PAPs to assess the social economic status | Contractor UETCL | 5,000 |
| Immigrant workers and public health concerns | To prevent spread of communicable diseases including HIV/AIDS | Community systems around work stations and workers camps | During construction and after construction | Interview with the local communities to assess the level of interaction. Interview with medical personnel in health centres in Visual inspection | Contractor UETCL | 10,000 |
| Work safety and health effects during operations. | To promote Workers health and safety | At all workstations and camp sites | During construction | Visual inspection Interview with the workers, local leaders and the community. | Contractor UETCL | 30,000 |
| OPERATION PHASE | | | | | | |

| Parameter to be Monitored | Reason for Monitoring | Monitoring Location | Timing | Monitoring Method | Responsibility | Budget EST. (USD) |
|---|---|---|---|---|---------------------|-------------------|
| Impact on social cohesion | To ensure all post construction conflicts are solved | Communities neighbouring former workstations and labour camps | After construction | Interview with the workers, local leaders and the community | Contractor UETCL | 10,000 |
| Safety issues associated with a transmission line | To prevent the community from vandalising the line and or settling under the line | Under the transmission line and the communities living under the line. | After construction | Community meetings with the locals neighbouring the line to assess their attitude and level of awareness regarding powerlines | UETCL | 20,000 |
| | | | | | | |
| SECTION 2: ACCESS ROADS | | | | | | |
| PRE-CONSTRUCTION AND CONSTRUCTION PHASE | | | | | | |
| BIOPHYSICAL ENVIRONMENT | | | | | | |
| Vegetation loss | To ensure construction works are restricted to the access roads only | Along access roads and the immediate vicinity | During construction | Visual inspection | UETCL Contractor | 4,000 |
| Impact on water resources | To prevent water contamination and or pollution | Streams, wetlands and community water sources crossed by the access roads | During construction and post construction | -Visual inspection, -Water quality tests -Interviews with local leadership | UETCL Contractor | 7,000 |
| Noise, dust and | To prevent Nuisance | Adjacent the | During | Collect base line ambient | Contractor | 4,000 |

| Parameter to be Monitored | Reason for Monitoring | Monitoring Location | Timing | Monitoring Method | Responsibility | Budget EST. (USD) |
|---|--|--|--------------------------------|--|---------------------|-------------------|
| vibration Impacts | or excessive noise | access roads | construction | noise & air quality measurements | UETCL | |
| Soil erosion | To prevent sedimentation of streams | Workstations and water sources | During construction | Visual inspection | Contractor UETCL | 6,000 |
| Borrow pits & stone quarry operation | To prevent hazardous landscape changes | Raw material sources | During construction | Visual inspection | Contractor UETCL | 40,000 |
| Fuel spills | To prevent land and water pollution | Along access roads, service centres and camps sites. | During construction | -Visual inspection -Interviews with the local leaders | Contractor UETCL | 3,000 |
| Loss of agricultural land, property, crops and business | To ensure access road works do not compromise the livelihoods of the PAPs | Along the access road and the immediate vicinity | Before and during construction | Community meetings with PAPs to assess the completeness of the compensation and resettlement exercise. | UETCL Contractor | 5,000 |
| PRE-CONSTRUCTION AND CONSTRUCTION PHASE | | | | | | |
| SOCIAL ECONOMIC ENVIRONMENT | | | | | | |
| Psychological impacts associated with land Surveying and mapping for access roads | To ensure all PAPs affected by the access roads are compensated and or resettled timely and reasonably | Along the access roads and the immediate vicinity | Before construction | Community meetings with PAPs to assess the completeness of the compensation and resettlement exercise. | UETCL | 9,000 |
| Noise and vibration impacts | To prevent Nuisance or excessive noise | Adjacent the access roads | During construction | Collect base line ambient noise & air quality measurements | Contractor UETCL | 4,000 |

| Parameter to be Monitored | Reason for Monitoring | Monitoring Location | Timing | Monitoring Method | Responsibility | Budget EST. (USD) |
|---|---|---|---------------------|---|---------------------|-------------------|
| Work safety and health effects during operations. | To promote Workers health and safety | At all workstations and camp sites | During construction | Visual inspection Interview with the workers, local leaders and the community. | Contractor UETCL | 25,000 |
| OPERATION PHASE | | | | | | |
| BIOPHYSICAL ENVIRONMENT | | | | | | |
| Soil contamination | To prevent oil and fuels spills during road maintenance works | Along access roads and service centres | After construction | Visual inspection | UETCL | 6,000 |
| Land use conflicts | To prevent further encroachment on PAPs land & properties | Along the access roads and the immediate vicinity | After construction | Visual inspection Interviews communities neighbouring access roads | UETCL | 5,000 |
| SECTION 3: EMP FOR THE SUBSTATION IMPACTS | | | | | | |
| CONSTRUCTION PHASE | | | | | | |
| Impact on traffic | To avoid accidents | At the Biseruka road junction to Hoima substation | During construction | Visual inspections Interviews with the local residents around the substation | Contractor UETCL | 3,000 |
| Dust emissions | To prevent dust exposure to the neighbours | Around Hoima substation | During construction | -Visual inspections -Interviews with the local residents around the substation | Contractor UETCL | 2,000 |
| Solid waste | To ensure solid waste is well disposed | At both Hoima & Kinyara substations | During construction | -Visual inspection -Interviews with the local and district leaders | Contractor UETCL | 7,000 |

| Parameter to be Monitored | Reason for Monitoring | Monitoring Location | Timing | Monitoring Method | Responsibility | Budget EST. (USD) |
|---|--|-----------------------------------|--|---|------------------|-------------------|
| OPERATION PHASE | | | | | | |
| Solid and liquid waste management such transformer oil & containers | To prevent soil & water contamination | At both Hoima & Kinyara substaion | After construction | Visual inspections | UETCL | 5,000 |
| SECTION 4: EMP FOR THE LABOUR CAMPS | | | | | | |
| CONSTRUCTION PHASE (BIO-PHYSICAL ENVIRONMENT) | | | | | | |
| Soil erosion | To prevent sedimentation of streams | Labour camp, and water sources | During construction | Visual inspection | Contractor UETCL | 6,000 |
| Solid & liquid waste management | To ensure proper disposal of all forms of solid waste | Camp site | During construction and after construction | Visual inspection and interviews with district and local leadership | Contractor UETCL | 4,000 |
| Oil spills, leakages and disposal of old engine oil | To prevent soil & water contamination | Camp site | During construction and after construction | Visual inspections | Contractor UETCL | 5,000 |
| CONSTRUCTION PHASE (SOCIAL ECONOMIC ENVIRONMENT) | | | | | | |
| Welfare of workers and public health concerns | To ensure all workers live in a safe and healthy environment | Camp site | During construction | -Visual inspections -Interview with the workers -Interviews with the local and district leaders | Contractor UETCL | 8,000 |
| Campsite security | To ensure all workers & equipment are safe | Camp site | During construction and after construction | -Visual inspections -Interview with the workers -Interviews with the local and district leaders | Contractor UETCL | 5,000 |
| Noise impact | To safe guard | Camp site & the | During | -Baseline measurement of | Contractor | 4,000 |

ESIA study for the proposed Hoima-Kinyara Transmission Line across Hoima & Masindi districts

| Parameter to be Monitored | Reason for Monitoring | Monitoring Location | Timing | Monitoring Method | Responsibility | Budget EST. (USD) |
|---------------------------|--|-------------------------|---|--|---------------------|-------------------|
| from the generator | workers for being exposed to distractive noise especially at night | immediate neighbourhood | construction | noise with a noise meter -Interview with the workers -Interviews with the local and district leaders | UETCL | |
| Fire accidents | To protect property & workers from fire hazards | Camp site | During construction | -Visual inspections to assess fire fighting preparedness -Interview with the workers -Interviews with the local and district leaders | Contractor UETCL | 5,000 |
| DECOMMISSIONING | | | | | | |
| Decommissioning | To ensure all waste is removed from the wayleaf, campsites, storage yards or ROW | Project sites | Immediately after construction and during operation | Visual inspection | UETCL | 50,000 |
| Total | | | | | | 414, 000 |

11. SUMMARY OF RECOMMENDATIONS

11.1 Recommendations

The ESIA team recommends that the project should proceed with the following recommendations;

- d) Conduct and implement pre-construction phase mitigation measures which include;
 - Sensitization of the affected community
 - Planning and co-ordination with local authority especially subcounty administration
- e) Prepare a Resettlement Action Plan on which actual compensation and resettlement shall be based. This will include:
 - Socio-economic Survey of the people who have either been displaced, lost property including land, crops as well as loss of income due to change in business premises {Directly Project Affected Persons};
 - Cadastral Survey of the individual peoples' portions of land to be acquired by the project;
 - Property Valuation.

In addition to the above, all emerging issues as at June 2016 highlighted in the report should be addressed before all PAPs are compensated. In summary, all emerging concerns from both PAPs and keystakeholders rotate around the quality, appropriateness and validity of the RAP study conducted in 2013. The following actions among others should be taken;

61. In consultation with the Chief Government Valuer, update the valuation report and ensure all PAPs are compensated with entitlements that are able to replace what has been lost basing on current market rates and not the 2013 rates.
62. All irregularities cited to be in the former RAP study should be verified on each individual PAP and if found to be true, they should be addressed.
63. The assumption that all PAPs were not given time to understand the valuation forms which they signed is very critical and can undermine the quality and transparency of the RAP study. It is based on the allegation that up to date, no single PAP was given a copy of the valuation report to understand how they were affected by the transmission line. According to several testimonies from several PAPs consulted, it is alleged that most PAPs were 'forced' to sign the valuation forms without understanding their content. Therefore to rectify this allegation, all PAPs should be given copies of the valuation forms signed to study and appreciate the criteria of valuation used to arrive at their entitlements.

- f) During construction phase, the following general mitigation measures should be undertaken and will include but not limited to the following:
 - Minimize displacement and impacts on property
 - All properties damaged or affected negatively during construction phase should be compensated for appropriately.

- Ensure employment opportunities for the local people
- Ensure health and safety for both workers and the public
- Control reduction of biodiversity
- Ensure all livelihoods lost are restored through a transparent and adequate compensation procedure and livelihood restoration plan.
- Mainstream HIV/AIDS prevention in contractors SEAP.

The management and monitoring plan should be attached as a condition for the Hoima-Kinyara 220 kV construction contract so as to make the contractor aware of his environmental obligation before securing the contract and enhance the implementation of the EMP. Overall; this will enhance environmental standards in the whole project. In case of any archaeological finds during excavation, these should be reported and handed over to the Department of Meseums and Monuments in the Ministry of Tourism, Wildlife and Antiquities for further follow up. The **Physical Cultural Resources Management Plan (PCRM)** is presented hereto as **Annex 15**. Provide incentives for resettlement so that the involuntary resettlement turns out to be voluntary for example giving land to displaced persons with secure land tenure. (E.g. titled land). It is also imperative that UETCL puts in place an institutional arrangement sorely responsible for environmental issues in both planning and project implementation for the present and future projects.

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13. LIST OF ANNEXES

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Annex 1: Details of stakeholder consultations (updated as at June 2016)**Meeting 1: Held with the Chief Administrative Officer (CAO), Hoima District**

| Meeting with: | Name | Designation |
|---|---|------------------------------|
| | Mr Luke L. L. Lokuda | Chief Administrative Officer |
| Purpose of meeting: | To obtain technical and social economic input into the update of the Environmental and Social Impact Assessment process and Resettlement Action Plan for the proposed 220kV Hoima-Kinyara Transmission Line | |
| Date held & Place: | 13 th /June/ 2016 CAO's office | |
| Present: | Mr Tumusiime Alfred (Consultant NEK Consult Ltd) Mr. Sabiiti Charles (Environmental Sociologist , NEK Consult Ltd) Mr. Luke L. L Lukuda (Chief Administrative Officer Kasese District) | |
| Issues and responses (quoted verbatim) | | |
| About the proposed project | Qn: Have you heard about the Hoima-Kinyara transmission line? Ans: Yes. I have heard about the project some time back. | |
| Issues that needs to be addressed | Qn: Have you received any concerns about the project? Ans: In my office, I have not received any concerns from the community about the project. May be if at all they have reported such concerns to the Chairperson LCV since people normally tend to address their issues through the elected leaders than us the appointed ones. Truly, I have not received any issues about this project because if I can recall very well I only received complaints about the oil pipeline which I think is less of your concern. I therefore refer you to the Chairperson LC V and other District technical staff for more input. Qn: What do you think the project should consider before its implementation? Ans: The local leaders in the areas to be affected should be informed and involved at all the stages of the project. This is simply because there are too many land issues in the area due to this oil thing and the local people tend to have many questions whenever they see new faces in the area. | |
| Signatures | Name..... <i>MATJARA KEOMAGU</i> Designation..... <i>CAO</i> Signature <i>[Signature]</i> Name..... <i>Tumusiime Alfred</i> Designation..... <i>ESIA / RAP, Consultant</i> For Nek Consults Ltd..... <i>[Signature]</i> | |

Meeting 2: Held with the District Senior Environment Officer (DEO), Hoima District

| Meeting with: | Name | Designation |
|---|--|-------------------------------------|
| | Ms Nyangoma Joseline | District Senior Environment Officer |
| Purpose of meeting: | To obtain technical and social economic input into the update of the Environmental and Social Impact Assessment process and Resettlement Action Plan for the proposed 220kV Hoima-Kinyara Transmission Line | |
| Date held & Place: | 13 th /June/ 2016 DSEO's office | |
| Present: | Mr Tumusiime Alfred (Consultant NEK Consult Ltd) Mr. Sabiiti Charles (Environmental Sociologist , NEK Consult Ltd) Ms Nyangoma Joseline (District Senior Environment Officer, Homa District) Ms Ngita Getrude (District Environment Officer, Hoima District) Ms Mpairwe Sarah (Intern) | |
| Issues and responses (quoted verbatim) | | |
| About the proposed project | Qn: Have you heard about the Hoima-Kinyara transmission line? Ans: Yes. We heard about this project some years back and from then for us in our office we officially don't know what has been going on concerning the project. | |
| | Qn: Have you received any concerns about the project? Ans: First and foremost, we would want you to first present to us the issues we raised in the other ESIA which you did at first such that we can know where to base our comments. This is because we cannot even recall what we raised the other time due to the time lag. Response: <i>The former ESIA report was reviewed and a recap of the previous minutes discussed in 2013 was done. After that, a formal discussion commenced.</i> | |
| Issues that needs to be addressed | Qn: What do you think the project should consider before its implementation? Ans: One major thing we want to know before we precede any further is to know whether you are updating both RAP and ESIA because for this office was only and only involved in during the ESIA process but not RAP. Consultant: <i>This meeting is mainly to update the ESIA report but your concerns will be used to address the RAP report as well since Nek Consults Ltd is the ESIA and RAP consultant at the same time.</i> DEO: Am raising this concern simply because we have always had serious cases when it comes to compensation. We are tired of these electricity people who do their work in isolation and normally destroy peoples' property without proper compensation. I want to know whether this trend is to continue. We are strongly raising this issue of RAP because we never saw them in our office at any time and we wonder how it was done. And in addition, we never heard of any public disclosure about this project. Also coordination between the project implementers and stakeholders from the community and the district is normally poor and yet when problems come up, | |



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| | <p>the communities run to the district for help. For example for this particular project where the RAP people never involved us and yet RAP is normally the source of many problems when it comes to such projects.</p> <p>Another issue is about feedback from UETCL which we don't usually get when such projects are being implemented in our area.</p> <p>Consultant: <i>UETCL is procuring a RAP implementation consultant and I hope that any issues that were not well handled will be addressed before PAPs are compensated.</i></p> |
| Lessons learnt and recommendations | <p>Qn: What are some of lessons learnt from such projects as well as your recommendations?</p> <p>Ans: The communities should be properly consulted and involved because such projects normally slash peoples' crops without compensation. For example we have a case where one of the high voltage power transmission lines passed over some ones Kraal and he was not compensated at all. We don't want such cases to happen with in this project.</p> <p>In addition, if any property valuation is done, updated compensation rates should be used but not the old ones.</p> <p>We are sure that a permanent corridor will be slashed where the line will be passing. We therefore recommend that there should be a restoration plan to mitigate the vegetation lost and this restoration plan should be known to us.</p> <p>And we would propose that if trees are to be planted, the project implementers should liaise with us together with the sub-county chiefs of the affected areas such that we can identify some district land for tree planting.</p> |
| Signatures | <p>Name..... <i>Myangoma Josephine</i></p> <p>Designation..... <i>Semi Environment</i></p> <p>Signature <i>[Signature]</i></p> <p>Name..... <i>Tumusiime Alfred</i></p> <p>Designation..... <i>ESIA update Consultant</i></p> <p>For Nek Consults Ltd..... <i>[Signature]</i></p> |

Meeting 3: District Valuer, Hoima District

| Meeting with: | Name | Designation |
|---|--|-----------------|
| | Mr Mugisha Andrew | District Valuer |
| Purpose of meeting: | To obtain technical and social economic input into the update of the Environmental and Social Impact Assessment process and Resettlement Action Plan for the proposed 220kV Hoima-Kinyara Transmission Line | |
| Date held & Place: | 13 th /June/ 2016 District Lands Office | |
| Present: | Mr Tumusiime Alfred (Consultant NEK Consult Ltd) Mr. Sabiiti Charles (Environmental Sociologist , NEK Consult Ltd) Mr. Mugisha Andrew (District Valuer, Hoima District) | |
| Issues and Responses (quoted verbatim) | | |
| About the proposed project | <p>Qn: Have you heard about the Hoima Kinyara transmission line? Ans: I have not heard about the Hoima-Kinyara transmission line. I only heard about the one that comes from Nkenda.</p> | |
| Key concerns | <p>Qn: What are some of your key concerns when it comes to such projects? Ans: There has been generalization of land rates by the contractors during the compensation process and this has always triggered problems. This is because most of this work is contracted from Kampala and in one way or the other you find that these contractors are not answerable to the local authorities. For example the contracted valuer may inquire about land price in one area and uses that rate for a long stretch.</p> <p>Another issue is about the delay of the government and the contractors to pay the affected people. For example during the construction of Buseruka road, valuation was done in 2009 and payments were effected in 2013 and you find that rates have changed over such time lag which is not normally considered.</p> <p>Qn: Were you involved in the RAP process of this project formerly? Ans: No. That's where problems normally come from and you find they only want to involve us when things have gone bad.</p> | |
| About land tenures systems | <p>Qn: What are the land tenure systems in this area? Ans: We have three major land tenure systems in this area. Lease, Free hold and Customary (Informal) where people have no certificates or land titles but may be you find them with sale agreements and this takes up the biggest percentage of land in Hoima district.</p> <p>Qn: In an instance where there are cases of resettlement, do you have any public land where it can be done? Ans: No. There is no public land in this area so they have to buy from individuals.</p> | |
| Signatures | <p>Name..... <u>Mugisha Andrew</u></p> <p>Designation..... <u>Valuer</u></p> <p>Signature..... <u>[Signature]</u></p> <p>Name..... <u>Tumusiime Alfred</u></p> <p>Designation..... <u>ESIA update Consultant</u></p> <p>For Nek Consults Ltd..... <u>[Signature]</u></p> | |

Meeting 4: District Planner, Hoima District

| Meeting with: | Name | Designation |
|---|---|------------------|
| | Mr Byamukama John W | District Planner |
| Purpose of meeting: | To obtain technical and social economic input into the update of the Environmental and Social Impact Assessment process and Resettlement Action Plan for the proposed 220kV Hoima-Kinyara Transmission Line | |
| Date held & Place: | 13 th /June/ 2016 District Planners' Office | |
| Present: | Mr Tumusiime Alfred (Consultant NEK Consult Ltd) Mr. Sabiiti Charles (Environmental Sociologist , NEK Consult Ltd) Mr. Byakagaba John W (District Planner, Hoima District) | |
| Issues and responses (quoted verbatim) | | |
| About the proposed project | <p>Qn: Are you aware of the Hoima-Kinyara transmission line project? Ans: Yes am aware.</p> <p>Qn: Is there any activity of this project where you have been involved? Ans: Yes. I was consulted a few years back but it is as if after consultations the project came to a standstill.</p> | |
| Key concerns | <p>Qn: What are some of your key concerns when it comes to such projects? Ans: My major concern is about the property and its compensation along the corridor where the line is going to pass. The area where the line is going to pass, there are fertile soils which belong to people, there is also a distilling plant which has been expanded of recent and also people had tried to plant trees due the sensitization from the oil people. Therefore the project needs to carefully handle such aspects.</p> <p>Qn: As a district planner what is your general comment? Ans: Other than in Bulemwa where there is a thermal plant which is being constructed, as a district we don't have any project along the proposed line.</p> | |
| Lessons learnt and challenges | <p>Qn: What are some of the challenges you face during implementation process of such projects? Ans: Compensation is usually the biggest challenge. There are usually many complaints from the people especially about the land rates. For example in the oil area people were even given higher rate than the ones on market but still many complaints were received.</p> | |
| Signatures | <p>Name..... <i>Faustin Tumusiime</i></p> <p>Designation..... <i>For District Planner</i></p> <p>Signature..... <i>[Signature]</i></p> <p>Name..... <i>Tumusiime Alfred</i></p> <p>Designation..... <i>ESIA/RAP Update Consultant</i></p> <p>For Nek Consults Ltd..... <i>[Signature]</i></p> | |

Meeting 5: Held with the District Chairperson (LC 5), Hoima District

| Meeting with: | Name | Designation |
|---|---|----------------------|
| | Mr Kirungi Kadiri | District Chairperson |
| Purpose of meeting: | To obtain technical and social economic input into the update of the Environmental and Social Impact Assessment process and Resettlement Action Plan for the proposed 220kV Hoima-Kinyara Transmission Line | |
| Date held & Place: | 13 th /June/ 2016 Chairman LC5 Office at Hoima District Headquarters. | |
| Present: | Mr Tumusiime Alfred (Consultant NEK Consult Ltd) Mr. Sabiiti Charles (Environmental Sociologist , NEK Consult Ltd) Mr. Kirungi Kadiri (District Chair Person LC V) | |
| Issues and responses (quoted verbatim) | | |
| About the proposed project | <p>Qn: Are you aware about the Hoima-Kinyara transmission line project?</p> <p>Ans: Yes. I have heard about the project some time back and have taken long since I last heard of it and it was almost getting out of our minds.</p> <p>Qn: How do you welcome the project?</p> <p>Ans: We do welcome the project and it is very good simply because the more connections we get the lesser the chances of getting 'dark moments" (load shedding).</p> <p>It is good that you have come back to get peoples' input before its starts and since there is a plan of putting an industrial park around, the project has come at the right time.</p> | |
| Key concerns | <p>Qn: What are some of your key concerns which you think the project should consider before its implementation?</p> <p>Ans: One major concern about such projects is that the implementers normally want to work in isolation, you find a situation as a leader where you receive complaints from people and you want information to address such complaints but you cannot get it.</p> <p>For example, when the project started consultations in 2012, I was the LC III of one the sub counties to be affected but I was only informed of one meeting and from there I started just hearing about their activities in rumours.</p> <p>Another concern which I take very serious is valuation. For example some companies you may find that there are 20 affected people but some companies only compensate 15 people and you find they have left the five because they are minor.</p> | |
| Recommendations | <p>I have said that one of my key concerns is about valuation; I therefore would recommend that our district valuer should move together with the contracted valuer. That is what we did for the Hoima-Fortportal road and other similar projects.</p> <p>I would wish that you give us the schedule of your consultative meetings in the villages such that I can attend in person or send a representative.</p> <p>Otherwise this is a very good project and we welcome it.</p> | |
| Signatures | <p>Name.....</p> <p>Designation.....</p> <p>Signature</p> <p>Name..... <i>Tumusiime Alfred</i></p> <p>Designation..... <i>ESIA/RAP update Consultant</i></p> <p>For Nek Consults Ltd..... <i>[Signature]</i></p> | |


Meeting 6: Resident District Commissioner, Hoima District

| Meeting with: | Name | Designation |
|---|--|--------------------------------------|
| | Mr Mwesigye Ambrose | Resident District Commissioner (RDC) |
| Purpose of meeting: | To obtain technical and social economic input into the update of the Environmental and Social Impact Assessment process and Resettlement Action Plan for the proposed 220kV Hoima-Kinyara Transmission Line | |
| Date held & Place: | 13 th /June/ 2016 RDC's Office | |
| Present: | Mr Tumusiime Alfred (Consultant NEK Consult Ltd) Mr. Sabiiti Charles (Environmental Sociologist , NEK Consult Ltd) Mr. Mwesigye Ambrose (Resident District Commissioner, Hoima District) | |
| Issues and responses (quoted verbatim) | | |
| About the proposed project | Qn: Have you heard about the Hoima-Kinyara transmission line project? Ans: Yes I have heard about this project. | |
| Key concerns | Qn: What are some of your key concerns about this project? Ans: Apparently we have not received any concern from the community so far. The only complaint we received was about UNRA but not this project. | |
| Advice | Qn: What do you recommend should be done before implementing such a project? Ans: The project implementers should make sure that they involve the local leaders at all stages. This makes their work easier because it removes suspicion. And when the local leaders are involved we also get to know how the project is progressing because we have connections with people on the ground. | |
| Signatures | Name..... <u>AMBROSE MWESIGYE A.</u> Designation..... <u>D/RDC Hoima</u> Signature <u>[Signature]</u> Name..... <u>Tumusiime Alfred</u> Designation..... <u>ESIA /RAP update Consultant</u> For Nek Consults Ltd..... <u>[Signature]</u> | |

Meeting 7: Sub-county Chief, Kitoba Sub-county, Hoima District

| Meeting with: | Name | Designation |
|---|---|------------------|
| | Mr. Solmon Busingye | Sub-county chief |
| Purpose of meeting: | To obtain technical and social economic input into the update of the Environmental and Social Impact Assessment process and Resettlement Action Plan for the proposed 220kV Hoima-Kinyara Transmission Line | |
| Date held & Place: | 13 th /June/ 2016 Sub-county Head quarters | |
| Present: | Mr Tumusiime Alfred (Consultant NEK Consult Ltd) Mr. Sabiiti Charles (Environmental Sociologist , NEK Consult Ltd) Mr. Solmon Busingye (Sub-county chief, Kitoba Sub-county, Hoima District) Mr. Jophuta Bagonza (Accountant Kitoba Sub-County) | |
| Issues and Responses (quoted verbatim) | | |
| About the proposed project | <p>Qn: Have you heard about the Hoima-Kinyara transmission line project?</p> <p>Ans: Yes I have heard about this project from UETCL especially during the RAP process.</p> <p>Qn: Were you involved during the RAP process?</p> <p>Ans: I joined office when they had gone far with the process; therefore I decided to hand them over to the chairman area (sub-county) land committee whom they have been working with up to now.</p> | |
| Key concerns | <p>Qn: What are some of your key concerns complaints/ about this project from you as well those you have heard from the community?</p> <p>Ans: We have not yet received any formal complaint, however we have heard about many issues from the community about this UETCL project especially the issues resolves around the RAP process. These including the following;</p> <p>RAP was finished however some peoples' property was undervalued, others not valued completely and others were valued partly. For example you find that the house is valued and the crops are left out or vice versa.</p> <p>Also some individuals with small plots who will be required to shift when the project commences were valued like others without putting in consideration that aspect of resettlement. Therefore you find that the person cannot easily get another piece of land where he can resettle in that small money given to him.</p> <p>The RAP team promised that by the end of June 2016 they will have completed paying the affected people. It is now Mid-June and the process is still lagging behind. Therefore the challenge is that, most property was valued about three years ago and since then the dollar rates have increased greatly and the land rates have also changed. So in this case our worry is on how this compensation will be done basing on this old data.</p> <p>Also due to this time lag, some affected people have developed their land again and I don't know how such cases will be handled.</p> | |
| About public disclosure | <p>Qn: Was there any public disclosure?</p> <p>Ans: There was no public disclosure at all. Each affected person was</p> | |

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| | <p>contacted differently. Actually at some point as a sub-county we wanted to access the whole list of the affected person such that we can easily handle the grievances if in any case come but everything was kept secret from us.</p> <p>At some point things were not clear and transparent even to the affected persons. For example am one of the affected person but one time an officer on the compensation team brought for me some files to sign but she never allowed me to read through and yet it was my file and I actually refused to sign one of the files.</p> <p>Also for each affected person, there were three valuation reports; however we don't know which criteria they used to say that we shall consider this particular report.</p> <p>Qn: Were you told anything like cut-off date? Ans: We were not told about it.</p> |
| <p>Peoples' grievances</p> | <p>Qn: Did you form any grievances redress committee? Ans: No. In this sub-county we were not told to form any may be in other areas. In some villages like Kyampuro, there was a case where some people were not put on the compensation list because the RAP team told them that they are tenants since someone somewhere has a title for their land. However, such people had no idea on how and where such a grievance can be handled.</p> |
| <p>Lessons from similar projects</p> | <p>Qn: What are some of the lessons learnt from similar projects? Ans: In our area we have a similar case in point which was full of irregularities which would not wish to face again;</p> <p>During the compensation of the affected people along Buseruka road, some people were compensated and others not compensated.</p> <p>Also if you have been properly following the UNRA probe, there were cases where some people who were not even residents of the affected area but were compensated.</p> |
| <p>Signatures</p> | <p>Name... <i>Nasacima</i></p> <p>Designation... <i>Subcounty Chief</i></p> <p>Signature... <i>PP</i></p> <p>Name... <i>Tumusiime Alfred</i></p> <p>Designation... <i>ESIA/RAP update Consultant</i></p> <p>For Nek Consults Ltd... <i>ABAB</i></p>  |

Meeting 8: Chairperson LCIII, Bujumbura Division, Hoima District

| Meeting with: | Name | Designation |
|---|--|-------------------|
| | Mr Ruhiigwa Edward | LCIII Chairperson |
| Purpose of meeting: | To obtain technical and social economic input into the update of the Environmental and Social Impact Assessment process and Resettlement Action Plan for the proposed 220kV Hoima-Kinyara Transmission Line | |
| Date held & Place: | 13 th /June/ 2016 Bujumbura Division Offices | |
| Present: | Mr Tumusiime Alfred (Consultant NEK Consult Ltd) Mr. Sabiiti Charles (Environmental Sociologist , NEK Consult Ltd) Mr. Ruhiigwa Edward (LCIII Chairperson, Bujumbura Division, Hoima District) | |
| Responses to issues raised by consultant (quoted verbatim) | | |
| About the proposed project | <p>Qn: Have you heard about the Hoima-Kinyara transmission line project?</p> <p>Ans: Yes I have heard about this project though was not yet in this office because am about three weeks old in this office but I heard about it as a common man as a resident of Kitoba sub-county.</p> | |
| Key concerns | <p>Qn: What are some of your key concerns about this project?</p> <p>Ans: The most serious concern of the community is about compensation issues. The community is wondering whether the compensation is supposed to be before the project starts or after.</p> <p>Consultant: Compensation is done before project implementation in accordance with provisions of the Land Act.</p> <p>Also about compensation rates; are people going to be compensated fairly or its going to be like the confusion that surrounded the compensations of the affected people along the Kaiso-Tonya road?</p> <p>Consultant: UETCL is doing all reasonable measures (including this update) to ensure all affected people are compensated appropriately and in accordance with the Land Act and World Bank Environmental and Social Safeguard Polices.</p> | |
| Advice | <p>Qn: What do you recommend should be done before implementing such a project?</p> <p>Ans: Such projects normally have issues with compensation, we therefore don't want have such cases in this project as it was for the Kaiso-Tonya road.</p> <p>Otherwise as leaders we are ready to cooperate with all the teams to ensure that the project is implemented in a rightful direction by acting as a linkage between the local people and the project people.</p> | |
| Signatures | <p>Name..... <u>Ruhiigwa Edward</u></p> <p>Designation..... <u>LCIII Chairperson</u></p> <p>Signature..... <u>[Signature]</u></p> <p>Name..... <u>Tumusiime Alfred</u></p> <p>Designation..... <u>ESIA / RAP</u></p> <p>For Nek Consults Ltd..... <u>[Signature]</u></p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>CHAIRMAN LCIII BUJUMBURA DIVISION 26 JUN 2016 HOIMA MUNICIPAL COUNCIL</p> </div> | |

Meeting 9: Minutes for the Public Consultative meeting with the Project Affected Persons held under a mango tree at Bulemwa Primary school, Bulemwa village, Kirabula parish, Kitoba division Hoima Municipality, Hoima district.

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| Place and date meeting held | 16 th /June/2016 Under a mango tree at Bulemwa primary school |
| Consultants present | Tumusiime Alfred (Consultant NEK Consult Ltd) Sabiiti Charles (Environmental Sociologist , NEK Consult Ltd) Twesiime Brian (Transport Officer, NEK Consult Ltd) Community members (Mainly PAPs) - Bulemwa village (see list attached) |
| Prayer and opening remarks from the Chairperson | The meeting started at about 10am with prayer thanking God for the journey mercies of the consultants and the community members up to the point of the meeting and requested Him to guide the entire meeting. This was followed by welcome remarks from the LCI chairperson of Bulemwa who welcomed the consultants and the community members to the meeting and told the people that the meeting was about the proposed Hoima-Kinyara Transmission line. He requested the community members to put across all the issues they have been grumbling about in isolation and told them that this was the right time to raise any complaint resulting from the former processes of the project which were carried out. |
| Opening remarks from the Team leader | The Team leader (Alfred Tumusiime) welcomed the people to the meeting and introduced the team he came with to the community members. The consultant introduced the company that is responsible for the update of the ESIA and RAP of the project (NEK Consult Ltd). He told the community members that different technical teams have been coming around carrying out different studies concerning this project since 2012. However, due the time lag which has elapsed be the project commences, UETCL is required to update various reports in collaboration with the World Bank (Project Funder). Therefore UETCL contracted NEK Consult Ltd to update ESIA and RAP and that is the purpose of our being here. There after he explained the procedures which will be involved in updating the above mentioned reports. |
| Issues and responses (quoted verbatim) | |
| About the proposed project | Concern: The valuation process took place around 2013 and files containing our valuation reports were brought back to us for signing. However, some of us signed the evaluation reports while others me inclusive refused to sign due to what I can term as undervaluation and other irregularities because the money in the valuation forms was much less than the net worth of my property. For example all my property sited on land close to an acre were valued at 9M Uganda shillings and yet I even I have to shift and resettle in some other area. I found out that with only 9M, there is nowhere around you can buy land equivalent to mine at the same time to construct a house using the same money hence I refused to sign the evaluation report. I therefore request UETCL to come in and settle our grievances. Consultant: <i>Your concern has been noted and all measures are being made to revalue all PAPs with complaints especially when the RAP Implementation consultant comes on board.</i> Concern: Also valuation was carried out in 2013 and up to now they have not effected the payments even to those who are comfortable with the valuation reports |

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and there are changes in land value and also inflation rates. Therefore how will UETCL handle that scenario?

Consultant: Concerning the time lag from the time of evaluation, it is actually one of the major reasons for updating the ESIA and RAP reports. UETCL and World Bank appreciate the fact that there has been a relatively big time gap when these processes were carried out and understands the changes in the value of property as well as inflation issue. Therefore after updating these reports your files are supposed to be revisited to address the concerns raised in this meeting.

As part of our obligation, we shall advise UETCL to generally revise the valuation report by updating it using current market rates of properties.

I remember telling you when we were carrying out ESIA that you need to form a committee of representatives from the affected area including some local leaders if you wish depending on whom you trust. You can then use such a committee to report such complaints about this project to the responsible bodies (UETCL). However it is not too late, you can still form a committee and put your complaints of similar nature concerning the project in writing and take them to UETCL, am sure it has always been compliant in responding and settling PAPs grievances and if any are taken there, they will be sorted.

Concern: Forming a committee wouldn't have been a problem but we just heard about it during the ESIA process and from then no one else has ever told us about it. Now that we have known, we shall definitely form it.

Qn: During the valuation process, some property was left out and even other which were valued never appeared in the valuation reports. So what are we going to do some of us with such cases?

Response: As I said earlier, UETCL will always address such issues provided they are raised through proper channels simply because the government brings such projects to leave people better than they were before.

Qn: Should we start using our land since the process has delayed so much?

Response: I wouldn't advise you to use the land simply because since the ESIA and the RAP are being updated, all losses incurred due to delay in paying the PAPs are going to be taken care of in the updated valuation report..

Qn: When are they going to compensate because they stopped me from utilizing my land of about 10 acres. Are they to pay after 10 years, 20 years what is the exact time when compensation will be effected?

They said that they will compensate 100% for the 5 Meters in the centre of the corridor (Right of Way) and the rest (Way Leave) they compensate 30%. They added that the portion where they compensate 30%, that it will be used by both parties where by we will be allowed to plant short crops. Therefore my question is, how can land be in ownership of two different parties? Because there are cases I may want to use it as mortgage and get a loan in the bank.

Response: Concerning the exact time of payment, I cannot tell that it is today or tomorrow but what am sure of is that you will be paid and all the lost time will be

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catered for. Also since the update of these documents has been commissioned then the government is now sure that it has the funds to work on the line up to Kinyara and pay you as soon as all the documentation has been completed.

For the case of 30% paid for the way leaf is not for ownership but on restricted usage. Therefore you still continue to own the land but you will be restricted on what to use it for.

Concern: Some of us our land touches the main road and we had bought it for other purposes like putting buildings but not planting short crops like beans and ground nuts, so how do you restrict me from using my land for the planned purposes by just giving me 30%?

Response: *I think the 30% compensation for the Way Leave is not uniform along the entire line. In some areas, UETCL pays 50% or even 100%. However, if you are not satisfied with how valuation was done, you have a right to a fair hearing. You can lodge a complaint to UETCL and you will be heard*

Also some of us our land is located in the Hoima municipality and our land is currently of high value and we even mainly sell it plots. Therefore the rates (government rates) which were used were oppressive and not fair. For example my land of about an acre which touches the Kaiso-Tonya highway in the municipality was just valued at 12M and yet I had refused to sell it at 40M at some point. Hence we recommend that the valuation process should be revisited following the market rates.

In addition, the government of Uganda gazetted Bulemwa, Bujumbura division as a place where the industrial park will be located. Therefore there in no way you can start valuing such land at similar rates as land outside the municipality.

Concern: For me, my father died when he had refused to sign the valuation reports due to what he termed as under valuation. This came as a result of the fact that the line is going to pass through three plots of our land and one of the plots contains the graves which will have to be transferred but in the reports there was no money for moving those graves. In the valuation report they were giving us only 9M for our land which is very little compared to the size of our land and the costs of transferring the graves.

Response: *UETCL has always experienced such cases where there is a need to transfer someone's graves on many occasions and it has always handled such cases accordingly. So you don't need to worry. It is a matter of making UETCL aware of such a scenario. And all these issues we are capturing them in this updated report so hope for the better.*

Concern: In our area, we have different land tenure systems. Some people have land titles and others don't have and my concern is one; are those people with land titles supposed to be valued the same way as people without land titles? For example my fathers' land was valued at only 9M and yet it has a land title.

Response: *All land affected by the transmission line whether titled or not titled, is valued equally and paid according to the rates of that particular area except for squatters who have to share with the title owners.*

Concern: At the site where they are constructing the substation, part of the land about 4 acres was mine which I was compensated for though the rates were low.

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| | <p>They told me that I will be grazing my cattle inside but now I can see they are going to put a chain link around the substation.</p> <p>Also before the substation there was a motorable path going to my home passing through the middle of the proposed site and UETCL people promised that they would open up another route for me which they have not done up to now and yet the works are going on.</p> <p>In addition, during the levelling of the substation my house developed cracks which I think were as the result of their activities.</p> <p>Response: For the case of you grazing in the substation, i think you misunderstood them because a substation is a dangerous site and it is a no go zone area for non-technical people. Otherwise the rest of the issues have been recorded and we shall submit them for consideration.</p> |
| Major recommendation (community) | <p>Our major recommendation as the project affected persons is that the whole process of valuation should be re-visited following the market rates because almost all our concerns are as a result of what we termed as poor and oppressive valuation.</p> <p>The process of working on our payment should be put at a halt until all our issues have been addressed.</p> <p>For this particular project, we are requesting that UETCL opens up a liaison office in Hoima town where we can always take our concerns.</p> |
| Closing remarks | <p>The area chairperson thanked the people for coming in large numbers and also the consultant thanked the people for coming and the chairperson for mobilizing the people. The meeting was then adjourned at about 2pm.</p> |
| Signatures | <p>Name <u>Rumanywata Simow</u>.....</p> <p>Designation <u>Chairman KCF Bulemwa</u>.....</p> <p>Signature <u>[Signature]</u>.....</p> <p>Name <u>Tumusime Alfred</u>.....</p> <p>Designation <u>ESIA/RAP update Consultant</u>.....</p> <p>For Nek Consults Ltd. <u>[Signature]</u>.....</p> |

Meeting 10: Minutes for the Public Consultative meeting with the Project Affected Persons held at Kitoba sub-county Offices, Hoima district

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| Place and date meeting held | 16 th /June/2016 In the sub-county hall, Kitoba sub-county |
| Consultants present | Tumusiime Alfred (Consultant NEK Consult Ltd) Sabiiti Charles (Environmental Sociologist , NEK Consult Ltd) Tweziime Brian (Transport Officer, NEK Consult Ltd) PAPs and Community members from the villages of Dwoli west, Wagaisa, and Bwendero (see list attached). |
| Prayer and opening remarks from the Chairperson | The meeting started at about 3pm with prayer calling upon God to come and guide the meeting. This was followed by remarks from one of the LCI chairperson who welcomed the team of consultants and thanked UETCL for thinking about them again to come and get their overdue concerns. He ended his remarks by requesting the people to feel free and share their issues with the consultants since they were the very people to be affected. |
| Opening remarks from the Team leader | The Team leader (Alfred Tumusiime) welcomed the people to the meeting and introduced the team he came with to the community members. The consultant introduced the company that is responsible for the update of the ESIA and RAP of the project (NEK Consult Ltd). He told the community members that different technical teams have been coming around carrying out different studies concerning this project since 2012. However, due the time lag which has elapsed before the project commences, UETCL is required to update various reports in collaboration with the World Bank (Project Funder). Therefore UETCL contracted NEK Consult Ltd to update ESIA and RAP and that is the purpose of our being here. |
| Issues and responses (quoted verbatim) | |
| About the proposed project | <p>Concern: You came and told us that you are going use our land for purposes of putting up a transmission line and you stopped us from using the land and up to now nothing has been given to us for this long time.</p> <p>Also valuation was carried out in 2013 and up to now they have not effected the payments even to those who are comfortable with the valuation reports and there are changes in value of land and also inflation rates. Therefore how will UETCL handle such a scenario</p> <p>Response: <i>The time lag which has elapsed is actually one of the major reasons for updating the ESIA and RAP reports. UETCL and World Bank appreciates the fact that there has be a relatively big time gap when these processes were carried out and understands the changes in the value of property as well as inflation issue. Therefore after updating these reports your files may be revisited in accordance to the views you raise</i></p> <p>Concern: My two pieces of land were both affected, however during valuation other items were valued and my house was left out. Also all my developmental activities which I was carrying in those particular areas were</p> |

put at a halt. And when these people come around they don't give us clear picture of what is contained in our files or even having enough time to peruse through them, we are just left hanging without the timeline of their activities.

Response: *All the property in the 40 metre corridor is supposed to be valued and compensated according to the agreed rates. Therefore if your house was not valued and it is the 40 metre corridor, I can assure you that it will be valued and you will be compensated the worth of replacing what you have lost. For the case of your lost time while not utilizing your land, I told you in the beginning that it is the major reason of updating these reports and in it the updated reports all that it will be put in consideration.*

Concern: For my case, only plants were valued and my land was not valued. The valuation team claimed that some of us were considered as tenants and yet we are real owners of the land and even the chairman confirmed to them. This case affected individuals like Tumusabe Joab, Pastor Kyarogonza Vicent, Balongo Simon and Kahwa William.

Response: *Provided that the ownership of the land is confirmed no matter the tenure system, uniform valuation according to the agreed rates should be carried out and compensation done. Therefore we have captured your issue but we also advise the affected members to put such issues in writing and address them to UETCL for clarification because some times UETCL may not know such problems unless you raise them. However, RAP implementation consultant will be on board soon and will as well handle such issues.*

Concern: We were told that other than the 5Metre where the pylons will be put, we shall be using the rest of the land to plant short crops. But we have been hearing that a road will be constructed in that very land.



Response: *Yes it is true they will construct a road but in the 5M so you can remain utilizing the rest of the way leaf to plant short crops as agreed.*

Concern: When are they going to compensate because they stopped us from utilizing and it is close to three years we are just there waiting. What is the exact time for compensation?

Response: *Concerning the exact time of payment, I cannot tell that it is today or tomorrow but what am sure of is that you will be paid and all the lost time will be catered for. Also since the update of these documents has been commissioned then the government is now sure that it has the funds to work on the line up to Kinyara and pay you as soon as all the documentation has been completed.*

Concern: The truth is when it came to valuation, people were not sensitized and many are victims of ignorance where by at some point some of us were just told to sign on the papers without knowing what was inside those papers. To the worst of it all there were no copies left with us. Also enough time was not given to us to understand the files because they could come and be around for only about two hours and go back.

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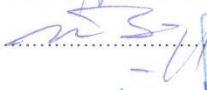

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| | <p>Response: I told the meeting we had at Bulamwa this morning that I remember telling most of you people when we were carrying out ESIA for the first time that you need to form a committee of representatives from the affected area including some local leaders if you wish depending on whom you trust which you would be using to take such complaints about this project to the responsible bodies. However it is not too late you can still form a committee and put your complaints of similar nature concerning the project in writing and take them to UETCL, am sure it has always been compliant in responding and settling PAPs grievances.</p> |
| Major recommendation from the community | <p>We are requesting that re-valuation be done due to the time lag since evaluation took place.</p> <p>UETCL should sensitize the project affected persons especially about the valuation process.</p> <p>The compensation rates used during the valuation process should be declared to us and let us know how they were applied.</p> <p>The valuation reports/files/ consent forms which we signed should be brought back and given enough time to read through because most of us never understood what we signed for.</p> <p>The money should not be put on our accounts before we consent again.</p> <p>After signing they should at least leave with copies of the consent forms.</p> |
| Closing remarks and closing prayer | <p>The team leader thanked the community members for having turned up for the meeting and assured them that all their concerns raised will be reported and handled by UETCL. One of the chairpersons thanked the people for coming in large numbers and thanked UETCL for having sent the consultants to get their views once more. The chairperson requested one of the members to give a closing prayer. The meeting was then adjourned at about 5pm.</p> |
| Signatures | <p>Name..... <u>KARHWAB JACKSON</u>.....</p> <p>Designation..... <u>C/MAN LCI WAGAISA</u>.....</p> <p>Signature  <u>0775712095</u></p> <p>Name..... <u>Tumusime Alfred</u>.....</p> <p>Designation..... <u>ESIA / RAP update consultant</u>.....</p> <p>For Nek Consults Ltd. .....</p> |

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Meeting 11: Held with the Assistant District Chairperson (LC V), Hoima District

| Meeting with: | Name | Designation |
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| | Mr Kabagonza Kasim | Assistant District Chairperson <i>Nice</i> |
| Purpose of meeting: | To obtain technical and social economic input into the update of the Environmental and Social Impact Assessment process and Resettlement Action Plan for the proposed 220kV Hoima-Kinyara Transmission Line | |
| Date held & Place: | 17 th /June/ 2016 LC V's Office | |
| Present: | Mr Tumusiime Alfred (Consultant NEK Consult Ltd) Mr. Sabiiti Charles (Environmental Sociologist , NEK Consult Ltd) Mr. Kabagonza Kasim (Assistant District Chairperson LC V) | |
| Issues and responses (quoted verbatim) | | |
| About the proposed project | <p>Consultant: Are you aware about the Hoima-Kinyara transmission line project?</p> <p>Ans: Yes. I have heard about the project.</p> <p>Qn: How do you welcome the project?</p> <p>Ans: We are so grateful for the government for having brought this project to our area. We do welcome the project and it is very good simply because we didn't have such a high voltage power line in our area.</p> | |
| Key concerns | <p>Consultant: What are some of your key concerns which you think the project should consider before its implementation?</p> <p>Ans: I understand along the corridor where the line will pass there are peoples' properties. Therefore my worry is whether there will be proper compensation.</p> <p>Consultant: <i>All the project affected persons will be compensated accordingly before the project implementation commences. RAP and all other necessary assessments were carried out and compensation will be carried out according to the laws of Uganda.</i></p> <p>Qn: Also another concern is about the land tenure systems of our people here in Masindi which is mainly customary land. People don't have titles for their land because most of them just inherit land from their parents even without any agreement. Won't such people be marginalized during compensation?</p> <p>Consultant: <i>During valuation process, UETCL only seeks to understand the real ownership of the land. Then its obligation is to make sure that the money valued for a particular piece of land is equal to that worth replacing it regardless of whether it has a land title or not.</i></p> | |
| Lessons learnt from other projects | <p>Consultant: What are some of the lessons learnt from other project of a similar nature in the district?</p> <p>Ans: In Masindi district we have not experienced any serious project with issues like those we heard about the Hoima-Kaiso Tonya road. For</p> | |

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| | example there is an on-going project of Masindi-Hoima road, many people along the road were compensated but we have not heard any serious complaints. |
| Conclusion remarks | <p>Consultant: What are your concluding remarks?</p> <p>Ans: Other than that, as a district we are grateful for the project and we request that UETCL should make sure that power is extended to people but not just seeing wires passing on top.</p> |
| Signatures | <p>Name..... <u>KABAGOWZA KASSIM</u></p> <p>Designation..... <u>VIC/Person 201 MBG</u></p> <p>Signature..... </p> <p>Name..... <u>Tumusime Ayed</u></p> <p>Designation..... <u>ESIA/RAP update Consultant</u></p> <p>For Nek Consults Ltd..... </p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>DISTRICT VICE CHAIRPERSON MASINDI DISTRICT LOCAL GOV'T 27 JUN 2016 P.O BOX 67, MASINDI, UGANDA</p> </div> |

Meeting 12: Held with Deputy Chief Administrative Officer (CAO), Masindi District

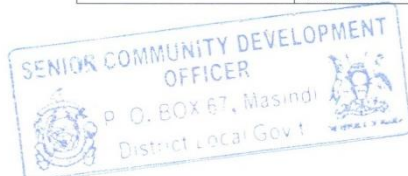
| Meeting with: | Name | Designation |
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| | Mr. Ocen J Andrew | Deputy Chief Administrative Officer |
| Purpose of meeting: | To obtain technical and social economic input into the update of the Environmental and Social Impact Assessment process and Resettlement Action Plan for the proposed 220kV Hoima-Kinyara Transmission Line | |
| Date held & Place: | 17 th /June/ 2016 ACAOs office | |
| Present: | Mr Tumusiime Alfred (Consultant NEK Consult Ltd) Mr. Sabiiti Charles (Environmental Sociologist , NEK Consult Ltd) Mr. Acen Andrew (Deputy CAO, Masindi District) | |
| Issues and responses (quoted verbatim) | | |
| About the proposed project | Consultant: Have you heard about the Hoima-Kinyara transmission line project? Ans: I have not been in this office for a long time so this may be new to me. | |
| Key concerns | Consultant: What are some of your key concerns about such projects? Ans: For us we really don't have any objection towards such project as a district. We do welcome it as a worthwhile initiative towards the district development. Only that our major concern arise if the project affected persons are not compensated properly. Otherwise more issues can be got when you reach on the ground. | |
| Lessons from similar projects | Consultant: What are some of the lessons learnt from other projects of a similar nature in the district? Ans: From the time I have been here, there is this Masindi-Hoima project which is on-going but I have not heard any issues from the residents concerning the project. | |
| Signatures | Name..... <u>Kigo R</u> Designation..... <u>CAO / PAS</u> Signature..... <u>[Signature]</u> Name..... <u>Tumusiime Alfred</u> Designation..... <u>ESIA / RAP Update Consultant</u> For Nek Consults Ltd..... <u>[Signature]</u> | |

Meeting 13: Held with Senior Community Development Officer (SCDO), Masindi District



| Meeting with: | Name | Designation |
|---------------------|---|--------------------------------------|
| | Mr. Businge Vicent | Senior Community Development Officer |
| Purpose of meeting: | To obtain technical and social economic input into the update of the Environmental and Social Impact Assessment process and Resettlement Action Plan for the proposed 220kV Hoima-Kinyara Transmission Line | |
| Date held & Place: | 17 th /June/ 2016 SCDOs office | |
| Present: | Mr Tumusiime Alfred (Consultant NEK Consult Ltd) Mr. Sabiiti Charles (Environmental Sociologist , NEK Consult Ltd) Mr. Businge Vicent (SCDO, Masindi District) | |

Issues and responses (quoted verbatim)

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| About the proposed project | <p>Consultant: Have you heard about the Hoima-Kinyara transmission line project?</p> <p>Ans: Yes I know about the project.</p> |
| Key concerns | <p>Consultant: What are some of your key concerns about the project?</p> <p>Response: I guess this line will pass through peoples' land, so my question is will they compensate the lost property?</p> <p>Consultant: All the project affected persons will have to be compensated for all the property lost according to the law.</p> <p>Concern: Take an example of a scenario where some ones property has been wholly affected by the project and he is supposed to be resettled, how UETCL will ensure that the women and children don't suffer in case the man misuses all the money before restoring the family.</p> <p>Consultant: Before someone is paid the money or resettled the family members especially husband, wife and children are supposed to agree. First of all UETCL normally gives two option; giving the affected person cash or resettling him to another place and this must be agreed upon by the family members.</p> <p>Concern: What happens if some has one acre and the whole of it is affected?</p> <p>Consultant: As I explained above, if more than 50% of some ones land is affected, the policy is to resettled or compensated for the whole of his one acres and he shifts to another area.</p> <p>Concern: Also I was somewhere in the sugar cane growing area where the line is going to pass and they were complaining of low compensation rates. Therefore UETCL should consider revising the compensation rates.</p> <p>Concern: What happens if someone cultivates along the way leave?</p> <p>Consultant: UETCL normally agrees with the PAPs depending on what activities are intended for the transmission corridor but but the biggest</p> |



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| | <p>percentage of the way leaf is always available for cultivation especially short crops depending on the agreement.</p> <p>Concern: What happens if the line passes through a school or a health centre?</p> <p>Consultant: First of all, during feasibility study, UETCL normally makes sure that such public places are avoided. However where it's not possible to avoid them, such infrastructure is compensated for. For such infrastructure, UETCL normally prefers to replace the affected institution.</p> |
| <p>Recommendations</p> | <p>Consultant: What are some of your recommendations which should be taken into consideration before project implementation?</p> <p>Response: UETCL should make sure that all the PAPs are well compensated.</p> <p>Local leaders should be involved at all stages</p> <p>The local people should be sensitized about HIV and other sanitation issues during project implementation.</p> <p>Otherwise we highly welcome the project as a district.</p> |
| <p>Signatures</p> | <p>Name..... <u>Bronge Vincent</u></p> <p>Designation..... <u>CSO</u></p> <p>Signature..... </p> <p>Name..... <u>Tumusiime Alfred</u></p> <p>Designation..... <u>ESIA / PAP update Consultant</u></p> <p>For Nek Consults Ltd..... </p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>SENIOR COMMUNITY DEVELOPMENT OFFICER P.O. BOX 87, Masindi District Local Govt</p> </div> |

Meeting 14: Held with District Resident Commissioner (RDC), Masindi District

| Meeting with: | Name | Designation |
|---------------------|---|--------------------------------|
| | Mr. Godfrey N | Resident District Commissioner |
| Purpose of meeting: | To obtain technical and social economic input into the update of the Environmental and Social Impact Assessment process and Resettlement Action Plan for the proposed 220kV Hoima-Kinyara Transmission Line | |
| Date held & Place: | 17 th /June/ 2016 RDCs office | |
| Present: | Mr Tumusiime Alfred (Consultant NEK Consult Ltd) Mr. Sabiiti Charles (Environmental Sociologist , NEK Consult Ltd) Mr. Godfrey N (RDC, Masindi District) | |

Issues and responses (quoted verbatim)

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| About the proposed project | <p>Consultant: Have you heard about the Hoima-Kinyara transmission line project?</p> <p>Response: Yes I know about it even last week I was talking about its delay with the General manager Kinyara sugar factory.</p> |
| Key concerns | <p>Consultant: What are some of your key concerns the project?</p> <p>Response: One of my major concerns is about the delay of the project. Last week I meet the General manager Kinyara sugar factory and he told me that they are producing a lot of bagasse and even they have nowhere to dump it and yet we are supposed to be producing power from it and feed it in that line. Therefore if the project has resumed then it is timely.</p> <p>Also compensation is a very big issue which should be handled with much care to avoid any issues which could hurt the PAPs.</p> <p>Sensitization both on the ground and through media as another thing which should be done such that all the stakeholders and local people are aware of what is going on otherwise local people may confuse you with land grabbers.</p> |
| Lessons from similar projects | <p>Consultant: What are some of the lessons learnt from other projects of a similar nature in the district?</p> <p>Ans: We have not always faced challenges with implementing such projects in our area. For example Masindi-Hoima road is being constructed and no problem has been reported in my office yet.</p> |
| Signatures | <p>Name..... <i>Godfrey N</i></p> <p>Designation..... <i>RDC Masindi</i></p> <p>Signature..... <i>[Signature]</i></p> <p>Name..... <i>Tumusiime Alfred</i></p> <p>Designation..... <i>ESIA / RAP update Consultant</i></p> <p>For Nek Consults Ltd..... <i>[Signature]</i></p> |

Meeting 15: Held with District Physical Planner, Masindi District

| Meeting with: | Name | Designation |
|---|---|---------------------------|
| | Ms. Musiita Catherine | District Physical planner |
| Purpose of meeting: | To obtain technical and social economic input into the update of the Environmental and Social Impact Assessment process and Resettlement Action Plan for the proposed 220kV Hoima-Kinyara Transmission Line | |
| Date held & Place: | 17 th /June/ 2016 District Physical Planners' office | |
| Present: | Mr Tumusiime Alfred (Consultant NEK Consult Ltd) Mr. Sabiiti Charles (Environmental Sociologist , NEK Consult Ltd) Ms Musiita Catherine (District Physical Planner) | |
| Issues and responses (quoted verbatim) | | |
| About the proposed project | <p>Consultant: Have you heard about the Hoima-Kinyara transmission line project?</p> <p>Response: I have not heard about it may be they could have contacted another officer while doing the first ESIA and RAP.</p> | |
| Key concerns | <p>Consultant: What are some of your key concerns about such projects?</p> <p>Response: My major concerns would be many if the line was passing through major trading centres. But according to your map I have only seen one small trading centre where there line seems to be passing called Kiina that one can be handled as any other affected area.</p> <p>To me, for the purposes of updating the ESIA and RAP you may need to revisit the proposed line on the ground and see whether there are new issues from the community.</p> <p>Otherwise I refer you to the District Environment Officer. He may be more resourceful for this report.</p> | |
| District developments | <p>Consultant: Do you have any planned project for the district in the proposed areas?</p> <p>Response: We don't have any district projects in that area which could be affected.</p> | |
| Signatures | <p>Name..... <u>MUSIITA CATHERINE</u></p> <p>Designation... <u>DISTRICT PHYSICAL PLANNER</u></p> <p>Signature <u>[Signature]</u></p> <p>Name..... <u>Tumusiime Alfred</u></p> <p>Designation... <u>ESIA Consultant</u></p> <p>For Nek Consults Ltd. <u>[Signature]</u></p> | |

Meeting 16: Held with Senior District Environment Officer (SDEO), Masindi District

| Meeting with: | Name | Designation |
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| | Mr. Nsimiire W | Deputy Chief Administrative Officer <i>District Environment Officer</i> |
| Purpose of meeting: | To obtain technical and social economic input into the update of the Environmental and Social Impact Assessment process and Resettlement Action Plan for the proposed 220kV Hoima-Kinyara Transmission Line | |
| Date held & Place: | 17 th /June/ 2016 SDEOs Office | |
| Present: | Mr Tumusiime Alfred (Consultant NEK Consult Ltd) Mr. Sabiiti Charles (Environmental Sociologist , NEK Consult Ltd) Mr. Nsimiire William (SDEO, Masindi District) | |
| Issues and responses (quoted verbatim) | | |
| About the proposed project | <p>Consultant: Have you heard about the Hoima-Kinyara transmission line project?</p> <p>Response: Yes I know about the project.</p> | |
| Key concerns | <p>Consultant: What are some of your key concerns about project?</p> <p>Response: I remember you were here in 2013 and I gave you my views and concerns so I don't think I may have any differing issue.</p> <p>May be as a recap, the project should take note of the following;</p> <ul style="list-style-type: none"> • There are some central forest reserves which are near the proposed line and are sensitive which should not be interrupted with. For example Kasongoire CFR which inhabits a great number of chimpanzees. • A way leaf of 40metres is big land so the owners should be compensated properly in accordance to the law. • Casual labourers should be got from the project area. • Sanitary on camps and occupational safety issues should be taken very serious. • Security is another issue which should be given attention because other wrong people may take advantage of such a project. • Also cultural aspects should not be interrupted with taking note that some area like Kyinyara is habited by many tribes. | |
| Lessons from similar projects | <p>Consultant: What are some of the lessons learnt from other projects of a similar nature in the district?</p> <p>Response: Generally in Masindi district, we have not always had issues with such projects. For example personally I was compensated when the Masindi-Hoima road affected part of my land and am confortable. Even environmentally we have not heard issues with those people constructing the Masindi-Hoima road.</p> | |
| Signatures | <p>Name..... <i>Anthony Axono</i></p> <p>Designation..... <i>For District Env't Office</i></p> <p>Signature <i>[Signature]</i></p> <p>Name..... <i>Tumusiime Alfred</i></p> <p>Designation..... <i>ESIA / RAP Update Consultant</i></p> <p>For Nek Consults Ltd..... <i>[Signature]</i></p> | |

Meeting 17: Minutes for the Public Consultative meeting with the Project Affected Persons held at Birungu Parish, Kigorobya sub-county, Hoima district

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| Place and date meeting held | 18 th /June/2016 At Birungu Parish hall. |
| Consultants present | Tumusiime Alfred (Consultant NEK Consult Ltd) Sabiiti Charles (Environmental Sociologist , NEK Consult Ltd) Twesiime Brian (Transport Officer, NEK Consult Ltd) PAPs and Community members from the villages of Kiswero, Birungu, Mpunda and Kaburungi (see list attached) |
| Prayer, National anthem and opening remarks from the Chairperson | The meeting started at about 10:30am with prayer led by one of the community members who thanked God for the good health and called upon God to take charge of the meeting. This was followed by a national anthem and one of the chairpersons in his welcome remarks welcomed the team of consultants and thanked UETCL for having come in to get their concerns at such a critical point of compensation. He ended his remarks by requesting the people to feel free and share their issues with the consultants because they are the reason for the meeting. |
| Opening remarks from the Team leader | The Team leader (Alfred Tumusiime) welcomed the people to the meeting and introduced the team he came with to the community members. The consultant introduced the company that is responsible for updating of the ESIA and RAP of the Hoima-Kinyara transmission line project (NEK Consult Ltd). He told the community members that different technical teams have been coming around carrying out different studies concerning this project since 2012. However, due the time lag which has elapsed before the project commences, UETCL is required to update various reports in collaboration with the World bank (Project funder). Therefore UETCL contracted NEK Consult Ltd to update ESIA and RAP and that is the purpose of our being here. |
| Issues and responses (quoted verbatim) | |
| About the proposed project | Concern: The line passed through my land, valuation was done but up to now my file has never come and yet others received their files and even signed their consent forms. Concern: All my houses, my son's houses and property were affected by the line and were valued and since then we have never been compensated and yet we have not been using the earmarked land. What is our fate? Response: <i>Whoever was affected by the proposed line will have to be compensated before line construction begins whether your file has come back or not. According to the law, you will be given 6 months to leave after you have been paid since the disturbance allowance used in 15%.</i> |

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This applies to both the first and second concern and even others with the same challenge. The time lag which has elapsed is actually one of the major reasons for updating the ESIA and RAP reports. UETCL and World Bank appreciate the fact that there has been a relatively big time gap since when these processes were carried out and understand the changes in the value of property as well as inflation issues. Therefore we expect that after updating these reports your files will be revisited to address your concerns.

Concern: The compensation rates which were used (district rates) were not updated in accordance with current market rates. In addition we were not sensitized on how those rates were applied during the valuation process. Some of us therefore refused to sign on those files because the rates were not satisfactory.

Response: *Similar concerns have been raised in other meetings like at Bulemwa and Kitoba; We therefore take those concerns very serious and we are going to put in our recommendations that UETCL re-visits the rates and updates the valuation report to reflect current market rates for properties affected.*

Concern: In Hoima district, we mainly have three systems of land tenure (Lease, freehold and customary). For my case I was in my final stages of processing my title and I had invested a lot. However there was no special treatment given while valuing my land. What is the criterion followed while valuing land of different tenure systems?

Response: *Valuation is carried out uniformly regardless of whether the PAP has a title or not using market rates. For example if you have titled land, money given to you should be able to purchase the same size of land with a title. If you are not satisfied with the valuation process, you have a right to lodge a complaint and refuse to sign the valuation form for your property until your concern is addressed.*

Concern: At first when they came, the line passed through my house and the biggest part of my land. And of recent when they came, they took photographs of the remaining part. I therefore don't know what next.

Response: *According to the compensation policy being used, if more than 50% of your land is to be affected, you are supposed to be fully compensated and move to another area or resettled to another area depending on your choice as a family. In addition, every PAP is supposed to be given disturbance allowance of 15 and given 6 months to relocate an area of their choice.*

Clarification: One of the chairpersons clarified that not every person seen around taking photographs is from UETCL, other government project like oil activities are also on going.

Consultant: When the complainant's house was visited after the meeting, it was found to be outside the transmission corridor. It was assumed that the people who that took recent photographs were

thieves, idle people or government staff planning for other projects.

Concern: Who is supposed to pay for the transfer of graves in cases where they are found in the land to be affected. Because for my case my land had graves but the money given to me was little.

Response: *The money for the transfer of graves is supposed to be incorporated during the valuation process and the owners of the deceased relocate them in accordance with their norms. If you think you were undervalued, you have a right to lodge a complaint directly to UETCL or through the grievance redress committee to UETCL.*

Concern: During the valuation process they never gave us a clear picture of our exact land sizes which was valued and we were not given enough time to read through our files and get to know whether all that was valued appeared in the files.

Response: *Ideally, the right procedure would have been that, during valuation a selected local team of people who know the area should move with the technical team, and after valuation reports should be brought for public disclosure. Also before signing the consent form, the owner is supposed to be given time to read through the file and understand how he or she was valued before signing. You have a right to sign or refuse if you are not contented. Therefore such issues are going to be made known to UETCL so that where PAPs are not satisfied, they get a fair hearing.*

Concern: The line passed through my land but it was not valued. What should I expect?



Response: *As i mentioned before, it is UETCL's obligation to make sure that all the PAPs are compensated before the project commences. I therefore assure you that your property will be valued and paid accordingly. A verification exercise will be done and all property valued.*

I remember telling you when we were carrying out ESIA that you need to form a committee of representatives from the affected area including some local leaders if you wish depending on whom you trust which you would be using to take such complaints about this project to the responsible bodies. However it is not too late you can still form a committee and put you complaints of similar nature concerning the project in writing and take them to UETCL, am sure it has always been compliant in responding and settling PAPs grievances.

Concern: My house was valued but it never appeared in the valuation reports. Will I be compensated for my house?

Response: *The government has no plans of taking anyone's property without compensation. Therefore it is a matter of making your issue known to UETCL and then you will be helped.*

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| | <p>Concern: My property was valued and we were even told to open accounts. When the files came back it was showing that I will be only paid 90,000UGX which was worth my property. Hence I refused to sign. How can I be helped?</p> <p>Response: It is very ok because you refused to sign meaning that you were not satisfied with the valuation report. There is a procedure which UETCL will put in place to make sure such cases are handled. However you should put your complaint in writing and make sure the RAP implementation consultant captures it. You can as well lodge complaint directly to UETCL or through the grievance redress committee.</p> |
| Major community recommendation | <p>We are requesting that re-valuation be done due to the time lag since evaluation took place.</p> <p>The compensation rates used during the valuation process should be revised in accordance to the market rates because they were very low.</p> <p>The money should not be put on our accounts until all our issues are sorted.</p> <p>UETCL should also give us a road map of all the activities other than just ambushing us all the time.</p> <p>Proper sensitization of PAPs is also key for all the processes.</p> |
| Closing remarks and closing prayer | <p>The team leader thanked the community members for having turned up for the meeting and assured them that all their concerns raised will be reported and handled by UETCL. One of the chairpersons thanked the people for coming in large numbers and thanked UETCL for having sent the consultants to get their views once more. The chairperson requested one of the members to give a closing prayer. The meeting was then adjourned at about 2pm.</p> |
| Signatures | <p>Name... <u>KATHWA R. JACKSON</u>.....</p> <p>Designation... <u>C/M MPUNDA LCI</u>.....</p> <p>Signature </p> <p>Name... <u>Tumusime Fred</u>.....</p> <p>Designation... <u>ESIA/RAP update Consultant</u>.....</p> <p>For Nek Consults Ltd. <u></u>.....</p> |

Meeting 18: Minutes for the Public Consultative meeting with the Project Affected Persons held at Kyataruga Trading centre, Kigoroby sub-county, Hoima district

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| Place and date meeting held | 18 th /June/2016 Kigomba Trading Centre, Kigoroby sub-county |
| Consultants present | Tumusiime Alfred (Consultant NEK Consult Ltd) Sabiiti Charles (Environmental Sociologist , NEK Consult Ltd) Tweziime Brian (Transport Officer, NEK Consult Ltd) Community members (see list attached) & PAPS in Kigomba and Kyamucumba villages |
| Prayer and opening remarks from the Chairperson | The meeting started at about 3:30pm with prayer led by one of community members who asked for God's guidance such that the meeting will be productive. This was followed by welcome remarks from one of the LCI chairperson who welcomed the team of consultants and thanked them for having fulfilled their promise as they had requested the chairpersons to mobilize the people. He ended his remarks by requesting the people to feel free and share their issues with the consultants such that UETCL can address them. |
| Opening remarks from the Team leader | The Team leader (Alfred Tumusiime) welcomed the people to the meeting and introduced the team he came with to the community members. The consultant introduced the company that is responsible for the update of the ESIA and RAP of the project (NEK Consult Ltd). He told the community members that different technical teams have been coming around carrying out different studies concerning this project since 2012. However, due the time lag which has elapsed before the project commences, UETCL is required to update various reports in collaboration with the World Bank (Project funder). Therefore UETCL contracted NEK Consult Ltd to update ESIA and RAP and that is the purpose of our being here. He advised the members to always turn up in large numbers whenever they are called upon because such meetings are normally for their benefit. |
| Issues and responses (quoted verbatim) | |
| About the proposed project | Concern: Most of us who are here were affected by the line. Our properties were valued and forms brought back and told to sign which most of us did. However, Some files came back while others have never come back. What happened? Response: <i>Those of you that were valued or not, whether your file came back or not, the line will not be constructed unless all the PAPS are properly compensated. However, you need to put your complaints in writing and notify UETCL. And because UETCL knows that there are such kind of issues which needs to be addressed, that's why it commissioned this study to update the ESIA and the RAP.</i> Concern: Is it in order for a valuer to come and value your property without informing you in advance? For example for my case I met them on the way coming from valuing my property and for that reason I refused to sign the consent form. There wasn't even any public disclosure of the valuation process at any time. |

Response: *That was not in order if it was done. They were first supposed to inform you, your local leader should appoint a local committee which knows the area very well to move with the valuers. This is in addition to sensitization of the PAPs before the valuation process.*

Concern: Those people actually never did property assessment. They independently carried out enumeration of our property. We think assessment was done on paper in Kampala because we were not involved in the process even our leaders. We don't know the rates which were used.

Response: *Those of you that are not contented with the valuation exercise; you have a right not to sign the valuation form until your grievances are addressed. UETCL is going to conduct a verification exercise and all issues will be addressed. However, you can as well lodge a complaint directly to UETCL or through the grievance redress committee.*

Concern: Some of us all our land was taken by the line and we were told that we need to shift to other areas. But we are here just waiting and we don't know what is next.

Response: *UETCL is doing all possible means to compensate all the PAPs. It is the reason why this exercise is going on.*

Concern: What are the rates for different property types like titled land, land in a trading centre and land in the village because the whole valuation process confused us. For example, there is a plot here in our trading centre which was valued at only 800,000UGX and yet a plot here goes for about 2.5M.

Response: *Provided that the ownership of the land is confirmed no matter the tenure system then uniform valuation according to the agreed rates should be carried out and compensation done making sure that the affected person gets the replacement value of his or her property. For example if you have a titled land, money given to you should be able to purchase the same size of land with a title. Different locations may have varied rates but all in all should depict the market rates. If you think that you were undervalued, you have a right to lodge a complaint and you will be heard.*

Concern: In the assessment forms which they managed to bring back, there were some names people whom we never knew as residents and we don't know how such files came in.

Response: *We have heard your concern and we shall include it in our recommendations.*

Concern: They stopped us from using our property and now it is about three years and nothing has been done. How will they handle the time we have lost because everything has changed.

Response: *I have already told the meetings we have earlier that the*

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| | <p><i>time lag which has elapsed is actually one of the major reasons for updating the ESIA and RAP reports. UETCL and World Bank appreciate the fact that there has been a relatively big time gap when these processes were carried out and understand the changes in the value of property as well as inflation issues. Therefore after updating these reports your files should be revised to cater for the time lost.</i></p> <p>Concern: They had told us that after valuation they will bring back our files and we read through them thoroughly but when they brought them back we were just told to sign and we hear that they are about to pay. But the truth is we don't know exactly what is going to be paid for. Even the signing was done secretly. For example some of us refused to sign.</p> <p>There is also a church which is going to be affected by the project but no one knows what is to happen to the church.</p> <p>Concern: By the time of valuation, I was staying in a grass thatched house but I was also constructing a permanent house which they told me to stop from where I had reached. however, as I talk the grass thatched house fell doing and am just staying in an incomplete house which puts my family in danger.</p> <p>Response: <i>We have put your concern down and also you should also put it in writing and address it to UETCL.</i></p> <p><i>In addition, I advise you to form a committee of representatives from the affected area including some local leaders if you wish depending on whom you trust which you can always use to take such complaints about this project to UETCL and am assured your grievances can always be solved provide they are genuine.</i></p> |
| Major recommendations (community) | <p>Before UETCL commissions any further activity, it should first bring back our assessment forms and explain them to us.</p> <p>Also a copy of the assessment forms should always be left with the each PAP.</p> <p>Also there were many names which were poorly spelt. Such mistakes should be rectified.</p> <p>UETCL should give us a clear picture of the rates which were used to value our property.</p> <p>If you UETCL is going to revise the valuation report, we should be given a chance to negotiate the increment.</p> <p>We are requesting that re-valuation be done due to the time lag since evaluation took place.</p> <p>UETCL should sensitize the project affected persons especially about the valuation process.</p> |
| Closing remarks and closing prayer | <p>The team leader thanked the community members for having turned up for the meeting in large numbers and assured them that all their</p> |

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| | <p>concerns raised will be reported to UETCL and they should hope for the better because when such project is brought in the place the governments' intention is to leave the people in better conditions than they were found.</p> <p>One of the chairpersons thanked the people for patience and raising the issues that affected them without fear. The chairperson requested one of the members to give a closing prayer. The meeting was then adjourned at about 5:30pm.</p> |
| Signatures | <p>Name..... <u>TIRYANGWA ALFRED</u> PARISH.....</p> <p>Designation..... <u>C/MANAGER KIGORUBA</u></p> <p>Signature..... <u>Alfred</u></p> <p>Name..... <u>Tumusume Alfred</u></p> <p>Designation..... <u>ESIA IRAP update Consultant</u></p> <p>For Nek Consults Ltd..... <u>[Signature]</u></p> |



Meeting 19: Minutes for the Public Consultative Meeting with the Project Affected Persons held at Abangi Trading centre, Abangi village, Budongo sub-county, Masindi district

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| Place and date meeting held | 28 th /June/2016 Under a community conference hall |
| Consultants present | Tumusiime Alfred (Consultant NEK Consult Ltd) Olivia Mugisha (LCIII, Budongo sub-county, Hoima district) Community members (Mainly PAPs) – Abangi, Enjinga and Onini villages (see list attached) |
| Prayer and opening remarks from the Chairperson | <p>The meeting started at about 11am with prayer thanking God for the journey mercies of the consultants and the community members up to the point of the meeting and requested Him to guide the entire meeting.</p> <p>This was followed by welcome remarks from the Vice LCI chairperson of Abangi village who welcomed the consultants, LCIII chairman and the community members to the meeting and told the people that the meeting was about the proposed Hoima-Kinyara Transmission line. He requested the community members to put across all the issues they have been grumbling about in isolation and told them that this was the right time to raise any complaint resulting from the former processes of the project which were carried out.</p> <p>The LCIII chairman also made some introductory remarks and urged the community to be attentive and present their concerns in an orderly manner. He told the meeting that he had been told there was this type of the meeting and he also came to attend and listen to the concerns of the people that elected him into the office he is occupying.</p> |
| Opening remarks from the Team leader | <p>The Team leader (Alfred Tumusiime) welcomed the people to the meeting and introduced the team he came with to the community members. The consultant introduced the company that is responsible for the update of the ESIA and RAP of the project (NEK Consult Ltd). He told the community members that different technical teams have been coming around carrying out different studies concerning this project since 2012. However, due the time lag which has elapsed before the project commences, UETCL is required to update various reports in collaboration with the World Bank (Project Funder). Therefore UETCL contracted NEK Consult Ltd to update again the ESIA and RAP and that is the purpose of the meeting. There after he explained the procedures which will be involved in updating the above mentioned reports.</p> |
| Issues and responses (quoted verbatim) | |
| About the proposed project & compensation | <p>Concern: My land was a bush when they were valuing but because they delayed to pay us, I decided to cultivate it. If they come to construct the line, how are they going to handle that?</p> <p>Response: <i>Since your and property were valued already, you will be compensated with the replacement value of the property which was in the corridor at the time of valuation. As for the gardens, you will be given 6 months to harvest all that you have and construction of the line will commence.</i></p> <p>Question: Are you going to construct a road along the corridor? How are you going to drive along the corridor?</p> |



Response: *The contractor is going to use the existing access roads as much as possible. However where its not possible, a road will be created under the line (ROW). Where access roads are created in areas other than the acquired 40 meter corridor, the affected people will be compensated through a fresh revaluation. The RAP implementation consultant together with UETCL staff in the field will be around to register and address all fresh complaints.*

Concern: When will they build the line?

Response: *UETCL will first compensate all affected people and then the process and all affected people will be given 6 months to relocate. After that, line construction will start.*

Concern: Why is it that the rates for paying people were different and very low? For example they valued an acre at 1.5 million and yet when we sell our land to our people, it is 3 million.

Response: *We have noted that. We intend to advise UETCL to update the valuation report first due to the time lag since the RAP was last conducted. Secondly every person who has a complaint will be given a hearing before compensation is effected through the grievance redress committee when the RAP implementation consultant comes on board. If UETCL fails to solve such issues amicably, you have the right to go courts of law and seek justice.*

Concern: In Bulisa district, a stalk of cassava is valued at 2000 shillings yet here it was valued at 400-600 shillings. Why don't you give us uniform rates?

Response: *The rates used by the valuers are normally obtained from district and through several consultations. Therefore it is not reasonable to use a rate that cannot be justified. However if you think you were undervalued, you can still lodge a complaint to UETCL and you will be heard.*

Concern: Is this disturbance allowance applied to crops or It is applied to land only?

Response: *Disturbance allowance is applied to all property.*

Concern: Those people who came to value our property were unfair. They were rude and couldn't cooperate with people. They valued our village between 6-7pm and were rushing. We need this valuation redone because these people cheated us.

Response: *Your point has been noted and we all advise UETCL to rectify all irregularities in the valuation process.*

Concern: Madam Zati Adrapi and Elina Odrunga have different land yet the file was recorded under Zati Adrapi. What are they going to do.

Response: *They should report it to UETCL especially through the RAP implementation consultant and it will be rectified.*

Concern: My land was divided into 2 parts yet am a cattle keeper. Will it be possible to cross to the other side during construction and how long

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| | <p>will construction take?</p> <p>Response: <i>Am not sure how long construction will take. However, you will be able to cross and do whatever you want to with your land except that at the time of stringing conductors, you may be restricted for some minutes or hours depending on the contractors tasks for that particular day.</i></p> <p>Concern: Is the value of land with a title the same as that of the same land without a title.</p> <p>Response: <i>The value is the same except the one with a title must be compensated with title processing fees in addition to the value of land.</i></p> <p>Concern: They stopped us from using our land. If we are paid next year and yet the value of compensation calculated in 2013 is reducing and we decide to refuse the money, will that be counted as sabotaging government programme?</p> <p>Response: <i>The Land Act provides for adequate compensation in such projects. Therefore if the compensation is not adequate, in compulsion with market rates of properties damaged, you have a right to refuse the money.</i></p> <p>Concern: I refused to sign the valuation forms because they undervalued me. I don't know whether they will come to update that.</p> <p>Response: <i>The RAP implementation consultant will be attending to such concerns so you need to wait until he comes on board and you will be attended to.</i></p> <p>Concern: Some crops were not valued including eucalyptus and pine trees.</p> <p>Response: <i>These will be revalued by the RAP implementation consultant.</i></p> <p>Concern: During surveying, the corridor was marked using red and yellow tapes but since then these tapes have decomposed. How will they be able to trace the line?</p> <p>Response: <i>The surveyors have other machines which are able to retrieve and show them the exact spots that were marked. You don't have to worry that they may change the corridor when the contractor comes to build the line.</i></p> <p>Concern: We are going to leave this land for ever but the money they plan to pay us is very little.</p> <p>Response: <i>What you need to appreciate is that when you sell land or any property, you can never have it again. It is like any other normal transaction. However, the issue of low rates of compensation is going to be addressed. I said we shall recommend and advise UETCL to compensate all PAPs with current market rates of properties and not the 2013 rates.</i></p> |
| Account numbers | <p>Concern: My house got burnt & my account number got burnt also. What should I do?</p> |



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| | <p>Response: The starting point is to go to police and notify them that you lost your credentials including your bank account details. You can then notify your bank and request that your account be retrieved for you. If the bank cannot retrieve your account, then you will have to first notify UETCL that the former account provided is no longer valid. You will then proceed to open up a new account and then furnish UETCL with the new account number.</p> <p>Concern: Some of us, our account numbers were not taken and yet others' were taken. What should we do. We also don't know how much money we are expected to be getting.</p> <p>Response: Another team is soon coming back to document and rectify all irregularities in the former RAP study. When they come, they will take your account numbers. When that team comes, they will also value all property that were not valued and all people will be told how much they should expect. People shall be given time to study and understand the valuation report before signing it.</p> |
| Valuation forms | <p>Concern: We don't have any copies of the valuation forms which we signed. The ladies who brought these forms were rushing and never gave us enough time to understand them. In fact we don't know what we signed because our people are ignorant and when they see money, they just sign. For example supposing UETCL pays less money than we signed for, how can we make a claim since we don't have copies of valuation forms?</p> <p>Response: We are going to recommend UETCL returns copies of valuation forms for each PAP.</p> |
| Closing remarks | <p>The Abangi chairperson and LCIII thanked the people for coming in large numbers and also the consultant thanked the people for coming and the chairperson for mobilizing the people. The meeting was then adjourned at about 1:30pm</p> |
| Signatures | <p>Name.....</p> <p>Designation.....</p> <p>Signature</p> <p>Name..... <i>Tumusiime Alfred</i></p> <p>Designation..... <i>ESIA / RAP update Consultant</i></p> <p>For Nek Consults Ltd..... <i>[Signature]</i></p> |

Meeting 20: Minutes for the Public Consultative Meeting with the Project Affected Persons held at Abangi Trading centre, Abangi village, Budongo sub-county, Masindi district

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| Place and date meeting held | 28 th /June/2016 Under a tree at Kimanya II trading centre |
| Consultants present | Tumusiime Alfred (Consultant NEK Consult Ltd) Olivia Mugisha (LCIII, Budongo sub-county, Hoima district) Community members (Mainly PAPs) – Bineneza, Kimanya II and Rwempisi villages (see list attached) |
| Prayer and opening remarks from the Chairperson | The meeting started at about 2:30pm with prayer thanking God for the journey mercies of the consultants and the community members up to the point of the meeting and requested Him to guide the entire meeting. This was followed by welcome remarks from the LCI chairperson of Kimanya II village who welcomed the consultants, and the community members to the meeting and told the people that the meeting was about the proposed Hoima-Kinyara Transmission line. He requested the community members to put across all the issues they have been grumbling about in isolation and told them that this was the right time to raise any complaint resulting from the former processes of the project which were carried out. It was agreed that the LCIII chairperson would speak at the end of the meeting. |
| Opening remarks from the Team leader | The Team leader (Alfred Tumusiime) welcomed the people to the meeting and introduced the team he came with to the community members. The consultant introduced the company that is responsible for the update of the ESIA and RAP of the project (NEK Consult Ltd). He told the community members that different technical teams have been coming around carrying out different studies concerning this project since 2012. However, due the time lag which has elapsed before the project commences, UETCL is required to update various reports in collaboration with the World Bank (Project Funder). Therefore UETCL contracted NEK Consult Ltd to update again the ESIA and RAP and that is the purpose of the meeting. He then requested the people to raise all their fears, concerns and complaints about the on-going activities on the Hoima-Kinyara transmission line. |
| Issues and responses (quoted verbatim) | |
| About the proposed project & compensation | Concern: My estimated land affected by the transmission line is 3.3 acres and yet it was all valued at 1.9 million so for me I refused to sign because it was undervalued. Response: <i>All cases where PAPs refused to sign because of undervaluation or other issues will be addressed by the RAP consultation consultant who will also do re-valuations to verify such complaints. When complaints are found to be genuine, all affected people will be compensated appropriately.</i> Concern: Since the exercise started about 3 years have passed. By that time, an acre was 1 million but now land is 2 million. If we had got that money in 2013, we would have bought land but now that money cannot buy land. |



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| | <p>Response: <i>That point is very key and it is the very reason we are updating the ESIA and RAP studies to capture such concerns. We shall recommend that UETCL updates the valuation report and uses the current market rates of properties in consultation with the Chief Government Valuer.</i></p> <p>Concern: When they were surveying, I was not around. My name is not in the file. What am going to do?</p> <p>Response: <i>Your name will be captured when the RAP implementation consultant comes on board. You don't have to worry.</i></p> <p>Concern: My land was mixed with another man's land and my file came in another name</p> <p>Response: <i>You need to notify UETCL through the RAP implementation consultant and such issues will be addressed.</i></p> <p>Concern: An elderly person is going to be paid very little money because he is old. Is there any way you can help assist him to ensure his land is paid reasonably?</p> <p>Response: <i>Like I said, the village committee that is going to compose the grievance redress committee should comprise people who are trusted and should work with the RAP implementation consultant and ensure this man's case and all other cases of all vulnerable people are well presented to UETCL.</i></p> <p>Concern: Our file was not attended to. The valuer reported conflicting commodities – trees versus cassava. We did not sign the files. Many people must have been undervalued</p> <p>Response: <i>I said a plan is in the pipeline to address all errors in the valuation forms.</i></p> <p>Concern: When they first brought the files, I valued as a landlord. The second time they brought the files, I was regarded as a tenant.</p> <p>Response: <i>Those issues should be reported to the RAP implementation consultant and I can assure you that all genuine complaints will be attended to one by one and the rightful compensation will be paid to all PAPs.</i></p> <p>Concern: At the time of valuation, they only valued my house but left the crops and land. Will they pay for house only or they will pay for all.</p> <p>Response: <i>They will pay for all. All other properties that were not valued will be valued and compensated for. You simply need to notify UETCL either directly or through the RAP implementation consultant.</i></p> <p>Concern: there should be a provision that when further damage of property takes place, it should be compensated for.</p> <p>Response: <i>We shall include it in our report.</i></p> |
| Valuation forms | <p>Concern: There was no issue of copies of valuation forms. If am not satisfied, how am I going to begin?</p> |

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| | <p>Response: Each PAP has a right to own copies of valuation forms in respect of his or her property affected by the line. Therefore, we shall recommend that all valuation forms be brought back to their respective PAPs for scrutiny and future reference.</p> <p>Concern: The names written on my file does not match with my actual name on my identity card. How will they handle that?</p> <p>Response: You need to notify UETCL either directly or through the RAP implementation consultant so that it can be corrected because if they pay you a cheque and the names don't match with the names on your bank account, such a cheque will bounce.</p> |
| Closing remarks | <p>The chairperson and LCIII thanked the people for coming in large numbers and also the consultant thanked the people for coming and the chairperson for mobilizing the people. The meeting was then adjourned at about 4:30pm</p> |
| Signatures | <p>Name..... <u>Tumusime Alfred</u></p> <p>Designation..... <u>Consultant</u></p> <p>Signature..... <u>[Signature]</u></p> <p><u>for</u> Name..... <u>Tumusime Alfred</u></p> <p>Designation..... <u>ESIA / RAP Update Consultant</u></p> <p>For Nek Consults Ltd..... <u>[Signature]</u></p> |



Meeting with the Assistant Commissioner, Department of Gender, Ministry of Gender, Labour and Social Development (MoGLSD)

| | Name | Designation |
|---|---|--|
| | Ms Kyomukama Maggie | Assistant Commissioner, Department of Gender & Women Affairs |
| Purpose of meeting: | To obtain technical and social economic input into the update of the Environmental and Social Impact Assessment process and Resettlement Action Plan for the proposed 220kV Hoima-Kinyara Transmission Line | |
| Date held & Place: | 31 st October 2016 Assistant Commissioner's Office, MoGLSD | |
| Present: | Mr Tumusiime Alfred (Consultant NEK Consult Ltd) Ms Kyomukama Maggie (Assistant Commissioner, Department of Gender & Women Affairs) | |
| Issues and responses (quoted verbatim) | | |
| Introductory remarks about the proposed project | <p>Consultant: Do you have any issues in regard to your department which you think should be taken care of as far as the proposed construction and operation of Hoima-Kinyara transmission line is concerned?</p> <p>Ans: I don't know how far you have gone with the project, the local governments and other stakeholders. Are your at construction phase? How far have you gone with this project?</p> <p>Consultant: The project is at pre-construction phase. We are consulting various stakeholders as part of the ESIA and RAP process to ensure the construction & operation phases are planned adequately.</p> <p>Commissioner: How many local governments are involved?</p> <p>Consultant: Hoima and Masindi districts.</p> <p>Commissioner: What are the project components?</p> <p>Consultant: The project comprises mainly a 220kV T-line which will be constructed in a corridor of 40 meters of which the centre segment (ROW) will be 5 meter and the remaining (35m) will be a Way Leave. The ROW will be permanently acquired by UETCL and the Way Leave will be partially acquired but with restricted usage. The T-line will be approximately 50km and at each end will be the Hoima and Kinyara substations. <i>Consultant displayed the map of the transmission line for security.</i></p> | |
| Issues that needs to be addressed | <p>Within the different stages of project implementation, you have to take care of gender concerns. The families have diverse roles in the two districts. The two districts have different social setups and hence you need to consult the community and get their perspectives and voices of the women so that they are informed about the project. Don't assume that the issues affecting women in Hoima are the same as those affecting women in Masindi.</p> <p>Secondly, men are easy to get but when you call for a meeting, no woman turns up. Women are always busy involved in domestic duties and sometimes end up not being informed about such projects. While</p> | |
| Taking care of gender concerns | | |

| | |
|--|---|
| | consulting at districts and sub-counties, you need to involve the district Community Development Officers (DCDOs) and Community Development Officers (CDOs) who normally know ^{and} can help to mobilise the women in other forums. |
| Influx of workers & gender based violence | There is always influx of workers in construction sites and these end up resulting in gender based violence (GBV). You know what happened to the Kabarole-Kamwenge road where the World Bank had to suspend funding due to GBV and other related issues. There should be zero tolerance to gender based violence during construction and operation of this project. |
| Human resource policies for the contractor | The human resource policies for the contractor should ensure that women get equal opportunities in providing goods and services. |
| Sanitary facilities | The contractor should put in places adequate sanitary facilities that cater for both sexes. You see if such facilities are not there, the women get demotivated because such a work place infringes on their privacy. In such cases, women opt to abandon such jobs and hence lose opportunities. |
| Compensation | Compensation is a very big issue in this project. The household should know what to expect and not the man only. All members so of the household should know who is signing and how much is being paid. This reduces on the possibility of conflict that would arise in case the household head decides to take the money alone. |
| Communication | While consulting the local community, ^{non-literate} you need to use the local languages so as to take care of the illiterate and semi-illiterate. Use a language that is well known to the affected people. |
| Equal opportunity | The project implementers should ensure equal pay for work of equal value for both men and women. |
| Signatures | <p>Name..... <u>Kyomukama Maggie U</u></p> <p>Designation..... <u>Asst-Commissioner Gender & Women Affairs</u></p> <p>Signature <u>Maggie Mabweija</u> <u>2/11/2016</u></p> <p>Name..... <u>Tumusime Alfred</u></p> <p>Designation..... <u>ESIA/RAP update Consultant</u></p> <p>For Nek Consults Ltd... <u>[Signature]</u></p> |

Former Consultative meetings with relevant lead agencies (2013)

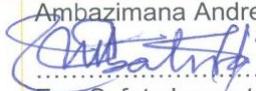
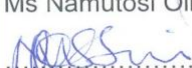
Meeting: Held with Senior Environment Officer Electricity Regulatory Authority

| Meeting held with | Name | Designation |
|---|--|--|
| | Kityo Peter | Senior Environment Officer Electricity Regulatory Authority |
| Purpose of meeting: | To obtain technical and social economic input into the Environmental and Social Impact Assessment process for the proposed 220kV Hoima-Kafu Transmission Line | |
| Date held & Place: | 16 th August 2012 Office of the Senior Environment Officer Electricity Regulatory Authority | |
| Present: | Ms. Namutosi Olivia, Consultant (NEK Consult) | |
| Responses to issues raised by the consultant (quoted verbatim) | | |
| About the project | This is a very high voltage line with a large corridor which may affect much property. A comprehensive assessment and collection of issues concerning structures and property within the ROW should be made before construction commences. | |
| About sensitisation | People adjacent to the way leaf should be sensitized about the need for a wider ROW because they are likely to encroach on it after the project has been established. There should be continuous sensitisation of stakeholders in the project area before the project is commissioned. He also added that a monitoring team should be put in place that includes local people so that they can police themselves after. | |
| About compensation | Proper compensation depending on effect of project on livelihood as a way of ensuring that the community does not resist the project. Explain the electricity distribution network and tell the affected persons that they will benefit although this may take some time. The developer should facilitate RAP issues as a way of addressing the affected people. | |
| Signatures | Mr. Kityo Peter  12 th / 04 / 2013 For: Senior Environment Officer Electricity Regulatory Authority Ms Namutosi Olivia  12 th / 04 / 2013 For: NEK Consults Ltd | |


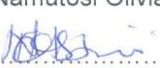
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Consultative meeting for the ESIA study of the proposed 220kV Hoima-Kafu Transmission Line

Meeting 15: Held with Safety Inspector-Construction Ministry of Gender Labour and social development

| Meeting held with | Name | Designation |
|---|--|--|
| | Ambazimana Andrew | Safety Inspector-Construction Ministry of Gender Labour and social development |
| Purpose of meeting: | To obtain technical and social economic input into the Environmental and Social Impact Assessment process for the proposed 220kV Hoima-Kafu Transmission Line | |
| Date held & Place: | 16 th August 2012 Office of Safety Inspector Ministry of Gender Labour and Social Development | |
| Present: | Ms. Namutosi Olivia, Sociologist (NEK Consult) | |
| Responses to issues raised by the consultant (quoted verbatim) | | |
| | <p>Our concern is always about people's safety at work places. So during the ESIA advise the developer to ensure that existing acts are put into consideration such as the employment act, compensation act, Labour unions act and the occupational safety and health act among others. Carryout a risk and hazard assessment before construction starts.</p> <p>In addition the developer should protect worker by giving them PPE since they will be working at heights.</p> <p>The contractor should also put in place a safety and environmental management plan before commencement of construction.</p> <p>The contractor should not encourage child labour.</p> | |
| About notification | The commissioner should be notified a month before construction commences. | |
| About compensation | Project affected persons should be compensated effectively and they should be consulted about how they want to be paid. | |
| About cultural sites | Protect cultural monuments in case there are any within the project area because people are always attached to such sites. | |
| About employment | During employment project affected persons should be considered first so that they consider the project as beneficial since this is a transmission line. | |
| Signatures | <p>Ambazimana Andrew</p>  <p>..... For: Safety Inspector-Construction Ministry of Gender Labour and social development</p> <p>Ms Namutosi Olivia</p>  <p>..... 12th/04/2013 For: NEK Consults Ltd.</p> | |


Meeting 16: Held with Environment Officer Ministry of energy

| Meeting held with | Name | Designation |
|---|--|-------------------------------|
| | Niwamanya Shallon | Petroleum/Environment Officer |
| Purpose of meeting: | To obtain technical and social economic input into the Environmental and Social Impact Assessment process for the proposed 220kV Hoima-Kafu Transmission Line | |
| Date held & Place: | 16 th August 2012 Office of the Petroleum/Environment, Petroleum supply Department Ministry of Energy and Mineral Development | |
| Present: | Ms. Namutosi Olivia, Consultant (NEK Consult) | |
| Responses to issues raised by the consultant (quoted verbatim) | | |
| Environmental concerns | Put in place measures to minimise soil erosion that could end up silting wetlands. Since this is a project that is not linear to the road like most power projects, this is likely to open up area such as wetlands forests and other conservation areas to encroachers. | |
| About workers camps | The contractor should have workers' camps and away from populated areas and area of conservation. | |
| About community norms and traditions | Workers should respect local people's norms and traditions. Other road users and users of resources within the power line should be respected so that the community does not reject the project. | |
| About resettlement | Compensate and relocate people before construction commences. Leave a sufficient buffer zone to ensure safety of the communities living along the proposed line. | |
| Closing remarks | Where fuel storage is involved, the project contractor should obtain relevant approvals from Ministry of Energy and Mineral Development and adhere to standards in the petroleum supply Act. | |
| Signatures | Niwamanya Shallon  15 th / 04 / 2013 Petroleum/Environment Officer, Petroleum Supply Department Ministry of Energy and Mineral Development Namutosi Olivia  15 th / 04 / 2013 For NEK Consult Ltd. | |

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Consultative meeting for the ESIA study of the proposed 220kV Hoima-Kafu Transmission Line

Meeting 19: Held with Commissioner Uganda Museum


| Meeting held with | Name | Designation |
|---|---|--|
| | Ms. Mwanje N. Rose | Commissioner Uganda museum. Ministry of Tourism Wildlife and Antiquities. |
| Purpose of meeting: | To obtain technical and social economic input into the Environmental and Social Impact Assessment process for the proposed . 220kV Hoima-Kafu Transmission Line | |
| Date held & Place: | 29 th August 2012 Office of the Commissioner Uganda Museum | |
| Present: | Ms. Namutosi Olivia, Sociologist (NEK Consults Ltd.) | |
| Responses to issues raised by the consultant (quoted verbatim) | | |
| About the project | This is a good project since being a transmission line it will not have many excavations like other projects such as roads. So the effects will not be very minimal although this does not mean there will not be any. | |
| About major concerns | Bunyoro was an iron smelting and pottery area so there is likely to be such sites of importance that need to be preserved. There are definitely other sites such as burial ground shrines that need to be preserved. Of major concern however ^{the} features that are under neath and cannot easily are be identified. These will require specialised people to ascertain their existence and importance and also give suitable advice. | |
| What should be done | The EIA team should have an archaeologist to identify important site and features that need to be preserved. In addition a copy of the EIA report should be submitted to the commissioner for review before final comments are sent to NEMA for decision making. | |
| About site visitation | The EIA team leader can organise take one of the staff members to the site so that better assessment can be made. | |
| Signatures | Ms. Mwanje N. Rose  For: Commissioner Uganda museum. Ministry of Tourism Wildlife and Antiquities. Ms Namutosi Olivia  For: NEK Consults Ltd. | |

Meeting 18: Held with Principal Wetlands Officer, Wetland Management Division
Ministry of Water and Environment.

Department,

| Meeting held with | Name | Designation |
|---|--|---|
| | Ongol Joseph | Principal Wetlands officer, Wetland Management Division, Ministry of water and Environment. <i>Department</i> |
| Purpose of meeting: | To obtain technical and social economic input into the Environmental and Social Impact Assessment process for the proposed 220kV Hoima-Kafu Transmission Line | |
| Date held & Place: | 17 th August 2012 <i>at the</i> Office of the Principle Wetland Officer | |
| Present: | Ms. Namutosi Olivia, Sociologist (NEK Consult) | |
| Responses to issues raised by the consultant (quoted verbatim) | | |
| About major concerns | <p>40 meters ^{is a wide area} <i>Consider</i> and this means that there is going to be vegetation loss along the entire stretch of the line during construction. This will open up ^{traverse} wetlands to encroachers and illegal activities.</p> <p>Construction of power line towers will lead to siltation as there will be excavation to make the foundation firm. During construction there is a tendency by developers to leave loose soil and concrete in wet lands as has been with some developers <i>in wetlands</i>.</p> <p>There will be loss in biodiversity and ecological functions of the areas that will be traversed by the line. <i>For example</i> invasive species like lantana camara could colonise the area as trees that tend to suppress <i>there</i> it will not be in this stretch any more. <i>wetlands in the</i></p> | |
| What should be done | <p>Put in place measures that will minimise the flow of loose soil to affected wetlands. <i>(1)</i></p> <p>Since this is a high voltage line there is a possibility of having a road beneath the line for maintenance purposes. So the contractors should ensure that there are sufficient culverts for the stream (wetland) to continue flowing without much interruption.</p> <p>Ensure that no loose soil or concrete materials are left in the wetland after the towers have been erected.</p> <p>Compensate for biodiversity loss for example by encouraging the community to plant trees or by planting short trees along the 17.5 stretch that may not be under any use by the community.</p> <p>Comprehensive sensitisation of the communities about the project and compensation for property lost along the line. <i>(2)</i></p> | |
| About site visitation | Arrangement should be made to facilitate a staff member for site visit so that we can make informed decisions about the final ESIA statement. | |
| Signatures | <p>Ongol Joseph</p>  <p>For: Principal Wetlands officer-Wetland Management Division Ministry of water and Environment.</p> | |

- (1) - Disposal of cut spoils should not be in wetlands.
- (2) - Community education on the importance of wetlands.

| | |
|--|--|
| | <p>Ms Namutosi Olivia  For: NEK Consults Ltd.</p> |
|--|--|

Consultations with Uganda Wild Life Authority

| Meeting held with | Name | Designation |
|---|--|-----------------------------|
| | Justine Namara | EIA & Planning Officer, UWA |
| Purpose of meeting: | To obtain technical and social economic input into the ESIA process for the proposed 220kV Hoima-Kafu Transmission Line | |
| Date held & Place: | 10 th June 2013, | |
| Present: | Mr. Tumusiime Alfred, Consultant (NEK) Ms Justine Namara, EIA & Planning Officer, UWA | |
| Introductory remarks | <p>The consultant introduced the proposed Hoima-Kafu Project. He stated that government was proposing to construct a 220kV line from Hoima to Kafu in Masindi to improve electricity supply in the region. He presented the proposed line routes and the preferred line route for discussion.</p> <p>The line route was studied briefly by the EIA & Planning Officer and the discussion was initiated.</p> | |
| Responses to issues raised by the consultant (quoted verbatim) | | |
| About protected areas along the proposed Hoima-Kafu transmission line | <p>Question (Consultant): Does the line go through any protected area?</p> <p>Response (EIA & Planning Officer): The area has a lot of wildlife especially the Masindi-Kafu area but its not a protected area. Some of the traversed areas are referred to as wild life dispersion areas and animals are just moving in those community areas. Of course the law remains the same. We don't want you to kill wild life while constructing the line. You just need to ensure that the safety of these animals is ensured.</p> <p>Question: What about the White Rhinos initially owned by Ziwa Ranches 20km away from the line?</p> <p>Response: The Rhino is a fenced area and 20km away is very far. Ziwa has their separate management. That ranch was supposed to be a holding grounding so that when they grow in large numbers, they can be introduced into the wild. They have their own funding and management and work independently.</p> <p>Question: Are there any future plans for such areas especially the Kafu area which seems to have some scattered wild life?</p> <p>It's in our new strategic plan (2013-2018) which will take effect probably this year. We are not gazetting these areas to a protected area status but we will have our staff protecting this area to ensure that these animals are not hunted to extinction. There is a lot of hunting in that area and they target areas outside protected areas.</p> <p>Question: So do you think this project should proceed as it is?</p> <p>Response: Yes; if the line was going through a National Park, we would say that divert it but since its not, all we want is to ensure that all wild life in the project area is protected during construction. In case you come across any wild life during construction, it should be protected because it could be the only one in that area.</p> | |
| Signatures | <p>Ms Justin Namara(UWA)</p> <p>Mr. Tumusiime Alfred.....(NEK Consult Ltd)</p> | |

Annex 2(a) I: List of stakeholders consulted (District Officials and other Lead Agencies as at June 2016))

| No | NAME | DESIGNATION | INSTITUTION | TEL CONTACT |
|----|--------------------|----------------------------------|------------------|--------------|
| 1 | Luke L L Lokoda | Chief Administrative Officer | Hoima District | 0772498824 |
| 2 | Nyangoma Joseline | Senior Environment Officer | Hoima District | 0772628153 |
| 3 | Nsita Getrude | Environment Officer | Hoima District | 0782292921 |
| 4 | Mpairwe Sarah | Intern (Environment Assistant) | Hoima District | 0700589018 |
| 5 | Faustine Twesigye | District Population Officer | Hoima District | 0392949111 |
| 6 | Mugisha Andrew | District Valuer | Hoima District | 0782760373 |
| 7 | Byakagaba John W | District Planner | Hoima District | 0772437940 |
| 8 | Karungi Kadiri | LC 5 Chairperson | Hoima District | 0782508990 |
| 9 | Ambrose Mwesigye | Deputy RDC | Hoima District | 0782477369 |
| 10 | Jophuta Bagonza | Senior Accountant | Kitoba S/C | 0772581306 |
| 11 | Businge K Solmon | Sub-county Chief | Kitoba S/C | 0782324088 |
| 12 | Ruhigwa Edward | LC III Chairperson | Bujumbura Div | 0774525600 |
| 13 | Kabagonza Kasim | Deputy LC V Chairperson | Masindi District | 0782267287 |
| 14 | Baguma Michael | Intern (Planning Unit) | Masindi District | 0771079151 |
| 15 | Yawiya Rashid | District Population Officer | Masindi District | 0772981216 |
| 16 | Ocen J Andrew | Deputy CAO | Masindi District | 0772313975 |
| 17 | Busing Vicent | Senior CDO | Masindi District | 0779854366 |
| 18 | Godfrey N | Resident District Commissioner | Masindi District | 0772553913 |
| 19 | Musiita Catherine | Physical Planner | Masindi District | 0702986308 |
| 20 | Nsimiire William | Senior Environment Officer | Masindi District | 0772380840 |
| 21 | Denis | LCI Chairman, Bwendero village | Hoima district | 0777220677 |
| 22 | Peterson kyobe | LCI Chairman, Dwoli west village | Hoima district | 0784312931 |
| 23 | Kahwa Jackson | LCI Chairman, Wagaisa village | Hoima district | 0775712195 |
| 24 | Balongo willium | LCI Chairman, Kiswero village | Hoima district | 0774098335 |
| 25 | Kahwa Jackson | LCI Chairman, Mpunda village | Hoima district | 0782072022 |
| 26 | Wilson Isaliza | LCI Chairman, Birungu village | Hoima district | 0774462518 |
| 27 | Kitesukura Herbert | LCI Chairman, Kaburungi village | Hoima district | 0777 760 066 |
| 28 | Rumanywoha S | LCI Chairman, Bulemwa village | Hoima district | 0782931788 |
| 29 | Munyogonyogo | LCI Chairman, Bwendero village | Hoima district | |
| 30 | Allex Tibyangwa | LCI Chairman, Kigomba village | Hoima district | 0777222559 |
| 31 | Peninah Barongo | LCI Chairman, Kyamucumba vill | Hoima district | 0782285807 |
| 32 | Ezama Isaac | LCI Chairman, Abangi | Masindi district | |
| 33 | Avutia Emmanuel | LCI Chairman, Kimanya II village | Masindi district | 0772661863 |

| No | NAME | DESIGNATION | INSTITUTION | TEL CONTACT |
|----|-------------------|--|-------------------|-------------------|
| 34 | Serunjoji Abdul | Budongo Sub-county Chief | Masindi district | 0772450185 |
| 35 | Lubega Hausein | Bwijanga Sub-county Chief | Masindi district | 0772581762 |
| 36 | Olivia Mugisa | LCIII Chairperson, Bwijanga SC | Masindi district | 0782647837 |
| 37 | Mugisha K Modest | LCIII Chairperson, Kigorobyia Subcounty | Hoima district | 0781171893 |
| 38 | Asiimwe John | GISO, Kigorobyia Subcounty | Hoima district | 0782572669 |
| 39 | Aliguma Muhereza | Vice LCIII Chairperson, Kigorobyia subcounty | Hoima district | 0779077811 |
| 40 | Barungi Patrick | subcounty Chief, Kigorobyia | Hoima district | 0788130343 |
| 41 | Kirunda Magoola | Public Relations Officer | Kinyara Sugar Ltd | 0774168994 |
| 42 | P.V Ramadasan | General Manager | Kinyara Sugar Ltd | 0757777201 |
| 43 | Community members | PAPs (more than 200 people) | Hoima & Masindi | See list attached |
| 44 | Kyomukama Maggie | Assistant Commissioner, Gender | MoGLSD | 0772516778 |

Annex 2(a) II: List of stakeholders consulted (District Officials and other Lead Agencies during 2013 ESIA studies)

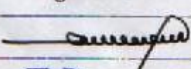

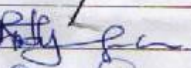


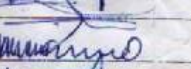
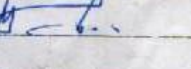

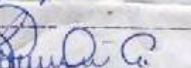
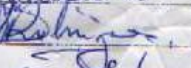
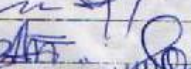
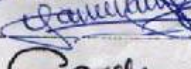


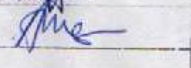
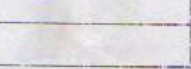

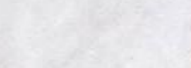

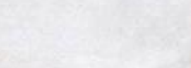
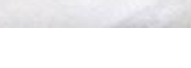
| No | Name | Designation | Tel contact |
|----|------|-------------|-------------|
|----|------|-------------|-------------|

| No | Name | Designation | Tel contact |
|-------------------------|-----------------------|---|-------------|
| Hoima District | | | |
| 1 | Majara Leonard | Deputy Chief Administrative Officer | 0772-611348 |
| 2 | Byakagaba J W | Asst. District Planner | 0772-437940 |
| 3 | Asiimwe Edward | Secretary District Land Board | 0772-473929 |
| 4 | Nyangoma Joselyne | Senior District Environment Officer | 0772-628153 |
| 5 | Tinkamanyire George | LC5 Chairperson | 0773-277279 |
| 6 | Ndozereho Fabius | District Community Development Officer | 0772-574947 |
| 7 | Kachope Patrick | District Security Officer | 0772-623518 |
| 8 | Kariba Jeanne | Resident District Commissioner | 0772-641754 |
| 9 | Byarubanga Fredrick | District Vice Chairman | 0774411919 |
| 10 | Gertrude Nsita | District Environment Officer | 0782294921 |
| 11 | Watimba Abdu Swamard | Deputy Resident District Commissioner | 0772827765 |
| 12 | Epaju Pius | Town Clerk Hoima Municipal Council | 0772632677 |
| 13 | Kyamanywa Ronald | Hoima Municipal Environment Officer | 0772461577 |
| 14 | Nuwe Amanyana Jackson | Chairperson L.C III Bujumbura Division | 0772554744 |
| 15 | Mugisha Ahmad | Senior Assistant Town Clerk Bujumbura Division | 0772527326 |
| 16 | Kiiza Simon | Community development officer Kyabigambire Subcounty. | 0782486856 |
| 17 | Kunihira T William | Councillor, Kyabigambire Sub-county | 0772406644 |
| 18 | Bigirwa Asuman | Councillor, Kyabigambire Sub-county | 0757158193 |
| 19 | Bugada Ruganju | District Councillor | 0782559288 |
| 20 | Nsita Getrude | Hoima Environment Officer | 0782294921 |
| 21 | Aliguma wilfred | Bulindi Parish chief | 0782864686 |
| 22 | Barugahara G | Chairperson L.C III Kyabigambire sub-county | 0774744229 |
| Masindi District | | | |
| 23 | Mugasho Fred | District Security Officer | 0772-407969 |
| 24 | Jack Byaruhanga | Deputy Chief Administrative Officer | 0702-516389 |
| 25 | Magezi B G Abwooli | District Planner | 0772-450508 |
| 26 | Isingoma Mugima | LC5 Chairperson | 0772-862041 |
| 27 | Biryetega Simon | Ag. District Environment Officer | 0772-394129 |
| 28 | Major Matovu David | Resident District Commissioner | 0772536009 |
| 29 | Kanaginagi Anthony | Vice District Chairperson | 0701824507 |
| 30 | Dr Kaamu Benon | Manager, Royal Ranch | 0772394312 |
| 31 | Faiz Aslam | Manager, Ziwa Ranch Ltd | 0772735721 |
| 32 | Bakari Abdallar | PAP, Kyabande Kisizi village, Masindi | |

| No | Name | Designation | Tel contact |
|---|-----------------------|--|---------------------------|
| 33 | Eruju Bernard | Agricultural officer Isimba Prison | 0712850619 |
| 34 | Chwa Dauda | Town clerk Masindi Municipal Council | 0772388185 |
| 35 | Kasigwa Fred | Municipal Environment Officer | 0715988678 |
| 36 | Kyamiza Musa | Bwijanga Sub county chief | 0772825242 |
| 37 | Kalisa Rose | Community development officer Mirya sub county | 0772648464 |
| 38 | Mukaraine Matthew | Community development officer Nyangaha sub county | 0782732729 |
| 39 | Tusiime Irene | Community development officer Kimengo sub county | 0782308748 |
| 40 | Ayebazibwe Arison | Community development officer Bwijanga sub county | 0774210979/070 0452956 |
| Other key stakeholders/Lead Agencies consulted (Kampala) | | | |
| 41 | Peter Kityo | Senior environment officer Electricity Regulatory Authority | 0782448041 |
| 42 | Ambazimana Andrew | Safety inspector (construction) ministry of Gender Labour and Social Development | 0771896686 |
| 43 | Niwamanya Shallon | Environment Officer, Ministry of Energy and Mineral Development | 0774422616 |
| 44 | Paul Buyerah Musamali | Director Corporate Affairs, National Forestry Authority | 0772466569 |
| 45 | Ongol Joseph | Wetlands Management Division | 0777777931 |
| 46 | Mwanje N. Rose | Commissioner Uganda Museum | 0772485624 |

Annex 2(b): List of stakeholders consulted as at June 2016 (Project Affected Persons & their leaders)







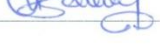
ESIA AND RAP STUDY UPDATES FOR THE HOIMA-KINYARA TRANSMISSION LINE IN
HOIMA & MASINDI DISTRICT
List of Persons/institutions consulted

| No | Name | Village/Designation | Tel Contact | Signature |
|----|--------------------|--------------------------|--------------------------|---|
| 1 | Luke L.L. Lokuda | CAO Hoima | 0772498824 |  |
| 2 | Augustin Inyangye | Hoima DLG | 0392949111 |  |
| 3 | | | | |
| 4 | | | | |
| 5 | Nyangoma Josephine | SEO | 0772-628153 |  |
| 6 | NSITA GETRUDE | ENRIT OFFICER | 07822911021 |  |
| 7 | MPAIRWE SARAH | INTERNSHIP | 0700589012 |  |
| 8 | Mungisha Andrew | Dist Valuer | 07822760878 |  |
| 9 | BYAKA GABA John W | Dist. Planner | 0772437940 |  |
| 10 | Kirungi Kadiri | Dist. Planner | 0785089910 |  |
| 11 | AMBROSE MURAGIYA | D/RDC Hoima | 0482477369 |  |
| 12 | JOSHUA BAGOMBA | S/ACC-KINYARA | 0782 499369 |  |
| 13 | | | 0772 551306 |  |
| 14 | | | | |
| 15 | Businge K. Solomon | S/S Kitoba | 0782324088 |  |
| 16 | Ruhungwa Edward | c/l Laili Bujumbura | 0774525600 |  |
| 17 | Kabagana Kassim | c/l Laili Bujumbura | 078226728 |  |
| 18 | BAGUMA MICHAEL | INTERNSHIP | 0711079151 |  |
| 19 | YAWIYA RASHID | DPO - PLANNING UNIT | 077298246 |  |
| 20 | Coln J. Andrew | Deputy CAO Masindi | 0772313975 |  |
| 21 | BUBINGA VINCENT | S/CAO | 0779854366 |  |
| 22 | Godfrey N. Njau | Dist. Med | 0772553013 |  |
| 23 | Musiita Catherine | Physical Planner Masindi | 0702786208 0782431610 |  |
| 24 | Nsimire Wilhe | SEO - MSD | 077238080 |  |
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ESIA AND RAP STUDY UPDATES FOR THE HOIMA-KINYARA TRANSMISSION LINE IN
HOIMA & MASINDI DISTRICT

List of Persons/Institutions consulted

| No | Name | Village/Designation | Tel Contact | Signature |
|----|------------------|---------------------|-------------|---|
| 1 | NYENDIGA KENNETH | C/m LC 3 Budu | 077429025 |  |
| 2 | SERUNJIC ASDI | SAs Budu | 07240115 |  |
| 3 | KURBERA HUSEIN | SAs Bumbura | 0772581762 |  |
| 4 | MUGISA KIMBERE | CPLC/KIGOMBA | 0781171873 |  |
| 5 | ASHIMWE JOHN | Giso Murogo B/ASIC | 078257269 |  |
| 6 | ALGUM MUKSEZI | V/C/LC III Kigoma | 0779017811 |  |
| 7 | Barungi patrick | SAs Kigoma | 0788130343 |  |
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ESIA AND RAP STUDY UPDATES FOR THE HOIMA-KINYARA TRANSMISSION LINE IN

HOIMA & MASINDI DISTRICT

16th June 2016

List of Persons/Institutions consulted

Bulemwa Village meeting

| No | Name | Village/Designation | Tel Contact | Signature |
|----|--------------------|---------------------|-------------------------|-----------|
| 1 | RUMANYWOTA Simon | e/PERSON Bulemwa | 0782931788 | |
| 2 | Alebalet Moses | | 07734180471 | |
| 3 | TUSABE JULIUS | RESIDENT - BULEMWA | 0772339758 | |
| 4 | Banyemba Yostamu | Bubaale | 077222773 | |
| 5 | ISINGOMA EDWARD | BULEMWA - RESIDENT | 0772408309 | |
| 6 | Pr. MUSA ALEX | - DO - | 0782571011 | |
| 7 | Bigirwa Zaveria | Bulemwa | 0780346362 | |
| 8 | Yowasi Katuku | Bulemwa | 0781252403 | |
| 9 | IDUMBA JOB | BULEMWA | 070686058 | |
| 10 | KAAHWA ERIC ABEL | BULEMWA | 0787401996 | |
| 11 | MUGENYI SABI | HAGI MUSA BASA SUSA | 0754351955 07041935 | |
| 12 | KASANGAKI ERUKANA | BULEMWA | 0779790309 | |
| 13 | YOHANI TARAGABOINE | BULEMWA | | |
| 14 | ISINGOMA JOSEPH | Bulemwa | 0770825283 | |
| 15 | MPICWA PEIGR | BULEMWA | 078230864 0776808859 | |
| 16 | MUKONYERI OLIVER | " | 0776808859 | |
| 17 | Katusime Janet | Bulemwa | 0701188747 | |
| 18 | Karungi ROSE | Bulemwa | 0788540369 | |
| 19 | Monday Margaret | Bulemwa | 0784376916 | |
| 20 | BUSOBOZI GERALD | BULEMWA | 0773768144 | |
| 21 | KAAHWA LORENSE | | | |
| 22 | Nyangoma Bobbi | Bulemwa | 0771335924 | |
| 23 | Sabit Charles | NEK consults Ltd | 0775232361 | |
| 24 | Tumusime Alfred | NEK consults Ltd | 0782335405 | |
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ESIA AND RAP STUDY UPDATES FOR THE HOIMA-KINYARA TRANSMISSION LINE IN

HOIMA & MASINDI DISTRICT

Wagaisa, Dwoli west

16th June 2016

List of Persons/Institutions consulted

and Bwendero Villages

| No | Name | Village/Designation | Tel Contact | Signature |
|----|----------------------|---------------------|-------------|-----------|
| 1 | Kakamba W. I. Yanga | Bwendero | | Kakamba |
| 2 | Simon Barongo | Dwoli/Bwendero | | B S |
| 3 | Kyaligonza Vincent | Dwoli/Bwendero | 0782815628 | V.K. |
| 4 | Festus Katusime | Bwendero | | FK |
| 5 | TUMUSIIME ESTHER | Dwoli/Bwendero | 0705160564 | Esther |
| 6 | Alinaika J. Habat | Dwoli west | 078538966 | Alinaika |
| 7 | Kato B. Mark | Dwoli West | 0724370214 | Kato |
| 8 | KIIZA HARRISON | WAGAISSA KIIZI | 0758027888 | HH |
| 9 | Muhumusa Jasuka | WAGAISSA KIIZI | 0774749997 | MJ |
| 10 | Kaahwa B Jackson | wagaisa kiizi | 0775712195 | Jackson |
| 11 | BIZIBU YOLUKAMA | wogoyokiizi | 0280232787 | Bizibu |
| 12 | BAMUHIGA EZIRA | Dwoli west | | |
| 13 | NTAKAHARA CATHERINE | INTERM STUDENT | 0758784546 | Catherine |
| 14 | NYAKOJO DENIS | PARISH CHIEF | 0701220677 | Denis |
| 15 | KIIZA-N-EDWARD | PARISH CHIEF | 077701704 | Edward |
| 16 | RWAHWIRE | KIIZI WAGAISSA | | Robert |
| 17 | MUNYAGONYO G. WILSON | BWENDERO L.C.I | 0782844457 | Munyago |
| 18 | KASEMIRE JOYCE | KIIZI WAGAISSA | 0771493466 | Kasemire |
| 19 | MANYIRE NORAH | WAGAISSA | 0772832944 | Norah |
| 20 | BAGWIZA I. JOHNTA | Wagaisa/Dwoli west | 0772581306 | John |
| 21 | TUMUSIIME ALFRED | NEK consult Ltd | 0772335405 | Alfred |
| 22 | Sabiiti Charles | NEK Consult Ltd | 0775232361 | Charles |
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ESIA AND RAP STUDY UPDATES FOR THE HOIMA-KINYARA TRANSMISSION LINE IN

Kinyara Sugar Works Ltd. HOIMA & MASINDI DISTRICT *17th June 2016*
 List of Persons/Institutions consulted

| No | Name | Village/Designation | Tel Contact | Signature |
|----|-------------------------|--|-------------------------|--------------------|
| 1 | | Consultative Meeting at | Kinyara Sugar Works Ltd | |
| 2 | 1. Tumusiime Alfred | ESIA/RAP consultant NEK Consult Ltd | 0782335451 | <i>[Signature]</i> |
| 3 | | | | |
| 4 | 2 Sabiti Charles | ESIA/RAP Consultant NEK Consult Ltd | 0785232361 | <i>[Signature]</i> |
| 5 | 3. KIRUNDA MARGIDA P.R. | | 0774168977 | <i>[Signature]</i> |
| 6 | 4. R. RAVI | GM/KINYARA SUGAR LTD. | 0757777201 | <i>[Signature]</i> |
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ESIA AND RAP STUDY UPDATES FOR THE HOIMA-KINYARA TRANSMISSION LINE IN
HOIMA & MASINDI DISTRICT

List of Persons/Institutions consulted

| No | Name | Village/Designation | Tel Contact | Signature |
|----|------------------|-----------------------------------|-------------|----------------|
| 1 | Kyomukama Maggie | Asst. Comm/Gender & Women Affairs | 0772516778 | Maggie Mabwija |
| 2 | | | | |
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ESIA AND RAP STUDY UPDATES FOR THE HOIMA-KINYARA TRANSMISSION LINE IN

HOIMA & MASINDI DISTRICT Birungu, Mpunga, Kiswero

List of Persons/Institutions consulted and Kaburungi

18/06/2016

| No | Name | Village/Designation | Tel Contact | Signature |
|----|---|---------------------|-------------|-----------------|
| 1 | Kyaligonza Amuroni | Mpunga | 0775082427 | Akyaligonza |
| 2 | Ryakagaba Saulo | BIRUNGU | 0782689259 | Ryakagaba |
| 3 | SALIZA WILSON | Birungu kei | 07711462518 | Saliza |
| 4 | Biribonwa Francis | Birungu KEI | 0753449125 | Francis |
| 5 | ALIGONYI Lawrence | MPUNDA | 0773482735 | ALIGONYI |
| 6 | Bitungwa Lenard | MPUNDA | | Blc- |
| 7 | Mijumba Tito | MPUNDA | 0782580980 | tito |
| 8 | KAAHWA Jackson | MPUNDA | 0782072022 | KAAHWA |
| 9 | Byenkya Saulo | BIRUNGU | 0729987255 | Byenkya |
| 10 | Mouby Julius | Birungu | 0776094914 | MOU |
| 11 | BENKWA WALTER | BIRUNGU | 0774958772 | BENKWA |
| 12 | Bacwamangi Noah | Birungu | 0782248907 | Bacwamangi |
| 13 | MUSINDEZI DAVID SONYA BANDA-KA-D KITESUKURA | | 0773767771 | MUSINDEZI |
| 14 | Bugarahanga Abel | Birungu | 0779213288 | B. I. |
| 15 | BARONGOWILLIAMS | KISWERO | 0774094335 | BARONGOWILLIAMS |
| 16 | BINGI SEEMU | KITESUKURA | 0783745538 | BINGI |
| 17 | MONDAY HERBERI | KITESUKURA | 0775613641 | MONDAY |
| 18 | Joyce Garababwera | BIRUNGU | | J. Garababwera |
| 19 | NTAKIMANYE EDINANCE | MPUNDA | 0778156484 | NTAKIMANYE |
| 20 | KADUKUSI K | Lazaho | 0779174437 | KADUKUSI |
| 21 | WABYONA STEPHEN | KABURUNGI | 0787643211 | WABYONA |
| 22 | BAHEMUSKA JOSEPH | Birungu | 07783432 | BAHEMUSKA |
| 23 | BIGURA JOHN | Birungu | 0782837430 | BIGURA |
| 24 | KATO MOSES E | Birungu | | KATO |
| 25 | KARUBAAGA | ERISA | 0755214358 | KARUBAAGA |
| 26 | Yese | Isagara | 0779723313 | Yese |
| 27 | ALINDA | Yowabu | 0779723313 | ALINDA |

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ESIA AND RAP STUDY UPDATES FOR THE HOIMA-KINYARA TRANSMISSION LINE IN

18/06/2016

HOIMA & MASINDI DISTRICT

Birungu, Mpunda, Kiswero
and Kabungu.

List of Persons/Institutions consulted

| No | Name | Village/Designation | Tel Contact | Signature |
|----|--------------------|---------------------|-------------|---------------------|
| 1 | Kyatamanya | Ephraim | | <i>Kyatamanya</i> |
| 2 | Isingmachale | KABUNGI | 0751325457 | <i>Isingmachale</i> |
| 3 | Tumunaise Geoffrey | Kabungu | 0779402551 | <i>Tumunaise</i> |
| 4 | Jackson Hirona | Birungu LCI | 0774840738 | <i>Jackson</i> |
| 5 | Batumbi Ephraim | Mpunda | 0703874499 | <i>Batumbi</i> |
| 6 | JRumba PATRICK | BIRUNGU | 0773307131 | <i>JRumba</i> |
| 7 | Herbert Bonasa | Clam Kabungu | 0777760086 | <i>Herbert</i> |
| 8 | ALinda moses | Birungu | 072130298 | <i>ALinda</i> |
| 9 | Katusabe margret | mpunda | 0789515397 | <i>Katusabe</i> |
| 10 | Turumanya Wilson | Birungu | 0778156485 | <i>Turumanya</i> |
| 11 | YESE MASSA | KISWERO | 0776580732 | <i>YESE</i> |
| 12 | ASABA Henry | Birungu | 0783887289 | <i>ASABA</i> |
| 13 | AKUGIZIBWE JESSY | KISWERO | 0787876841 | <i>AKUGIZIBWE</i> |
| 14 | YOVINI Kaatungu | KISWERO | 077424296 | <i>YOVINI</i> |
| 15 | Sabititi Charles | NEK CONSULT Ltd. | 0775232361 | <i>Sabititi</i> |
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ESIA AND RAP STUDY UPDATES FOR THE HOIMA-KINYARA TRANSMISSION LINE IN

18/06/2016

HOIMA & MASINDI DISTRICT Kigomba and Kyamucumba
Villages

List of Persons/Institutions consulted

| No | Name | Village/Designation | Tel Contact | Signature |
|----|--------------------|---------------------|-------------|-----------|
| 1 | ByaBazaibe Paulo | | | |
| 2 | WANDERA JOHN | KIGOMBA | 0779018003 | Wandera |
| 3 | PAULO KAREITO | KIGOMBA | | |
| 4 | KASAJA WILSON | KIGOMBA | 0751548558 | Kasaja |
| 5 | KYALIGONZA KHARIM | KIGOMBA | 0782932659 | Kharim |
| 6 | BARONGO ANATOLE | KYAMUCUMBA | 0782285507 | |
| 7 | KALIISA NJAU | KIGOMBA | 0782904521 | |
| 8 | BYARUHANGA JOAHIM | KIGOMBA | 0782440461 | |
| 9 | Chalisi ALIYO | KIGOMBA | | |
| 10 | Byakagaba Muzim | KIGOMBA | 0785981671 | |
| 11 | KATUSABE ADINANI | KIGOMBA | 0782066478 | |
| 12 | KUZA ZADI | Kyamucumba | 0774589797 | |
| 13 | TINKA PERINA | C/m Kyamucumba | | |
| 14 | MACKARIES HARRISON | Kyamucumba | 0782494521 | |
| 15 | LIUBA AMOS | " | | |
| 16 | BENLOMA P. | KIGOMBA | 0777571873 | |
| 17 | IAKABA JAMES | Kyamucumba | 0785712914 | |
| 18 | Byaruhanga Benson | Kyamucumba h.c.i | 0774098895 | |
| 19 | AJECIGA ZAKAYO | Kyamucumba | 0789299217 | |
| 20 | BIRUGI SA | Kyamucumba | | |
| 21 | ANIYA BIRUGI | Kyamucumba | 0787332627 | |
| 22 | NDOZERCHO MURUGU | Kyamucumba | 0779259426 | |
| 23 | MUKIDI SAYUNI | Kyamucumba | 0752130420 | |
| 24 | KAGORO ISMAIL | KIGOMBA | 0754756381 | |
| 25 | ONIMA GEOFERY | Kyamucumba | 0781766886 | |
| 26 | KAAHWANNATOLE | Kyamucumba | 0784557830 | |
| 27 | TOMASI ACHILE | Kyamucumba | 0789103321 | |

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ESIA AND RAP STUDY UPDATES FOR THE HOIMA-KINYARA TRANSMISSION LINE IN

HOIMA & MASINDI DISTRICT *Kigomba and Kyamucumba*List of Persons/Institutions consulted *villages*

18/6/16

| No | Name | Village/Designation | Tel Contact | Signature |
|----|----------------------------------|---------------------|-------------|-----------|
| 1 | ABELU ESTER | KIGOMBA | 0782494521 | Ester |
| 2 | ERABURA ^{GERALI} YEMIMA | KYAMUCUMBA | 111 | Yemima |
| 3 | KAMANYIRE JOHN | KIGOMBA | 0777571873 | |
| 4 | MOHAMMED SAIDI TIBENDA | KIGOMBA | 0782730388 | |
| 5 | KWIRIGIRA EMMANUEL | KIGOMBA | 0785981677 | |
| 6 | TIBYANGWA ALEX | KIGOMBA CHMAN | 077722255 | Alex |
| 7 | Tumusijme Alfred | ESIA/RAP consultant | 0782335405 | |
| 8 | Sabititi Charles | 11 | 0785222361 | |
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ESIA AND RAP STUDY UPDATES FOR THE HOIMA-KINYARA TRANSMISSION LINE IN

28th June 2016HOIMA & MASINDI DISTRICT Enjinga, Abangi and
List of Persons/Institutions consulted Enini Villages

| No | Name | Village/Designation | Tel Contact | Signature |
|----|-------------------|---------------------|-------------|--------------------|
| 1 | NYENDWOMA KENNETH | CHAMEMAN LC3 | 0772429028 | Jin |
| 2 | OKWONZI DENISI | Kabanga | 0778652413 | Denisi |
| 3 | OMIKAMBE LAZOR | CHAMEMAN ABANGI | 0788684180 | Omikambe |
| 4 | ODIPIO ALFRED | ALC | 0773358283 | Alfred |
| 5 | DROKU ELIA | EJINGA LC | 0774466398 | Elic |
| 6 | Terezina Pasuto | ABANGI LC | - | |
| 7 | Chandiru Grace | EJINGA LC | - | |
| 8 | EZAMA ISMAIC | Abangi LC | 0782733536 | Ismaic |
| 9 | OLWORA ZAA | ABANGI LC | | Zaa |
| 10 | Abgambanga Lucina | Ejinga LC | | Lucina |
| 11 | ERINA OJUGU | Abangi LC | 11 | |
| 12 | KATUSABE ROBERT | Abangi LC | 0774852227 | Robert |
| 13 | ALISAMA - FELIC | ABANGI | 11 | Felic |
| 14 | Tibita David | Abangi LC | 0777046286 | David |
| 15 | OLEMA - PITIA | ABANGI E. | 11 | Pitia |
| 16 | Madiya. Fufu | EJINGA | 11 | Madiya |
| 17 | ADRABI ZAI | Abangi | 11 | Zai |
| 18 | GUMUSHINE FRED | Abangi | 0781409378 | Fred |
| 19 | ONEGA SIMILE | Kabangi | 077508089 | Simile |
| 20 | AFIDRA STEPHEN | EJINGA | 0787341030 | Stephen |
| 21 | ONDIZ SAMUEL | EJINGA | | Samuel |
| 22 | BAGUMA HENRY | EJINGA | | Henry |
| 23 | KONGU JOHN | EJINGA | | John |
| 24 | AFIDRA MOSES | ABANGI | | Moses |
| 25 | ONGEY - CLAVER | ABANGI | 0771317082 | Claver |
| 26 | OBIOKU KILSON | EJINGA | | Kilson |
| 27 | ALIO YONIA | EJINGA | 078517220 | Yonia |

ESIA AND RAP STUDY UPDATES FOR THE HOIMA-KINYARA TRANSMISSION LINE IN

28th June 2016

HOIMA & MASINDI DISTRICT

Enjinga, Abangi and
onini villages

List of Persons/Institutions consulted

| No | Name | Village/Designation | Tel Contact | Signature |
|----|------------------|---------------------|-------------|--------------------|
| 1 | Sebowa David | Ejinga | 07 | <i>[Signature]</i> |
| 2 | ANDRIORI GREGSON | EJINGA | 0781251990 | <i>[Signature]</i> |
| 3 | | | | |
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ESIA AND RAP STUDY UPDATES FOR THE HOIMA-KINYARA TRANSMISSION LINE IN

28th
June 2016HOIMA & MASINDI DISTRICT Bineneza, Kimanya II and
Rwempisi Villages

| No | Name | Village/Designation | Tel Contact | Signature |
|----|-----------------------|--------------------------------|-------------|------------|
| 1 | ANGUZU SIMON | RWEMPISI | 0782882686 | Simon |
| 2 | KYALIGOLZA PATRICK | KIMANYA I | 0775302121 | Kyaligolza |
| 3 | AMARUSWE JOHN BOSCO | BINENEZA KIMANYA | 077240759 | Amaruswe |
| 4 | EMBATI SETO WILSON | BINENEZA | 0772463727 | Embat |
| 5 | WATHUM LINO | Nyautongi | 0785814668 | Wathum |
| 6 | WATHUM ABEL SOHU | BINENEZA | 0777429172 | Wathum |
| 7 | OBANGI STEPHEN | KIMANYA | 0785383272 | Obangi |
| 8 | VACANOT YONEMA | KIMANYA II | 0777418712 | Vacanot |
| 9 | ADOMATI YAICOSA | RWEMPISI | 0778047618 | Adomati |
| 10 | AZIKU VICTORIA | Rwempisi | 0784630177 | Aziku |
| 11 | WANICHAN CHARLES TOKA | BINENEZA | 077284662 | Wanichan |
| 12 | MAWA GIBSON | RWEMPISI | - - | Mawa |
| 13 | REV. JUDAH EZAMA | KIMANYA | 0785453400 | Judah |
| 14 | AMANYO | JOSHUA K. II | - - | Amano |
| 15 | NADUTALI OBAYRE | KIMANYA II | - - - | Nadutali |
| 16 | BOYBA DANIEL | KIMANYA I | 0775469490 | Boyba |
| 17 | AGUPIO GASTO | BINENEZA | 0772-186785 | Agupio |
| 18 | ALINAITWE BOSCO | KIMANYA | 0779718505 | Alinaitwe |
| 19 | OKUJO SAMUEL | RWEMPISI | 0773592841 | Okujo |
| 20 | ANDOMA SAMUEL | RWEMPISI | 0786762836 | Andoma |
| 21 | OTIKIONZI JOFASI | Rwempisi | - | Otikionzi |
| 22 | Nyamusa Benoni | Kimanya II | 0787782993 | Nyamusa |
| 23 | APELE ACEEL | BENENEZA | - - - | Apele |
| 24 | OSAMA ALIZI | BENEZA | 11 11 11 | OSAMA |
| 25 | OVUA MARTIN | KIMANYA II | 0784844937 | Ovua |
| 26 | RUBENI MAYA | RWEMPISI | 11 11 11 | RUBENI |
| 27 | ANDAMU STEPHEN | Rwempisi | 0778985051 | Andamu |

ESIA AND RAP STUDY UPDATES FOR THE HOIMA-KINYARA TRANSMISSION LINE IN

28th June 2016HOIMA & MASINDI DISTRICT Binuuz, Kimanya II and
List of Persons/Institutions consulted Rwempisi villages

| No | Name | Village/Designation | Tel Contact | Signature |
|----|-----------------|---------------------|-------------|--------------|
| 1 | ACIDI FRANCIS | KIMANYA II | 0779044874 | Francis |
| 2 | JAMIS - ODIA | BENENEZA | .. | Jamis |
| 3 | PASKALI - ODIA | BENENEZA | .. | Paskali |
| 4 | OKOBOA NATAL | BENENEZA | 0777201484 | Okoboa |
| 5 | MALIO GINO | KIMANYA | 0789755671 | Malio |
| 6 | FINASA EZATI | BENENEZA | 0754421910 | FINASA |
| 7 | BILETTIY. MOSES | KIMANYA II | .. | Biletti |
| 8 | GARD DEO | KIMANYA II | 0773466881 | Gard |
| 9 | SEMBAZI NERSON | KIMANYA II | 0788204786 | Sembazi |
| 10 | MADIRAZI ELI | KIMANYA II | 0775062041 | ELI |
| 11 | URATA CHRISIO | BENENEZA | .. | Urata |
| 12 | OLUMU MALOHI | BENENEZA | .. | olumu malohi |
| 13 | WAKUDI BISENSIO | KIMANYA J | 0786660532 | Wakudi |
| 14 | OLWORA TITO | BENENEZA | .. | Olwora |
| 15 | OYUKUTU | ETIEN | 0781276881 | Oyuku |
| 16 | WANDOKI | PATUKI | .. | Wandoki |
| 17 | Ogen JACKSON | BENENEZA | 0779817298 | Ogen |
| 18 | ALLID SUNBAM | KIMANYA II | 0782882525 | Allid |
| 19 | AFETI PEREZI | Rwempisi | 0779799032 | Afeti |
| 20 | ODAMA KENNEDY | Rwempisi | 0781917517 | Odama |
| 21 | ODONGI ALI | KIMANYA | 0781276489 | Odongi |
| 22 | ADRIKO CHARLES | RWEMPISI | 0782925828 | Adriko |
| 23 | ANGUYO AMOS | RWEMPISI | .. | Anguyo |
| 24 | RIAVIRO YOSITO | Rwempisi | 077620836 | Riaviro |
| 25 | EJUA ESAMU | Rwempisi | .. | Ejua |
| 26 | Muhumza Edward | Kimanya | 0772974758 | Muhumza |
| 27 | ABRAHMA A | .. | 0779477410 | Abraham |



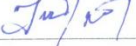


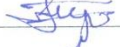


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ESIA AND RAP STUDY UPDATES FOR THE HOIMA-KINYARA TRANSMISSION LINE IN

28 June 2016

HOIMA & MASINDI DISTRICT Bineneza, Kimanya II and

List of Persons/Institutions consulted Rwempisi Villages

| No | Name | Village/Designation | Tel Contact | Signature |
|----|-------------------|---------------------|-------------|---|
| 1 | JANE EZUMA | KIMANYA | 072398396 |  |
| 2 | NYENDWOTA KENNETH | CHAMUNDA LC 3 | 0772429028 |  |
| 3 | OMAR FAZIL | KABANGO | 0755482930 |  |
| 4 | ENDREKU ROBINSON | KIMANYA II | 0787882193 |  |
| 5 | ADDALE LAWRENCE | Kimanya II | 0795472425 |  |
| 6 | EBELLE DAVID | Kimanya II | 0774548335 |  |
| 7 | AUTIA EMMA | KIMANYA II | 0772661867 |  |
| 8 | TUMUSIIME Alfred | EIA/RAP Consultant | 0782335405 |  |
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Annex 3 (a): Surveyed waypoints along Hoima-Kinyara transmission line

| Corner point | Ground-thruthed Waypoint | Village/Location | Easting (UTM 36N) | Northing | Altitude (masl) |
|--------------|--------------------------|-----------------------|-------------------|----------|-----------------|
| HK301 | 492 | Bulemwa | 313945 | 163694 | 1112 |
| HK302 | 493 | Bulemwa | 314249 | 164166 | 1120 |
| | 494 | | 315615 | 166356 | 1141 |
| | 495 | | 315853 | 169106 | 1107 |
| | 496 | | 315071 | 170598 | 1111 |
| HK303 | 497 | Mpunda | 313890 | 171014 | 1096 |
| | 498 | | 314157 | 172265 | 1106 |
| | 499 | | 314314 | 172738 | 1080 |
| | 500 | | 315444 | 173934 | 1090 |
| | 501 | | 315407 | 175143 | 1077 |
| | 502 | | 315414 | 175151 | 1077 |
| HK304 | 503 | Kigomba | 315419 | 175187 | 1099 |
| | 504 | | 318994 | 180254 | 1023 |
| HK305 | 505 | Enjinga | 321100 | 178448 | 1047 |
| | 506 | | 324833 | 180035 | 1115 |
| | 507 | | 334163 | 177252 | 1141 |
| HK306 | 508 | Rwempisi | 334942 | 176712 | 1124 |
| HK307 | 509 | Kingocampa | 342478 | 179892 | 1073 |
| | 510 | | 343271 | 179702 | 1079 |
| HK308 | 511 | Kinyara Sugar Factory | 345085 | 180791 | 1100 |

Annex 3 (b): List of Plant Species encountered in the project area

| Way points | Family | Species | Authority | Life Form | IUCN | Habitat Description |
|--------------|---------------|--------------------------------|--------------------------|-----------|------|---------------------|
| 36 N 0313835 | Poaceae | <i>Panicum maxima</i> | | Grasses | NE | woodlot |
| UTM 0163738 | Poaceae | <i>Melinis repens</i> | (Willd) Zizka | Grasses | NE | woodlot |
| | Poaceae | <i>Digitalia sp.</i> | | Grasses | NE | woodlot |
| | Amaranthaceae | <i>Alternanthera pungens</i> | | Herbs | | |
| | Amaranthaceae | <i>Amaranthus spinosa</i> | | Herbs | | |
| | Poaceae | <i>Cyndon dactylon (L.)</i> | (L.) Pers | Grasses | NE | |
| | Poaceae | <i>Panicum antrosanguineum</i> | A. Rich | Grasses | NE | |
| | Poaceae | <i>Sporobolus africanus</i> | (Poir.) Robyns & Tourney | Grasses | NE | |
| | Anacardiaceae | <i>Mangifera indica</i> | L | Tree | NE | |
| | Poaceae | <i>Paspalum conjugatum</i> | P.J. Bergius | Grasses | NE | |
| | Myrtaceae | <i>Eucalyptus grandis</i> | W.Hill ex Maiden | Tree | NE | |
| | Commelinaceae | <i>Commelina Africana</i> | L | Herb | NE | |
| | Asteraceae | <i>Conyza floribunda</i> | Kunth | Herb | NE | |
| | Poaceae | <i>Digitaria velutina</i> | (Forssk.) P. Beauv | Grasses | NE | |
| | Poaceae | <i>Eleusine indica</i> | (L.) Gaertn. | Grasses | NE | |
| | Poaceae | <i>Brachiaria comate</i> | A. Rich | Grasses | NE | |
| | Poaceae | <i>Brachiaria decumbens</i> | Stapf | Grasses | NE | |
| | Rhamnaceae | <i>Maesopsis eminii</i> | Engl. | Tree | NE | |
| | Lamiaceae | <i>Tectonia grandis</i> | L.F | Tree | NE | |
| | Fabaceae | <i>Cassia grandis</i> | L | Tree | NE | |
| | Myrtaceae | <i>Psidium guajava</i> | L. | Tree | NE | |
| | Amaranthaceae | <i>Alternanthera pungens</i> | Kunth | creeper | NE | |

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|--------------|---------------|--------------------------------|-----------------------|---------|----|--------------------|
| | Euphorbiaceae | <i>Euphorbia hirta</i> | L. | herb | NE | |
| | Asteraceae | <i>Bidens pilosa</i> | L | Herb | NE | |
| | Verbenaceae | <i>Lantana camara</i> | L | Shrub | NE | |
| | Fabaceae | <i>Senna spectabilis</i> | (DC.) Irwin & Barneby | Tree | NE | |
| 36 N 0313923 | Fabaceae | <i>Albizia grandibracteata</i> | Taub | Tree | NE | Fallow land, trees |
| UTM 0163702 | Rutaceae | <i>Teclea nobilis</i> | Del | Tree | NE | |
| | Myrtaceae | <i>Psidium guajava</i> | L. | Tree | NE | |
| | Asteraceae | <i>Vernonia amygdalina</i> | Delile | Tree | NE | |
| | Euphorbiaceae | <i>Acalypha crenata</i> | A. Rich. | herb | NE | |
| | Mimosaceae | <i>Albizia coriaria</i> | Oliv. | tree | NE | |
| | Fabaceae | <i>Acacia hockii</i> | | Tree | NE | |
| | Poaceae | <i>Imperata cylindrica</i> | (L.) Raeusch. | Grasses | NE | |
| | Poaceae | <i>Panicum maximum</i> | Jacq. | Grasses | NE | |
| | Asteraceae | <i>Conyza floribunda</i> | Kunth | Herb | NE | |
| | Verbenaceae | <i>Lantana camara</i> | L | Shrub | NE | |
| | Commelinaceae | <i>Commelina africana</i> | L | Herb | NE | |
| | Commelinaceae | <i>Commelina beghalensis</i> | L | Herb | NE | |
| | Combretaceae | <i>Combretum molle</i> | | Tree | NE | |
| | Combretaceae | <i>Terminalia glaucescens</i> | | Tree | NE | |
| | Euphorbiaceae | <i>Flueggea virosa</i> | (Willd.) Voigt | Shrub | NE | |
| | Cyperaceae | <i>Cyperus distans</i> | L. f. | Sedge | NE | |
| | Cyperaceae | <i>Cyperus rotundus</i> | L | Sedge | NE | |
| | Fabaceae | <i>Desmodium setigerum</i> | (E. Meyer.) Benth | Herb | NE | |
| | Fabaceae | <i>Desmodium triflorum</i> | (L) DC | Herb | NE | |
| | Bignoniaceae | <i>Markhamia lutea</i> | (Denth.) K. Schum | Tree | NE | |

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|--------------|------------------|--------------------------------|--------------------|---------|----|-------------------------------|
| | Bignoniaceae | <i>Spathodea campanulata</i> | P. Beauv. | Tree | NE | |
| | Fabaceae | <i>Ocimum gratissimum</i> | L. | Shrub | NE | |
| | Anacardiaceae | <i>Mangifera indica</i> | L. | Tree | NE | |
| | Combretaceae | <i>Terminalia schimperiana</i> | Hochst. | Tree | | |
| | Apocynaceae | <i>Tabernaemontana holstii</i> | | Tree | | |
| | Moraceae | <i>Ficus asperiyolia</i> | | Shrub | | |
| | Asteraceae | <i>Vernonia sp.</i> | | Shrub | | |
| | Verbenaceae | <i>Lantana camara</i> | L. | Shrub | | |
| | Amaranthaceae | <i>Alternanthera pungens</i> | Kunth | creeper | | |
| | Combretaceae | <i>Terminalia browni</i> | Hochst. | Tree | | |
| | Poaceae | <i>Sporobolus pyramidalis</i> | P. Beauv | Grasses | | |
| | Poaceae | <i>Digitaria abyssinica</i> | (A. Rich) Stapf | Grasses | | |
| | Poaceae | <i>Digitaria longiflora</i> | (Retz) Pers | Grasses | | |
| | Poaceae | <i>Digitaria velutina</i> | (Forssk.) P. Beauv | Grasses | | |
| 36 N 0313946 | Commelinaceae | <i>Commelina beghalensis</i> | L. | Herb | | Marshland with seasonal River |
| UTM 0163750 | Plantaginaceae | <i>Callitriche oreophilla</i> | Schotsman | Herb | | |
| | Convolvulaceae | <i>Ipomoea aquatic</i> | Forssk. | Herb | | |
| | Onagraceae | <i>Ludwigia abyssinica</i> | A. Rich. | Herb | | |
| | Onagraceae | <i>Ludwigia adscendens</i> | ssp. | Herb | | |
| | Amaranthaceae | <i>Alternanthera sessilis</i> | (L.) | Herb | | |
| | Thelypteridaceae | <i>Cyclosorus interruptus</i> | (Wild) | Fern | | |
| | Cyperaceae | <i>Cyperus denudatus</i> | L. | Sedge | | |
| | Cyperaceae | <i>Cyperus latifolious</i> | Pior. | Sedge | | |
| | Onagraceae | <i>Epilobium hirsutum</i> | L. | Herb | | |

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|--------------|---------------|-------------------------------------|-----------------------|---------|----|-----------|
| | Typhaceae | <i>Typha domingensis</i> | Pers. | Sedge | | |
| | Apiaceae | <i>Centella asiatica</i> | L. | Herb | | |
| | Poaceae | <i>Digitalia sp.</i> | | Grasses | | |
| | Poaceae | <i>Melinis repens</i> | | Grasses | | |
| | Rutaceae | <i>Clausena aristata</i> | | Shrub | | |
| | Fabaceae | <i>Abrus canescens</i> | | Climber | | |
| | Fabaceae | <i>Abrus precautorius</i> | | Climber | | |
| | Sapindaceae | <i>Blighia unijugata</i> | | Tree | | |
| | Costaceae | <i>Costus sp.</i> | | | | |
| | Moraceae | <i>Ficus asperifolia</i> | Miq | Shrub | NE | |
| 36 N 0314276 | Anacardiaceae | <i>Mangifera indica</i> | L | Tree | NE | Farmlands |
| UTM 0164191 | Moraceae | <i>Artocarpus heterophyllus</i> | Lam | Tree | NE | |
| | Bignoniaceae | <i>Markhamia lutea</i> | (Denth.) K. Schum | Tree | NE | |
| | Fabaceae | <i>Senna spectabilis</i> | (DC.) Irwin & Barneby | Tree | NE | |
| | Rhamnaceae | <i>Maesopsis eminii</i> | Engl. | Tree | NE | |
| | Myrtaceae | <i>Eucalyptus grandis</i> | W.Hill ex Maiden | Tree | NE | |
| | Cupressaceae | <i>Thuja occidentalis</i> | L. | Tree | NE | |
| | Moraceae | <i>Ficus ovata</i> | Vahl | Tree | NE | |
| | Asteraceae | <i>Ageratum conyzoides</i> | L | Herb | NE | |
| | Fabaceae | <i>Alysicarpus rugosus</i> | (Willd.) DC | Herb | NE | |
| | Asteraceae | <i>Aspilia kotschyii</i> | Oliver | Herb | NE | |
| | Asteraceae | <i>Bidens pilosa</i> | L | Herb | NE | |
| | Fabaceae | <i>Cassia mimosoides</i> | L | Herb | NE | |
| | Fabaceae | <i>Cassia occidentalis</i> | L | Herb | NE | |
| | Fabaceae | <i>Chamaecrista mimosoides</i> | (L.) Greene | Herb | NE | |
| | Liliaceae | <i>Chlorophytum blepharophyllum</i> | Schweinf. Ex Baker | Herb | NE | |

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|--------------|---------------|-------------------------------|----------------------|-------|----|-----------------------|
| | Asteraceae | <i>Chrysanthellum indicum</i> | DC | Herb | NE | |
| | Commelinaceae | <i>Commelina africana</i> | L | Herb | NE | |
| | Commelinaceae | <i>Commelina beghalensis</i> | L | Herb | NE | |
| | Asteraceae | <i>Conyza floribunda</i> | Kunth | Herb | NE | |
| | Asteraceae | <i>Conyza sumatrensis</i> | (Retz.) E. H. Walker | Herb | NE | |
| | Fabaceae | <i>Crotalaria spinosa</i> | Hochst. Ex Benth | Herb | NE | |
| | Fabaceae | <i>Desmodium setigerum</i> | (E. Meyer.) Benth | Herb | NE | |
| | Acanthaceae | <i>Dyschoriste radicans</i> | Nees | Herb | NE | |
| 36 N 0315606 | | | | | | Eucalyptus plantation |
| UTM 0166348 | | | | | | |
| | | | | | | |
| 36 N 0315854 | Fabaceae | <i>Abrus canescens</i> | Welw. ex Baker: | Shrub | NE | Riverine vegetation, |
| UTM 0169113 | Fabaceae | <i>Albizia sp.</i> | | Shrub | | |
| | | | | | | |
| | Euphorbiaceae | <i>Alchornea cordifolia</i> | Schum. & Thonn. | Shrub | NE | |
| | Euphorbiaceae | <i>Alchornea sp.</i> | | Shrub | | |
| | Sapindaceae | <i>Allophylus abyssinicus</i> | Hochst. | Shrub | NE | |
| | Sapindaceae | <i>Blighia unijugata</i> | Bak. | Shrub | NE | |
| | Euphorbiaceae | <i>Bridelia micrantha</i> | (Hochst.) Baill. | Shrub | NE | |
| | Vitaceae | <i>Cissus rotundifolia</i> | (Forsk.) Vahl | Shrub | NE | |
| | Rutaceae | <i>Clausena aristata</i> | | Shrub | NE | |
| | Combretaceae | <i>Combretum sp.</i> | | Shrub | | |
| | Costaceae | <i>Costus sp.</i> | | Shrub | | |
| | Poaceae | <i>Digitalia sp.</i> | | Grass | | |
| | Moraceae | <i>Ficus asperifolia</i> | | Shrub | | |

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|--------------|----------------|----------------------------------|-----------------------------|-------|----|---------------------|
| | Fabaceae | <i>Indigofera arrecta</i> | Hochst. ex A. Rich. | Shrub | NE | |
| | Myrsinaceae | <i>Maesa lanceolata</i> | Forssk. | Shrub | NE | |
| | Marantaceae | <i>Marantochloa micrantha</i> | | Shrub | NE | |
| | Poaceae | <i>Melinis repens</i> | (Willd.) Zizka | Grass | NE | |
| | Convolvulaceae | <i>Merrenia sp.</i> | | Shrub | | |
| | Moraceae | <i>Myrianthus arboreus</i> | Beauv. | Tree | NE | |
| 36 N 0315849 | Sapindaceae | <i>Paulinia pinnata</i> | L. | Herb | NE | Regenerating forest |
| UTM 0169056 | Sapindaceae | <i>Pseudospondias macrocarpa</i> | | Tree | NE | |
| | Rubiaceae | <i>Rothmannia urcelliformis</i> | (Hiern) Bullock ex Robyns | Shrub | NE | |
| | Rosaceae | <i>Rubus apetalus</i> | Poir. | Shrub | NE | |
| | Solanaceae | <i>Solanum mauritiana</i> | | Shrub | NE | |
| | Poaceae | <i>Sporobolus pyramidalis</i> | P.Beauv. | Grass | NE | |
| | Mynaceae | <i>Syzygium guineense</i> | (Willd.) DC. | Tree | NE | |
| | Apocynaceae | <i>Tabernaemontana holstii</i> | K. Schum. | tree | NE | |
| | Poaceae | <i>Brachiaria brizantha</i> | (Hochst. Ex A. Rich.) Stapf | Grass | NE | |
| | Poaceae | <i>Brachiaria comate</i> | A. Rich | Grass | NE | |
| | Poaceae | <i>Brachiaria documbens</i> | Stapf | Grass | NE | |
| | Poaceae | <i>Chloris gayana</i> | Kunth | Grass | NE | |
| | Poaceae | <i>Chloris pycnothrix</i> | Trin | Grass | NE | |
| | Poaceae | <i>Cynodon dactylon</i> | (L.) Pers | Grass | NE | |
| | Poaceae | <i>Dactyloctenium aegyptium</i> | (L.) Beauv | Grass | NE | |
| | Poaceae | <i>Digitaria abyssinica</i> | (A. Rich) Stapf | Grass | NE | |
| | Poaceae | <i>Digitaria longiflora</i> | (Retz) Pers | Grass | NE | |
| | Poaceae | <i>Digitaria velutina</i> | (Forssk.) P. Beauv | Grass | NE | |
| | Poaceae | <i>Eragrostes racemosa</i> | (Thunb.) Steudel | Grass | NE | |

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|--------------|----------------|--------------------------------|--------------------|-------|----|------------------------|
| | Poaceae | <i>Eragrostis aspera</i> | (Jacq.) Nees | Grass | NE | |
| | Poaceae | <i>Eragrostis ciliaris</i> | (L.) R. Br. | Grass | NE | |
| | Poaceae | <i>Eragrostis sp</i> | | Grass | NE | |
| | Poaceae | <i>Eragrostis tenuifolia</i> | (A. Rich) Steud | Grass | NE | |
| | Poaceae | <i>Hyparrhenia filipendula</i> | BOULOS, | Grass | NE | |
| | Poaceae | <i>Imperata cylindrical</i> | (L.) Rauschel | Grass | NE | |
| | Poaceae | <i>Leersia haxandra</i> | Sw | Grass | NE | |
| | Capparaceae | <i>Crateva adansonii</i> | L | Tree | NE | |
| 36 N 0315072 | Capparaceae | <i>Crateva adansonii</i> | L | Tree | NE | Farmlands and thickets |
| UTM 0170599 | Poaceae | <i>Hyparrhenia filipendula</i> | BOULOS, | Grass | NE | |
| | Poaceae | <i>Imperata cylindrical</i> | (L.) Rauschel | Grass | NE | |
| | Poaceae | <i>Digitaria velutina</i> | (Forssk.) P. Beauv | Grass | NE | |
| | Fabaceae | <i>Albizia sp.</i> | | Shrub | | |
| | Bignoniaceae | <i>Markhamia lutea</i> | (Denth.) K. Schum | Tree | NE | |
| | Bignoniaceae | <i>Spathodea campanulata</i> | P. Beauv. | Tree | NE | |
| | Commelinaceae | <i>Commelina beghalensis</i> | L | Herb | | |
| | Euphorbiaceae | <i>Euphorbia hirta</i> | L. | herb | NE | |
| | Asteraceae | <i>Bidens pilosa</i> | L | Herb | NE | |
| | Verbenaceae | <i>Lantana camara</i> | L | Shrub | NE | |
| 36 N 0313917 | | | | | | Farmlands |
| UTM 0170993 | | | | | | |
| | | | | | | |
| 36 N 0314152 | Commelinaceae | <i>Commelina beghalensis</i> | L | Herb | NE | Riverine forest |
| UTM 0172271 | Plantaginaceae | <i>Callitriche oreophilla</i> | Schotsman | Herb | NE | |

| | | | | | | |
|--|------------------|-------------------------------------|-----------------------|---------|----|--|
| | Convolvulaceae | <i>Ipomoea aquatic</i> | Forssk. | Herb | NE | |
| | Onagraceae | <i>Ludwigia abyssinica</i> | A. Rich. | Herb | NE | |
| | Onagraceae | <i>Ludwigia adscendens</i> | ssp. | Herb | NE | |
| | Amaranthaceae | <i>Alternanthera sessilis</i> | (L.) | Herb | NE | |
| | Thelypteridaceae | <i>Cyclosorus interruptus</i> | (Wild) | Fern | NE | |
| | Cyperaceae | <i>Cyperus denudatus</i> | L. | Sedge | NE | |
| | Cyperaceae | <i>Cyperus latifolius</i> | Pior. | Sedge | NE | |
| | Onagraceae | <i>Epilobium hirsutum</i> | L. | Herb | NE | |
| | Typhaceae | <i>Typha domingensis</i> | Pers. | Sedge | NE | |
| | Apiaceae | <i>Centella asiatica</i> | L. | Herb | NE | |
| | Poaceae | <i>Digitalia sp.</i> | | Grasses | | |
| | Poaceae | <i>Melinis repens</i> | | Grasses | NE | |
| | Rutaceae | <i>Clausena aristata</i> | | Shrub | NE | |
| | Fabaceae | <i>Abrus canescens</i> | | Climber | NE | |
| | Fabaceae | <i>Abrus precautorius</i> | | Climber | NE | |
| | Sapindaceae | <i>Blighia unijugata</i> | | Tree | NE | |
| | Costaceae | <i>Costus sp.</i> | | | | |
| | Moraceae | <i>Ficus asperifolia</i> | Miq | Shrub | NE | |
| | Fabaceae | <i>Senna spectabilis</i> | (DC.) Irwin & Barneby | Tree | NE | |
| | Myrtaceae | <i>Eucalyptus grandis</i> | W.Hill ex Maiden | Tree | NE | |
| | Moraceae | <i>Ficus ovata</i> | Vahl | Tree | NE | |
| | Asteraceae | <i>Ageratum conyzoides</i> | L | Herb | NE | |
| | Fabaceae | <i>Alysicarpus rugosus</i> | (Willd.) DC | Herb | NE | |
| | Asteraceae | <i>Bidens pilosa</i> | L | Herb | NE | |
| | Fabaceae | <i>Cassia occidentalis</i> | L | Herb | NE | |
| | Liliaceae | <i>Chlorophytum blepharophyllum</i> | Schweinf. Ex Baker | Herb | NE | |

| | | | | | | |
|--------------|----------------|--------------------------------|----------------------|---------|----|-----------------------|
| | Asteraceae | <i>Chrysanthellum indicum</i> | DC | Herb | NE | |
| | Commelinaceae | <i>Commelina africana</i> | L | Herb | NE | |
| | Asteraceae | <i>Conyza floribunda</i> | Kunth | Herb | NE | |
| | Asteraceae | <i>Conyza sumatrensis</i> | (Retz.) E. H. Walker | Herb | NE | |
| | Arecaceae | <i>Phoenix reclinata</i> | Jacq. | Shrub | NE | |
| | Fabaceae | <i>Crotalaria spinosa</i> | Hochst. Ex Benth | Herb | NE | |
| 36 N 0314419 | Poaceae | <i>Digitalia sp.</i> | | Grasses | | Farmlands |
| UTM 0173034 | Poaceae | <i>Melinis repens</i> | | Grasses | NE | |
| | Poaceae | <i>Hyparrhenia filipendula</i> | BOULOS, | Grass | NE | |
| | Poaceae | <i>Imperata cylindrical</i> | (L.) Raeuschel | Grass | NE | |
| | Poaceae | <i>Digitaria velutina</i> | (Forssk.) P. Beauv | Grass | NE | |
| 36 N 0315444 | Cyperaceae | <i>Cyperus cyperoides</i> | | Sedge | LC | papyrus wetland |
| UTM 0173937 | Cyperaceae | <i>Kyllinga bulbosa</i> | | Sedge | LC | |
| | Cyperaceae | <i>Abildgaardia ovata</i> | (Burm.f.) Kral | Sedge | NE | |
| | Cyperaceae | <i>Cyperus distans</i> | | Sedge | NE | |
| | Cyperaceae | <i>Cyperus latifolius</i> | Poir. | Sedge | NE | |
| | Cyperaceae | <i>Kyllinga bulbosa</i> | | Sedge | NE | |
| | Typhaceae | <i>Typha capensis</i> | | Sedge | NE | |
| | Polygonaceae | <i>Polygonum sp</i> | | Forb | | |
| | Commelinaceae | <i>Commelina benghalensis</i> | L. | Forb | | |
| | Phyllanthaceae | <i>Bridelia micrantha</i> | (Hochst.) Baill | Shrub | | |
| | Convolvulaceae | <i>Ipomea cairica</i> | L. | Climber | | |
| | Cyperaceae | <i>Cyperus papyrus</i> | L. | Sedge | | |
| | | | | | | Sugarcane plantations |
| | Fabaceae | <i>Sesbania sesban</i> | L. | Shrub | | |

| | | | | | | |
|--------------|----------------|---------------------------------|-----------------------------|---------|----|---------|
| | Menispermaceae | <i>Stephania abyssinica</i> | (Quart.-Dill. & A.Rich.) | Climber | | |
| | Poaceae | <i>Leersia hexandra</i> | Sw. | Grass | | |
| | Onagraceae | <i>Ludwigia abyssinica</i> | A.Rich. | Herb | | |
| | Euphorbiaceae | <i>Macaranga schweinfurthii</i> | | shrub | | |
| | Poaceae | <i>Brachiaria decumbens</i> | | Grass | | |
| | Sterculiaceae | <i>Waltheria indica</i> | L. | shrub | | |
| | Arecaceae | <i>Phoenix reclinata</i> | Jacq. | tree | | |
| | Fabaceae | <i>Erythrina abyssinica</i> | DC. | Shrub | LC | |
| 36 N 0315413 | Poaceae | <i>Panicum maximum</i> | Jacq. | Grasses | NE | Wetland |
| UTM 0175144 | Myrtaceae | <i>Eucalyptus grandis</i> | W.Hill ex Maiden | Tree | NE | |
| | Arecaceae | <i>Phoenix reclinata</i> | Jacq. | tree | | |
| | Cyperaceae | <i>Cyperus papyrus</i> | L. | Sedge | | |
| | Fabaceae | <i>Mimosa pigra</i> | L. | Shrub | NE | |
| | Fabaceae | <i>Acacia hockii</i> | De Wild | Tree | | |
| | Fabaceae | <i>Acacia polyacantha</i> | Willd. | Tree | | |
| | Poaceae | <i>Bothrochloa insculpta</i> | (Hochst ex A.Rich) A. Camus | Grass | | |
| | Poaceae | <i>Brachiaria brizantha</i> | (Hochst. Ex A. Rich.) Stapf | Grass | | |
| | Poaceae | <i>Brachiaria comate</i> | A. Rich | Grass | | |
| | Poaceae | <i>Brachiaria documbens</i> | Stapf | Grass | | |
| | Poaceae | <i>Cynodon dactylon</i> | (L.) Pers | Grass | | |
| | Poaceae | <i>Dactyloctenium aegyptium</i> | (L.) Beauv | Grass | | |
| | Poaceae | <i>Digitaria abyssinica</i> | (A. Rich) Stapf | Grass | | |
| | Poaceae | <i>Digitaria longiflora</i> | (Retz) Pers | Grass | | |
| | Poaceae | <i>Digitaria velutina</i> | (Forssk.) P. Beauv | Grass | | |
| | Poaceae | <i>Eragrostes racemosa</i> | (Thunb.) Steudel | Grass | | |
| | Poaceae | <i>Eragrostis sp</i> | | Grass | | |

| | | | | | | |
|--------------|---------------|---------------------------------|-----------------------------|-------|----|----------------|
| | Poaceae | <i>Eragrostis tenuifolia</i> | (A. Rich) Steud | Grass | | |
| | Poaceae | <i>Hyparrhenia filipendula</i> | BOULOS, | Grass | | |
| | Poaceae | <i>Imperata cylindrical</i> | (L.) Raeuschel | Grass | | |
| | Poaceae | <i>Leersia haxandra</i> | Sw | Grass | | |
| | Poaceae | <i>Melinis repens</i> | (Willd) Zizka | Grass | | |
| | Poaceae | <i>Paspalum scrobiculatum</i> | L | Grass | | |
| | Poaceae | <i>Pennisetum polystachion</i> | | Grass | | |
| | Poaceae | <i>Perotis patens</i> | Gandoger | Grass | | |
| | Portulacaceae | <i>Portulacca oleracea</i> | | | | |
| | Poaceae | <i>Setaria kagerensis</i> | Mez | Grass | | |
| | Poaceae | <i>Setaria sphacelata</i> | (Schumann) Moss | Grass | | |
| | Poaceae | <i>Urochloa panicoides</i> | P. Beauv | Grass | | |
| | Moraceae | <i>Artocarpus heterophyllus</i> | Lam | Tree | NE | |
| | Rhamnaceae | <i>Maesopsis eminii</i> | Engl. | Tree | NE | |
| | Bignoniaceae | <i>Stereospermum kunthianum</i> | Cham | Tree | | |
| | Anacardiaceae | <i>Mangifera indica</i> | L | Tree | NE | |
| | Fabaceae | <i>Senna spectabilis</i> | (DC.) Irwin & Barneby | Tree | NE | |
| | Fabaceae | <i>Erythrina abyssinica</i> | DC. | Shrub | LC | |
| | Moraceae | <i>Ficus sp.</i> | | Tree | | |
| 36 N 0321099 | Anacardiaceae | <i>Mangifera indica</i> | L | Tree | NE | Tobacco garden |
| UTM 0178445 | Fabaceae | <i>Senna spectabilis</i> | (DC.) Irwin & Barneby | Tree | NE | |
| | Poaceae | <i>Melinis repens</i> | (Willd) Zizka | Grass | | |
| | Moraceae | <i>Artocarpus heterophyllus</i> | Lam | Tree | NE | |
| | Poaceae | <i>Bothrochloa insculpta</i> | (Hochst ex A.Rich) A. Camus | Grass | | |
| | Poaceae | <i>Brachiaria brizantha</i> | (Hochst. Ex A. Rich.) Stapf | Grass | | |

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|--------------|--------------|--------------------------------|-----------------------|-------|----|-----------------------|
| 36 N 0324674 | | | | | | sugarcane plantation |
| UTM 0180417 | | | | | | |
| 36 N 0324674 | | | | | | Kasongoire CFR |
| UTM 0189417 | | | | | | |
| 36 N 0334170 | | | | | | sugarcane plantation |
| UTM 0177253 | | | | | | |
| 36 N 0334962 | Myrtaceae | <i>Eucalyptus grandis</i> | W.Hill ex Maiden | Tree | NE | |
| UTM 0176718 | Pinaceae | <i>Pinus oocarpa</i> | | Tree | NE | |
| | Fabaceae | <i>Senna spectabilis</i> | (DC.) Irwin & Barneby | Tree | NE | |
| 36 N 0334962 | Myrtaceae | <i>Eucalyptus grandis</i> | W.Hill ex Maiden | Tree | NE | sugarcane plantations |
| UTM 0176718 | Fabaceae | <i>Senna spectabilis</i> | (DC.) Irwin & Barneby | Tree | NE | |
| | Fabaceae | <i>Acacia hockii</i> | De Wild | Tree | | |
| | Verbenaceae | <i>Lantana camara</i> | L | Shrub | NE | |
| | Mimosaceae | <i>Albizia coriaria</i> | Oliv. | tree | NE | |
| | Myrtaceae | <i>Psidium guajava</i> | L. | Tree | NE | |
| | Asteraceae | <i>Vernonia amygdalina</i> | Delile | Tree | NE | |
| | Fabaceae | <i>Acacia sp.</i> | | Tree | | |
| | Combretaceae | <i>Combretum molle</i> | R.Br ex G. Don. | Tree | | |
| | Poaceae | <i>Eragrostis tenuifolia</i> | (A. Rich) Steud | Grass | | |
| | Poaceae | <i>Hyparrhenia filipendula</i> | BOULOS, | Grass | | |

| | | | | | | |
|--------------|------------|-------------------------------|-----------------------------|---------|----|-----------------|
| | Poaceae | <i>Imperata cylindrica</i> | (L.) Raeuschel | Grass | | |
| | Poaceae | <i>Melinis repens</i> | (Willd) Zizka | Grass | | |
| | Poaceae | <i>Paspalum scrobiculatum</i> | L | Grass | | |
| | Poaceae | <i>Panicum maximum</i> | Jacq. | Grasses | NE | |
| | Asteraceae | <i>Conyza floribunda</i> | Kunth | Herb | NE | |
| | Poaceae | <i>Digitaria velutina</i> | (Forssk.) P. Beauv | Grasses | NE | |
| | Poaceae | <i>Eleusine indica</i> | (L.) Gaertn. | Grasses | NE | |
| 36 N 0342369 | Poaceae | <i>Panicum maximum</i> | Jacq. | Grasses | NE | Papyrus wetland |
| UTM 0179857 | Myrtaceae | <i>Eucalyptus grandis</i> | W.Hill ex Maiden | Tree | NE | |
| | Arecaceae | <i>Phoenix reclinata</i> | Jacq. | tree | | |
| | Cyperaceae | <i>Cyperus papyrus</i> | L. | Sedge | | |
| | Fabaceae | <i>Mimosa pigra</i> | L. | Shrub | NE | |
| | Fabaceae | <i>Acacia hockii</i> | De Wild | Tree | | |
| | Fabaceae | <i>Acacia polyacantha</i> | Willd. | Tree | | |
| | Poaceae | <i>Bothriochloa insculpta</i> | (Hochst ex A.Rich) A. Camus | Grass | | |
| | Poaceae | <i>Brachiaria brizantha</i> | (Hochst. Ex A. Rich.) Stapf | Grass | | |
| | Poaceae | <i>Brachiaria comata</i> | A. Rich | Grass | | |
| | Cyperaceae | <i>Cyperus cyperoides</i> | | Sedge | NE | |
| | Cyperaceae | <i>Cyperus distans</i> | | Sedge | NE | |
| | Cyperaceae | <i>Cyperus latifolius</i> | Poir. | Sedge | NE | |
| | Typhaceae | <i>Typha capensis</i> | | Sedge | NE | |
| 36 N 0343247 | Arecaceae | <i>Phoenix reclinata</i> | Jacq. | tree | | Swamp forest |
| UTM 0179663 | Cyperaceae | <i>Cyperus cyperoides</i> | | Sedge | NE | |
| | Cyperaceae | <i>Cyperus distans</i> | | Sedge | NE | |
| | Cyperaceae | <i>Cyperus latifolius</i> | Poir. | Sedge | NE | |

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|--|---------------|--------------------------------|------------------|---------|----|--|
| | Typhaceae | <i>Typha sp.</i> | | Sedge | NE | |
| | Typhaceae | <i>Typha capensis</i> | | Sedge | NE | |
| | Capparaceae | <i>Crateva adansonii</i> | L | Tree | NE | |
| | Bignoniaceae | <i>Spathodea campanulata</i> | P. Beauv. | Tree | NE | |
| | Commelinaceae | <i>Commelina beghalensis</i> | L | Herb | | |
| | Lamiaceae | <i>Tectona grandis</i> | L.F | Tree | NE | |
| | Fabaceae | <i>Cassia granis</i> | L | Tree | NE | |
| | Myrtaceae | <i>Psidium guajava</i> | L. | Tree | NE | |
| | Poaceae | <i>Panicum maximum</i> | Jacq. | Grasses | NE | |
| | Myrtaceae | <i>Eucalyptus grandis</i> | W.Hill ex Maiden | Tree | NE | |
| | Fabaceae | <i>Albizia grandibracteata</i> | Taub | Tree | NE | |
| | Rutaceae | <i>Teclea nobilis</i> | Del | Tree | NE | |
| | Myrtaceae | <i>Psidium guajava</i> | L. | Tree | NE | |
| | Asteraceae | <i>Vernonia amygdalina</i> | Delile | Tree | NE | |
| | Euphorbiaceae | <i>Acalypha crenata</i> | A. Rich. | herb | NE | |
| | Mimosaceae | <i>Albizia coriaria</i> | Oliv. | tree | NE | |
| | Fabaceae | <i>Acacia hockii</i> | | Tree | NE | |
| | Poaceae | <i>Imperata cylindrica</i> | (L.) Raeusch. | Grasses | NE | |
| | Poaceae | <i>Panicum maximum</i> | Jacq. | Grasses | NE | |
| | Asteraceae | <i>Conyza floribunda</i> | Kunth | Herb | NE | |
| | Verbenaceae | <i>Lantana camara</i> | L | Shrub | NE | |
| | Commelinaceae | <i>Commelina africana</i> | L | Herb | NE | |
| | Commelinaceae | <i>Commelina beghalensis</i> | L | Herb | NE | |
| | Combretaceae | <i>Combretum molle</i> | | Tree | NE | |
| | Combretaceae | <i>Terminalia glaucescens</i> | | Tree | NE | |
| | Euphorbiaceae | <i>Flueggea virosa</i> | (Willd.) Voigt | Shrub | NE | |

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|--|---------------|--------------------------------|--------------------|---------|----|--|
| | Cyperaceae | <i>Cyperus distans</i> | L. f. | Sedge | NE | |
| | Cyperaceae | <i>Cyperus rotundus</i> | L | Sedge | NE | |
| | Fabaceae | <i>Desmodium setigerum</i> | (E. Meyer.) Benth | Herb | NE | |
| | Fabaceae | <i>Desmodium triflorum</i> | (L) DC | Herb | NE | |
| | Bignoniaceae | <i>Markhamia lutea</i> | (Denth.) K. Schum | Tree | NE | |
| | Bignoniaceae | <i>Spathodea campanulata</i> | P. Beauv. | Tree | NE | |
| | Fabaceae | <i>Ocimum gratissimum</i> | L. | Shrub | NE | |
| | Anacardiaceae | <i>Mangifera indica</i> | L | Tree | NE | |
| | Combretaceae | <i>Terminalia schimperiana</i> | Hochst. | Tree | | |
| | Apocynaceae | <i>Tabernaemontana holstii</i> | | Tree | | |
| | Moraceae | <i>Ficus asperifolia</i> | | Shrub | | |
| | Asteraceae | <i>Vernonia sp.</i> | | Shrub | | |
| | Verbenaceae | <i>Lantana camara</i> | L | Shrub | | |
| | Amaranthaceae | <i>Alternanthera pungens</i> | Kunth | creeper | | |
| | Combretaceae | <i>Terminalia browni</i> | Hochst. | Tree | | |
| | Poaceae | <i>Sporobolus pyramidalis</i> | P. Beauv | Grasses | | |
| | Poaceae | <i>Digitaria abyssinica</i> | (A. Rich) Stapf | Grasses | | |
| | Poaceae | <i>Digitaria longiflora</i> | (Retz) Pers | Grasses | | |
| | Poaceae | <i>Digitaria velutina</i> | (Forssk.) P. Beauv | Grasses | | |
| | Fabaceae | <i>Desmodium setigerum</i> | (E. Meyer.) Benth | Herb | NE | |
| | Fabaceae | <i>Desmodium triflorum</i> | (L) DC | Herb | NE | |
| | Simaroubaceae | <i>Harrisonia abyssinica</i> | Oliv | Shrub | | |
| | Anacardiaceae | <i>Rhus natalensis</i> | Bernh ex Krauss | Shrub | | |
| | Anacardiaceae | <i>Rhus vulgaris</i> | Meikle | Shrub | | |
| | Combretaceae | <i>Combretum molle</i> | | Tree | NE | |
| | Combretaceae | <i>Combretum sp.</i> | | Tree | | |

| | | | | | | |
|--------------|----------|--------------------------|--|------|--|-----------------------------|
| | Moraceae | <i>Ficus asperifolia</i> | | Tree | | |
| | Moraceae | <i>Ficus sp.</i> | | Tree | | |
| 36 N 0345088 | | | | | | Kinyara Sugar Factory |
| UTM 0180788 | | | | | | |
| | | | | | | |

Annex 4: List of Bird Species encountered in the project area

| Bird Specie | Farmland | Farmland & valley forest | Farmland & valley forest, wetland | Farmlands | Forest | Riverine forest | Riverine forest, swamp | Sugarcane | Habitat |
|---|----------|--------------------------|-----------------------------------|-----------|--------|-----------------|------------------------|-----------|---------|
| African blue Flycatcher <i>Elminia longicauda</i> | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | F |
| African Citril <i>Serinus citrinelloides</i> | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | f |
| African Crowned Eagle <i>Stephanoaetus coronatus</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | FF/VU |
| African emerald Cuckoo <i>Chrysococcyx cupreus</i> | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | F |
| African firefinch <i>L. rubricata</i> | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | O |
| Grey Parrot <i>Psittacus erithacus</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | FF/VU |
| African Harrier Hawk <i>Polyboroides typus</i> | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | f |
| African Hawk Eagle <i>Hieraaetus spilogaster</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | O |
| African mousteched Warbler <i>Melocichla mentalis</i> | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | O |
| African pygmy Kingfisher <i>Ispidina picta</i> | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | f |
| African Thrush <i>Turdus pelios</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | f |
| Ashy Flycatcher <i>Muscicapa caerulescens</i> | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | F |
| Black & white casqued Hornbill <i>Bycanistes subcylindricus</i> | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | FF |
| Black & white Mannikin <i>Lonchura bicolor</i> | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | O |
| Black Bishop <i>Euplectes gierowii</i> | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | O |
| Black crowned Waxbill <i>Estrilda nonnula</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | f |
| Black headed Weaver <i>Ploceus cucullatus</i> | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | O |
| Black necked Weaver <i>Ploceus nigricollis</i> | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | O |
| Black throated seed eater <i>Serinus atrogularis</i> | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | O |
| Blue headed Coucal <i>Centropus monachu</i> | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | W |
| Blue headed Sunbird <i>Cyanomitra alinae</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | F |

| | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|------|
| Blue spotted wood Dove <i>Turtur afer</i> | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | F |
| Broad billed Roller <i>Eurystomas glaucurus</i> | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | f |
| Bronze Mannikin <i>Lonchura cucullata</i> | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | O |
| Bronze Sunbird <i>Nectarinia kilimensi</i> | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | O |
| Brown Babbler <i>Turdoides plebejus</i> | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | O |
| Brown backed Scrub Robin <i>Cercotrichas hartlaubi</i> | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | f |
| Brown eared woodpecker <i>Campethera caroli</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | F |
| Brown snake Eagle <i>Circaetus cinereus</i> | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | R-NT |
| Buff spotted Flufftail <i>Sarothrura elegans</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | FF |
| Buff throated Apalis <i>Apalis rufogularis</i> | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | FF |
| Cape wagtail <i>Motacilla capensis</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | F |
| Chestnut Wattle eye <i>Platysteira castanea</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | F |
| Cinnamon chested Bee-eater <i>Merops oreobates</i> | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | O |
| Collared Sunbird <i>Hedydipna collaris</i> | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | F |
| Common Bulbul <i>Pycnonotus barbatus</i> | 1 | 1 | 3 | 1 | 2 | 1 | 1 | 1 | O |
| Crested Guinefowl <i>Guttera pucherani</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | F |
| Double toothed Barbet <i>Lybius bidentatus</i> | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | O |
| Dusky longtailed Cuckoo <i>Cercococcyx mechowi</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | FF |
| Eastern Grey Plantain eater <i>Crinifer zonorus</i> | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | O |
| Fire crested Alethe <i>Alethe diademata</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | FF |
| Fork tailed Drongo <i>Dicrurus adsimilis</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | F |
| Great blue Turaco <i>Corythaeola cristata</i> | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | F |
| Green headed Sunbird <i>Cyanomitra verticalis</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | F |
| Green Hylia <i>Hylia prasina</i> | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | F |
| Green throated Sunbird <i>Chalcomitra rubescens</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | F |
| Grey backed Cameroptera <i>Cameroptera brachyura</i> | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | f |
| Grey headed Negrofinch <i>Nigrita canicapilla</i> | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | F |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|------|
| Klaas' Cuckoo <i>Chrysococcyx klaas</i> | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | f |
| Laughing Dove <i>Spilopelia senegalensi</i> | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | f |
| Lead coloured Flycatcher <i>Myioparus plumbeus</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | FF |
| Lesser striped Swallow <i>Hirundo abyssinica</i> | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | O |
| Little Greenbul <i>Andropadus virens</i> | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | F |
| Little Swifts <i>Apus affinis</i> | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | O |
| Lizard Buzzard <i>Kaupifalco monogrammaticus</i> | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | F |
| Long crested Eagle <i>Lophaetus occipitalis</i> | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | F |
| Many coloured Bush shrike <i>Telophorus multicolor</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | FF |
| Marico Sunbird <i>Cyanomitra mairouensis</i> | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | O |
| Nothern Black Flycatcher <i>Melaenornis edolioides</i> | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | O |
| Olive bellied Sunbird <i>Nectarinia chloropygia</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | F |
| Olive Sunbird <i>Nectarinia olivacea</i> | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | FF |
| Pale breasted Illadopsis <i>Trichastoma rufipennis</i> | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | FF |
| Papyrus Gonolek <i>Laniarius mufumbiri</i> | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | W/NT |
| Pied Crow <i>Corvus albus</i> | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | O |
| Pin tailed Whydah <i>Vidua macroura</i> | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | O |
| Red bellied paradise Flycatcher <i>Terpsiphone rufiventer</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | F |
| Red capped Robin chat <i>Cossypha natalensis</i> | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | F |
| Red cheeked Cordon-blue <i>Uraeginthus bengalus</i> | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | O |
| Red eyed Dove <i>Streptopelia semitorquata</i> | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | f |
| Red faced Cisticola <i>Cisticola erythrops</i> | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | O |
| Red headed Bluebill <i>Spermophaga ruficapilla</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | O |
| Red shouldered Cuckoo-Shrike <i>Campephaga phoenicea</i> | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | O |
| Red tailed Bristlebill <i>Bleda syndactyla</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | O |
| Red tailed Greenbul <i>Criniger calurus</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | FF |
| Ring necked Dove <i>Streptopelia capicola</i> | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | f |

| | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|----|
| Ross' Turaco <i>Corythaeola cristata</i> | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | F |
| Ruppell's long tailed Starling <i>Lamprotornis purpuropterus</i> | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | F |
| Scaly Francolin <i>Francolinus squamatus</i> | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | F |
| Scarlet chested Sunbird <i>C. senegalensis</i> | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | f |
| Senegal Coucal <i>Centropus senegalensis</i> | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | O |
| Shikra <i>Accipiter badius</i> | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | O |
| Snowy headed Robin chat <i>Cossypha niveicapilla</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | F |
| Speckled Mousebird <i>Colius striatus</i> | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | O |
| Speckled Tinkerbird <i>Pogoniulus scolopaceus</i> | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | F |
| Spectacled weaver <i>Ploceus ocularis</i> | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | O |
| Splendid starling <i>Lamprotornis splendidus</i> | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | O |
| Striped Kingfisher <i>Halcyon chelicuti</i> | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | O |
| Superb Sunbird <i>C. superba</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | F |
| Tambourine dove <i>Turtur tympanistria</i> | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 1 | F |
| Tawny flanked Prinia <i>Prinia subflava</i> | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | O |
| Tropical Boubou <i>Laniarius aethiopicus</i> | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | O |
| Vieillot's black Weaver <i>Ploceus nigerrimus</i> | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | O |
| Village indigobird <i>Vidua chalybeata</i> | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | O |
| White browed Coucal <i>Centropus superciliosus</i> | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | O |
| White browed Robin chat <i>Cossypha heuglini</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | F |
| White headed Saw-wing <i>Psalidoprocne albiceps</i> | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | f |
| White spotted Flufftail <i>Sarothrura pulchra</i> | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | F |
| White throated Bee eater <i>Merops albicollis</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | O |
| Winding Cisticola <i>Cisticola galactotes</i> | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | O |
| Yellow bill <i>Ceuthmochares aereus</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | F |
| Yellow rumped Tinkerbird <i>Pogoniulus bilineatus</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | F |
| Yellow streaked greenbul <i>Phyllastrephus flavostriatus</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | FF |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Yellow whiskered Greenbul <i>Andropadus latirostris</i> | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | F |
| Yellow white eye <i>Zosterops senegalensis</i> | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | f |

Annex 5: List of Mammal Species encountered in the project area

| | | | | | 492 | | | | 509 |
|---------------------|------------------------|--------------------------------|----------------------------------|---------------|-------|-----|-----|-----|-------|
| Order | Family | Species | Common Name | IUCN Red list | HK301 | 495 | 499 | 500 | HK307 |
| <u>Carnivora</u> | <u>Viverridae</u> | <i>Civettictis civetta</i> | African civet | LR/lc | 1 | 1 | 1 | | |
| <u>Carnivora</u> | <u>Viverridae</u> | <i>Herpestes ichneumon</i> | Aegyptian mongoose | LR/lc | 1 | 1 | 1 | 1 | 1 |
| <u>Carnivora</u> | <u>Viverridae</u> | <i>Atilax paludinosus</i> | Marsh mongoose | LR/lc | | | | | 1 |
| <u>Carnivora</u> | <u>Viverridae</u> | <i>Mungos mungo</i> | Banded mongoose | LR/lc | 1 | 1 | | | |
| <u>Carnivora</u> | <u>Viverridae</u> | <i>Galerella sanguinea</i> | Slender mongoose | LR/lc | 1 | 1 | | | |
| Primates | Hominidae | <i>Pan troglodytes</i> | Chimpanzee | EN | 1 | 1 | 1 | | 1 |
| Primates | <u>Cercopithecidae</u> | <i>Colobus angolensis</i> | Black and White Colobus | LR/lc | | 1 | 1 | | 1 |
| Primates | <u>Cercopithecidae</u> | <i>Cercopithecus ascanius</i> | Red-tailed Monkey | LR/lc | | | | | 1 |
| Primates | <u>Cercopithecidae</u> | <i>Chlorocebus pygerythrus</i> | Vervet monkey | LR/lc | 1 | 1 | 1 | | 1 |
| Primates | <u>Cercopithecidae</u> | <i>Papio anubis</i> | Olive baboon | LR/lc | | | | | 1 |
| <u>Artiodactyla</u> | Bovidae | <i>Tragelaphus scriptus</i> | Bushback | LR/lc | | 1 | 1 | | 1 |
| <u>Artiodactyla</u> | Bovidae | <i>Sylvicapra grimmia</i> | Bush duiker | LR/lc | | | | | 1 |
| <u>Lagomorpha</u> | <u>Leporidae</u> | <i>Poelagus marjorita</i> | Bunyoro rabbit | LR/lc | | | 1 | 1 | 1 |
| Rodentia | Sciuridae | <i>Xerus rutilus</i> | <u>Unstriped ground squirrel</u> | LC | | 1 | 1 | 1 | 1 |

Where LR = Low Risk

Lc = Least Concern

EN = Endangered

Annex 6: List of Butterfly species encountered in the project area

| Species | Ecotype | HK301 | HK302 | POINT 2 | HK303 | HK304 | HK305 | HK306 | HK307 | IUCN Status |
|-------------------------------------|---------|-------|-------|---------|-------|-------|-------|-------|-------|-------------|
| Papilionidae | | | | | | | | | | |
| <i>Papilio chrapkowskoides</i> | f. | | | 1 | | | | | 1 | NE |
| <i>Papilio dardanus</i> | W | | | 1 | | | | | | NE |
| <i>Papilio demodocus</i> | M | 1 | 1 | | | 1 | 1 | 1 | | NE |
| <i>Papilio nireus</i> | f. | | | | | | | | 1 | NE |
| <i>Papilio phorcas</i> | F | | | | | | | | 1 | NE |
| Nymphalidae | | | | | | | | | | |
| <i>Acraea (Actinote) alicia</i> | W | 1 | | | | | | | | NE |
| <i>Acraea (Actinote) encedon</i> | W | | | | 1 | 1 | 1 | | | NE |
| <i>Acraea eponina</i> | W | 1 | | 1 | 1 | 1 | | 1 | | NE |
| <i>Acraea (Actinote) lycoa</i> | F | | | | | | | | 1 | NE |
| <i>Acraea (Actinote) penelope</i> | F | | | | | | | | 1 | NE |
| <i>Acraea (Actinote) perenna</i> | f. | | | | | | | | 1 | NE |
| <i>Acraea (Actinote) pharsalus</i> | f. | 1 | | | | | | | | NE |
| <i>Acraea pseudogina</i> | W | | | | | 1 | | | | NE |
| <i>Acraea (Actinote) sotikensis</i> | F | | 1 | 1 | | | | | | NE |
| <i>Amauris niavius</i> | W | | | | 1 | | | | 1 | NE |
| <i>Amauris tartarea</i> | f. | | | | | | | | 1 | NE |
| <i>Bebearia cocalia</i> | f. | | | | | | | | 1 | NE |
| <i>Bicyclus campus</i> | f. | | | | | | | | 1 | NE |
| <i>Bicyclus jefferyi</i> | f. | | | 1 | | | | | 1 | LC |
| <i>Bicyclus safitza</i> | W | 1 | | 1 | | 1 | | | 1 | NE |
| <i>Bicyclus vulgaris</i> | W | 1 | | 1 | | 1 | | | 1 | NE |
| <i>Byblia anvatarata</i> | M | | | 1 | | 1 | | | | NE |

| | | | | | | | | | | |
|-----------------------------------|----|---|---|---|---|---|---|---|---|----|
| <i>Catuna crithea</i> | F | | | | | | | | 1 | NE |
| <i>Charaxes epijasius</i> | O | | | 1 | | | | | | NE |
| <i>Charaxes tiridates</i> | FL | | | 1 | | | | | 1 | NE |
| <i>Charaxes varanes</i> | W | | | 1 | | | | | 1 | NE |
| <i>Danaus chrysippus</i> | M | 1 | 1 | | 1 | 1 | | | | NE |
| <i>Euphaedra medon</i> | F | | | | | | | | 1 | NE |
| <i>Eurytela dryope</i> | W | | | 1 | | | | | | NE |
| <i>Eurytela hiarbas</i> | f. | | | | | | | | 1 | NE |
| <i>Hamanumida daedalus</i> | W | | 1 | | | | | | | NE |
| <i>Hypolimnas misippus</i> | M | 1 | | | | | | | | NE |
| <i>Hypolimnas salmacis</i> | F | | | | | | | | 1 | NE |
| <i>Junonia chorimene</i> | O | | | | | | | | 1 | NE |
| <i>Junonia gregorii</i> | f. | | | 1 | | | | | 1 | NE |
| <i>Junonia oenone</i> | W | 1 | | | 1 | 1 | 1 | 1 | | LC |
| <i>Junonia sophia</i> | W | 1 | | 1 | | | 1 | | | NE |
| <i>Junonia terea</i> | W | 1 | | | | | | | 1 | NE |
| <i>Libythea labdaca</i> | M | | | | | 1 | | | | NE |
| <i>Melantis leda</i> | W | | | | | 1 | | | 1 | NE |
| <i>Neptidopsis ophione</i> | f. | 1 | | 1 | | | | | 1 | LC |
| <i>Neptis melicerta</i> | F | | | 1 | | | | | | LC |
| <i>Neptis sclava</i> | W | 1 | | 1 | | | | | | NE |
| <i>Neptis serena</i> | W | 1 | | 1 | | 1 | | | | NE |
| <i>Precis pelarga</i> | f. | 1 | | | | | | | | NE |
| <i>Pseudargynnis hegemone</i> | f. | | | 1 | | 1 | | | | NE |
| <i>Pseudoneptis bugandensis</i> | F | | | 1 | | | | | | NE |
| <i>Salamis cacta</i> | F | | | | | | | | 1 | NE |
| <i>Protogoniomorpha parhassus</i> | f. | | | 1 | | | | | 1 | NE |

| | | | | | | | | | | |
|-----------------------------|----|---|---|---|---|---|---|---|---|----|
| <i>Vanessula milca</i> | f. | | | | | | | | 1 | NE |
| <i>Ypthima albida</i> | f. | 1 | | 1 | | 1 | | | | NE |
| <i>Ypthimomorpha itonia</i> | f. | 1 | | 1 | | 1 | 1 | | | NE |
| | | | | | | | | | | |
| Hesperiidae | | | | | | | | | | |
| <i>Acleros ploetzi</i> | f. | 1 | 1 | | | | | | | NE |
| <i>Ankola fan</i> | F | 1 | | | | | | | | NE |
| <i>Borbo fallax</i> | O | | | | | | | 1 | | NE |
| <i>Eretis lugens</i> | W | 1 | | 1 | 1 | | | 1 | 1 | NE |
| <i>Eretis umbra</i> | O | 1 | | | | | | | | NE |
| <i>Pardaleodes incerta</i> | F | 1 | | 1 | | | | | 1 | NE |
| <i>Pardaleodes sator</i> | F | | | | | | | | 1 | NE |
| <i>Sarangesa lucidella</i> | O | 1 | | 1 | | | | | | NE |
| <i>Spalia spio</i> | O | | 1 | | | | | 1 | | NE |
| <i>Tagiades flesus</i> | F | | | 1 | | | | | | NE |
| | | | | | | | | | | |
| Riodinidae | | | | | | | | | | |
| <i>Abisara neavei</i> | F | | | | | | | | 1 | NE |
| | | | | | | | | | | |
| Lycaenidae | | | | | | | | | | |
| <i>Azanus moriqua</i> | W | | | 1 | | | | | | NE |
| <i>Euchrysops osiris</i> | O | | | | | | | 1 | | NE |
| <i>Lampides boeticus</i> | M | | | | 1 | | | | | NE |
| <i>Leptotes pirithous</i> | O | | | | | | | 1 | 1 | NE |
| <i>Lipaphnaeus aderna</i> | O | 1 | | | | | | | | NE |
| <i>Zizeeria knysna</i> | W | 1 | 1 | 1 | 1 | | | 1 | 1 | NE |
| <i>Zizina antanossa</i> | W | 1 | | 1 | 1 | | | | | LC |

| | | | | | | | | | | |
|----------------------------|---|---|---|---|---|---|---|---|---|----|
| <i>Zizula hylax</i> | W | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | NE |
| Pieridae | | | | | | | | | | |
| <i>Appias epaphia</i> | M | | | 1 | | | | | | NE |
| <i>Belenois aurota</i> | M | | | | 1 | | | | | NE |
| <i>Catopsilia florella</i> | M | 1 | 1 | | 1 | 1 | 1 | | | NE |
| <i>Colotis danae</i> | W | | | | | | | 1 | | NE |
| <i>Eurema brigitta</i> | M | | 1 | 1 | | 1 | | | | LC |
| <i>Eurema hapale</i> | S | | | 1 | 1 | | | | | NE |
| <i>Eurema hecabe</i> | M | | 1 | 1 | 1 | 1 | 1 | | | NE |
| <i>Leptosia hybrida</i> | F | | | | | | | | 1 | NE |
| <i>Leptosia nupta</i> | F | | | 1 | | | | | 1 | NE |
| <i>Mylothris agathina</i> | W | 1 | | | | | | | | NE |

(1= Presence), IUCN status: NE = Not Evaluated, LC= Least Concern


Annex 7(a): List of Amphibian species encountered in the project area

| Order | Family | Species | Common Name | IUCN Status | HK301 | 495 | 499 | 500 | HK305 | HK306 | HK307 |
|-------|---------------------|-------------------------------------|----------------------------|---------------------|-------|-----|-----|-----|-------|-------|-------|
| Anura | Bufonide | <i>Amietophrynus regularis</i> | African Common Toad | Least Concern (Lc) | 1 | | 1 | 1 | 1 | | 1 |
| Anura | Bufonide | <i>Amietophrynus vittatus</i> | Lake Victoria Toad | Data Deficient (DD) | | | | | | | 1 |
| Anura | Dicroglossidae | <i>Hoplobatrachus occipitalis</i> | Crowned bullfrog | Least concern (Lc) | | | 1 | 1 | | | 1 |
| Anura | <u>Hyperoliidae</u> | <i>Arixalus quadrivittatus</i> | Four-lined Spiny Reed Frog | Least concern (Lc) | 1 | 1 | | 1 | | | 1 |
| Anura | <u>Hyperoliidae</u> | <i>Hyperolius viridiflavus</i> | Common Reed Frog | Least concern (Lc) | | | 1 | 1 | | | 1 |
| Anura | <u>Hyperoliidae</u> | <i>Hyperolius cinnamomeoventris</i> | Cinnamon-bellied Reed Frog | Least concern (Lc) | 1 | 1 | 1 | 1 | | | 1 |
| Anura | <u>Hyperoliidae</u> | <i>Hyperolius kivuensis</i> | Kivu reed Frog | Least concern (Lc) | 1 | | 1 | 1 | 1 | | 1 |
| Anura | <u>Hyperoliidae</u> | <i>Hyperolius nasutus</i> | Common Reed Frog | Least Concern (Lc) | | | 1 | 1 | 1 | | 1 |
| Anura | Arthroleptidae | <i>Leptopelis christyi</i> | Christy's Tree frog | Least Concern (Lc) | | 1 | 1 | | | | |
| Anura | Phrynobatrachidae | <i>Phrynobatrachus acridoides</i> | Eastern puddle frog | Least Concern (Lc) | | | | | 1 | 1 | 1 |
| Anura | Phrynobatrachidae | <i>Phrynobatrachus natalensis</i> | Natal dwarf puddle frog | Least Concern (Lc) | 1 | | 1 | 1 | 1 | 1 | 2 |
| Anura | Ptychadenidae | <i>Ptychadena anchietae</i> | Anchieta's Ridged Frog | Least concern (Lc) | | | 1 | 1 | | | 1 |
| Anura | Ptychadenidae | <i>Ptychadena mascareniensis</i> | Mascarene grass frog | Least Concern (Lc) | | | 1 | 1 | 1 | | 1 |
| Anura | Ptychadenidae | <i>Ptychadena porosissima</i> | Grassland Ridged Frog | Least concern (Lc) | | | 1 | 1 | 1 | | 1 |

Annex 7(b): List of Reptile species encountered in the project area

| Order | Family | Species | Common name | IUCN Status | Proposed Status | HK301 | HK302 | 495 | 499 | 500 | HK305 | HK306 | HK307 |
|-----------|----------------|---------------------------------|----------------------|-------------|-----------------|-------|-------|-----|-----|-----|-------|-------|-------|
| Sauria | Geckonidae | <i>Hemidactylus mabouia</i> | Tropical House Gecko | NE | Lc | | 1 | | | | | | |
| Sauria | Geckonidae | <i>Lygodactylus gutturalis</i> | Forest Gecko | Lc | Lc | | | | | | 1 | | |
| Sauria | Agamidae | <i>Acanthocercus atricollis</i> | Common Tree Agama | Lc | Lc | 1 | | | 1 | | | | 1 |
| Sauria | Agamidae | <i>Agama agama</i> | Common Agama | Lc | | | | | | | | | 1 |
| Sauria | Scincidae | <i>Trachylepis maculilabris</i> | Speckle-lipped Skink | NE | Lc | | | | 1 | 1 | | 1 | 1 |
| Sauria | Scincidae | <i>Trachylepis striata</i> | Common Striped Skink | NE | Lc | 1 | 1 | | | | | | 1 |
| Sauria | Chamaeleonidae | <i>Chamaeleo gracilis</i> | Gracile Chameleon | NE | Lc | | | 1 | | | | | 1 |
| Sauria | Chamaeleonidae | <i>Chamaeleo laevigatus</i> | Smooth Chameleon | NE | Lc | | | 1 | 1 | 1 | 1 | | 1 |
| Serpentes | Colubridae | <i>Philothamnus sp.</i> | | | | 1 | | 1 | | | | 1 | 1 |
| Serpentes | Lamprophiidae | <i>Psammophis sibilans</i> | Hissing Sand Snake | NE | Lc | | | 1 | | | | | |
| Serpentes | Viperidae | <i>Bitis arietans</i> | Puffadder | NE | Lc | 1 | | | | | | 1 | |
| Serpentes | Viperidae | <i>Bitis gabonica</i> | Gaboon Viper | NE | Lc | | | | | | | 1 | |
| Serpentes | Viperidae | <i>Bitis nasicornis</i> | Nose-horned Viper | NE | Lc | | | | | | | 1 | |
| Serpentes | Elapidae | <i>Naja melanoleuca</i> | Forest Cobra | NE | Lc | 1 | | 1 | 1 | 1 | 1 | 1 | 1 |
| Serpentes | Boidae | <i>Python sebae</i> | African Python | NE | Lc | 1 | | | | | | | |

Annex 8: Water quality analysis results



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CERTIFICATE OF ANALYSIS


| | |
|---|-------------------------------------|
| CLIENT: NEK CONSULT LIMITED | Ref No: LS137/INV/2016/363-1 |
| Address: Kampala | Sampled by: Client |
| Tel: | Type of container: Plastic |
| Email: | Sample Source: Stream water |
| Date Sample Received: 29-June-2016 | Date of Report: 01-July-2016 |

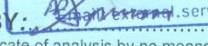
Table of Analytical Results

| Parameters | Units | Source: Twanga Stream Coords: E: 322473 N: 180700 | National Standards for potable water. (Untreated water) (Maximum Permissible) |
|---|-----------|---|--|
| WS Sample Nr | -- | K1417/2016/C/B | |
| pH | -- | 6.27 | 6.5 – 8.5 |
| Electrical Conductivity | µS/cm | 100 | 2500 |
| Colour: apparent | PtCo | 116 | 15 |
| Turbidity | NTU | 17.3 | 10.0 |
| Total Dissolved Solids | mg/L | 61 | 1500 |
| Total Suspended Solids | mg/L | 15 | 0.0 |
| Alkalinity: total as CaCO ₃ | mg/L | 32 | 500 |
| Hardness: total as CaCO ₃ | mg/L | 24 | 500 |
| Calcium: Ca ²⁺ | mg/L | 6.0 | Not Specified |
| Magnesium: Mg ²⁺ | mg/L | 2.2 | 150 |
| Bi-Carbonate: as CaCO ₃ | mg/L | 32 | 500 |
| Chloride: Cl ⁻ | mg/L | 0.5 | 500 |
| Fluoride: F ⁻ | mg/L | 0.00 | 1.5 |
| Iron: total | mg/L | 0.338 | 1.0 |
| Sulphate: SO ₄ ²⁻ | mg/L | 0 | 200 |
| Nitrate – N | mg/L | 0.03 | 5.0 |
| Ammonia – N | mg/L | 0.42 | 1.0 |
| Orthophosphate: Reactive | mg/L | 0.09 | 2.0 |
| BOD | mg/L | 6.2 | Not Specified |
| COD | mg/L | 19 | Not Specified |
| Copper: Cu | mg/L | <0.001 | 1.0 |
| Lead: Pb | mg/L | <0.001 | 0.01 |
| Zinc: Zn | mg/L | <0.001 | 5.0 |
| Faecal coliforms | CFU/100mL | 350 | 10 |

Remarks
The sample showed satisfactory physio-chemical characteristics of the source, except with higher colour (due to turbidity & suspended solids) and faecal coliform count than the National Standards for potable water quality.

ANALYSED BY: Robinah Muheirwe and Araa Kennedy

AUTHORISED BY:  **EXTERNAL SERVICES** Manager, Central Laboratory Services
P. O. Box 7053, Kampala, Uganda
Tel: +256 414 345 119/107

APPROVED BY:  **SENIOR MANAGER**, Water Quality Management Department

NB: The NWSC certificate of analysis by no means constitutes a permit to any person or undertaking to conduct business



NATIONAL WATER AND SEWERAGE CORPORATION

CENTRAL LABORATORY - BUGOLOBI.

P.O.BOX 7053 KAMPALA.

E-mail: waterquality@nWSC.co.ug

CERTIFICATE OF ANALYSIS

CLIENT: NEK CONSULT LIMITED

Ref No: LS137/INV/2016/363-2

Address: Kampala

Sampled by: Client

Tel:

Type of container: Plastic

Email:

Sample Source: River water

Date Sample Received: 29-June-2016

Date of Report: 01-July-2016

Table of Analytical Results

| Parameters | Units | Source: District: Coords: | Waki River/Stream Masindi E: 326797 N: 178097 | National Standards for potable water. (Untreated water) (Maximum Permissible) |
|---|-----------|---------------------------------|--|--|
| WS Sample Nr | -- | K1418/2016/C/B | | |
| pH | -- | 6.01 | | 6.5 – 8.5 |
| Electrical Conductivity | µS/cm | 89 | | 2500 |
| Colour: apparent | PtCo | 168 | | 15 |
| Turbidity | NTU | 39.4 | | 10.0 |
| Total Dissolved Solids | mg/L | 55 | | 1500 |
| Total Suspended Solids | mg/L | 25 | | 0.0 |
| Alkalinity: total as CaCO ₃ | mg/L | 26 | | 500 |
| Hardness: total as CaCO ₃ | mg/L | 20 | | 500 |
| Calcium: Ca ²⁺ | mg/L | 5.6 | | Not Specified |
| Magnesium: Mg ²⁺ | mg/L | 1.4 | | 150 |
| Bi-Carbonate: as CaCO ₃ | mg/L | 26 | | 500 |
| Chloride: Cl ⁻ | mg/L | 0.3 | | 500 |
| Fluoride: F ⁻ | mg/L | 0.00 | | 1.5 |
| Iron: total | mg/L | 0.568 | | 1.0 |
| Sulphate: SO ₄ ²⁻ | mg/L | 0 | | 200 |
| Nitrate – N | mg/L | 0.04 | | 5.0 |
| Ammonia – N | mg/L | 0.53 | | 1.0 |
| Orthophosphate: Reactive | mg/L | 0.12 | | 2.0 |
| BOD | mg/L | 6.9 | | Not Specified |
| COD | mg/L | 17 | | Not Specified |
| Copper: Cu | mg/L | <0.001 | | 1.0 |
| Lead: Pb | mg/L | <0.001 | | 0.01 |
| Zinc: Zn | mg/L | <0.001 | | 5.0 |
| Faecal coliforms | CFU/100mL | 460 | | 10 |

Remarks

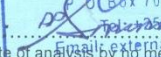
The sample showed satisfactory chemical characteristics of the source, except with higher colour (due to turbidity & suspended solids) and faecal coliform count than the National Standards for potable water quality.

ANALYSED BY: Robinah Muheirwe and Araa Kennedy

AUTHORISED BY:  MANAGER, Central Laboratory Services

EXTERNAL SERVICES

Box 7053, Kampala, Uganda

APPROVED BY:  SENIOR MANAGER, Water Quality Management Department

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P.O. BOX 7053 KAMPALA.

E-mail: waterquality@nWSC.co.ug

CERTIFICATE OF ANALYSIS

CLIENT: NEK CONSULT LIMITED

Ref No: LS137/INV/2016/363-3

Address: Kampala

Sampled by: Client

Tel:

Type of container: Plastic

Email:

Sample Source: River water

Date Sample Received: 29-June-2016

Date of Report: 01-July-2016

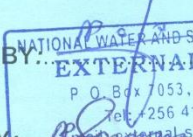
Table of Analytical Results

| Parameters | Units | Source: Village: District: Coords: | Nyabikonko River/Stream Birungu Hoima E: 314228 N: 173029 | National Standards for potable water. (Untreated water) (Maximum Permissible) |
|---|-----------|---|---|--|
| WS Sample Nr | -- | K1419/2016/C/B | | |
| pH | -- | 5.61 | | 6.5 – 8.5 |
| Electrical Conductivity | µS/cm | 73 | | 2500 |
| Colour: apparent | PtCo | 297 | | 15 |
| Turbidity | NTU | 55.8 | | 10.0 |
| Total Dissolved Solids | mg/L | 49 | | 1500 |
| Total Suspended Solids | mg/L | 30 | | 0.0 |
| Alkalinity: total as CaCO ₃ | mg/L | 24 | | 500 |
| Hardness: total as CaCO ₃ | mg/L | 18 | | 500 |
| Calcium: Ca ²⁺ | mg/L | 4.0 | | Not Specified |
| Magnesium: Mg ²⁺ | mg/L | 1.9 | | 150 |
| Bi-Carbonate: as CaCO ₃ | mg/L | 24 | | 500 |
| Chloride: Cl ⁻ | mg/L | 0.2 | | 500 |
| Fluoride: F ⁻ | mg/L | 0.00 | | 1.5 |
| Iron: total | mg/L | 1.673 | | 1.0 |
| Sulphate: SO ₄ ²⁻ | mg/L | 0 | | 200 |
| Nitrate – N | mg/L | 0.03 | | 5.0 |
| Ammonia – N | mg/L | 0.84 | | 1.0 |
| Orthophosphate: Reactive | mg/L | 0.17 | | 2.0 |
| BOD | mg/L | 7.2 | | Not Specified |
| COD | mg/L | 23 | | Not Specified |
| Copper: Cu | mg/L | <0.001 | | 1.0 |
| Lead: Pb | mg/L | <0.001 | | 0.01 |
| Zinc: Zn | mg/L | <0.001 | | 5.0 |
| Faecal coliforms | CFU/100mL | 780 | | 10 |

Remarks

The sample showed satisfactory chemical characteristics of the source, except with higher colour (due to iron content, turbidity & suspended solids) and faecal coliform count than the National Standards for potable water quality.

ANALYSED BY: Robinah Muheirwe and Araa Kennedy

AUTHORISED BY:  NATIONAL WATER AND SEWERAGE CORPORATION, Central Laboratory Services



APPROVED BY:  SENIOR MANAGER, Water Quality Management Department

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Annex 9: Official Communication to Kinyara Sugar Ltd by UETCL on Wayleaves and Substation land



P.O. Box 7625
Kampala, Uganda
10 Hannington Rd

Phone: +256 41 423-3433; +256 41 425-0677 (Sec)
Fax: +256 41 434-1789
Email: e.kiyemba@uetcl.com
www.uetcl.com

UGANDA ELECTRICITY TRANSMISSION COMPANY LTD

Eriasi Kiyemba
Managing Director / CEO
Ref: WN/jo/Hoima-Kafuf/27.07.2015

27th July 2015

The General Manager
Kinyara Factory
MASINDI

THE PROPOSED HOIMA-KINYARA 220KV TRANSMISSION LINE AND ASSOCIATED SUBSTATIONS

Subject: Request for Access through the Estate and Substation Land

Reference is made to the meeting held between your team and ours led by the Permanent Secretary Ministry of Energy and Mineral Development on Saturday July 25, 2015 at the factory.

The Government of Uganda (GOU) has sourced financing for the subject line and as part of the project, GOU is supposed to demonstrate its readiness to commence implementation of the project by end of 2015. The critical path is the compensation of Project Affected Persons (PAPs) in the 40m corridor for the 43km line from Hoima to Kinyara.

The transmission line traverses approximately 20km within your estate, with some pockets of private land. As per our discussion in the meeting, we hereby request you to confirm access for the Contractor for the 20km section in your estate. The total acreage affected in the right of way is **24.71** acres.

In addition, we request you to confirm the **6.4 acres** required for the substation area as per our layout **attached**. It is also important to note that the construction crew will use your access roads within the estate and occasionally later during operation and maintenance of the line.

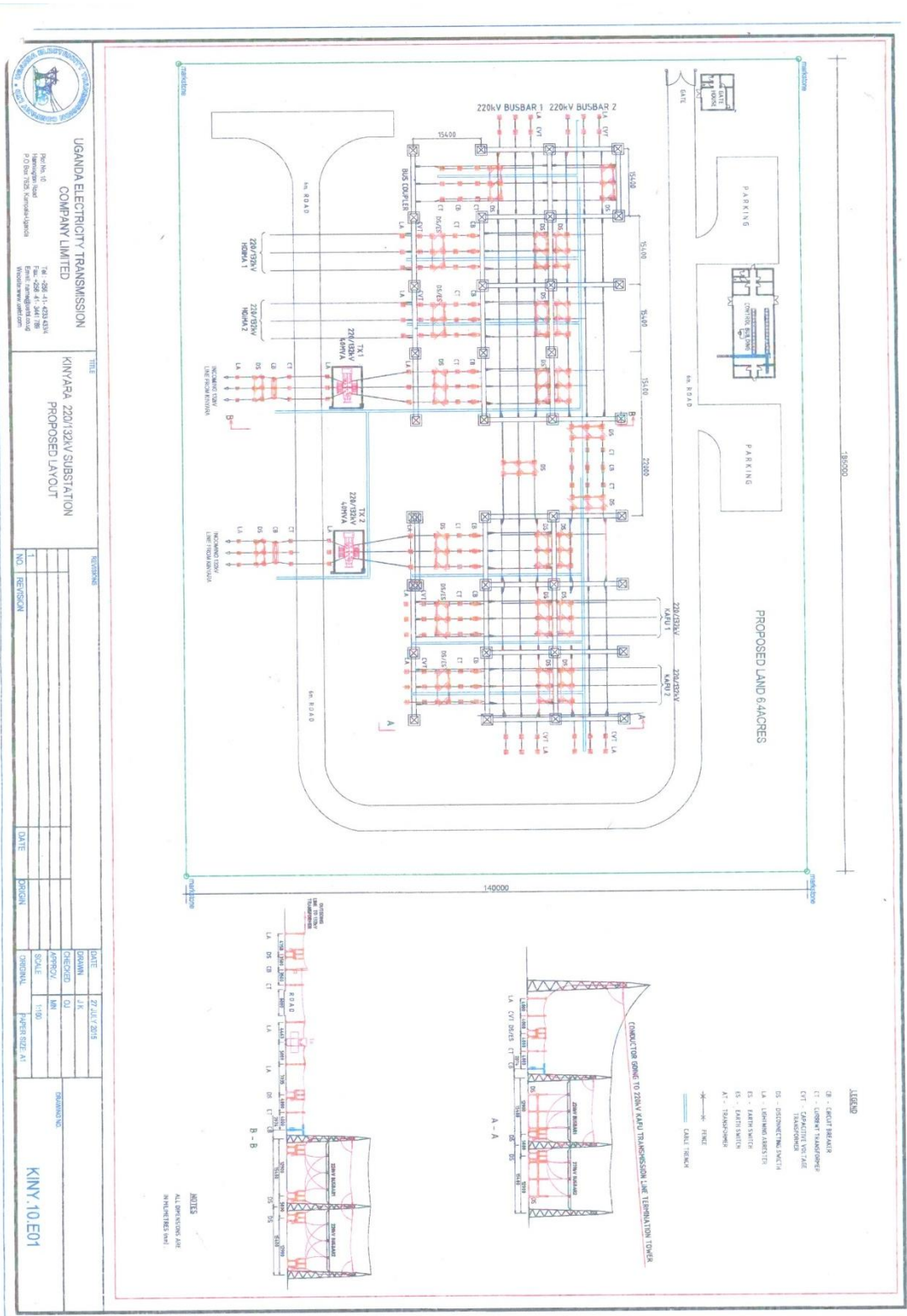
The purpose of this letter is to **request** for confirmation of the availability of the 20km corridor and the substation land within your estate.

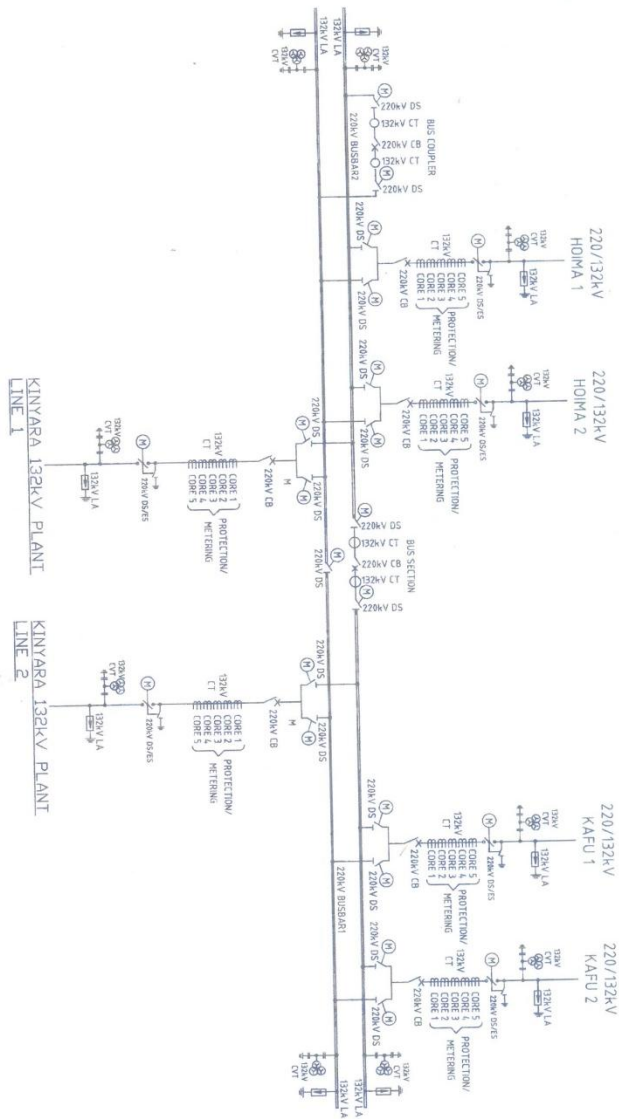
Yours faithfully


E. Kiyemba
MANAGING DIRECTOR/CEO

Cc Permanent Secretary, Ministry of Energy and Mineral Development

EK/MAD-CEO/usic/27-Feb-14





- LEGEND**
- CB - CIRCUIT BREAKER
 - CT - CURRENT TRANSFORMER
 - CVT - CAPACITIVE VOLTAGE TRANSFORMER
 - DS - DISCONNECTING SWITCH
 - LA - LIGHTNING ARRESTER
 - ES - EARTH SWITCH
 - T - TRANSFORMER
 - G - GENERATOR
 - (H) - HORIZONTAL

| | | | |
|------------|--|---|--|
| Client | | LIONARDA ELECTRICITY TRANSMISSION COMPANY LTD | |
| Project | | HOIMA - KINYARA PROJECT | |
| Title | | SUBSTATION | |
| Author | | RINWAL LINDI CHAN | |
| Checked | | RINWAL LINDI CHAN | |
| Approved | | RINWAL LINDI CHAN | |
| Drawing No | | 5118012-KIN-E2000 | |
| Revision | | A1 | |

Annex 10: Response to Official Communication to Kinyara Sugar Ltd by UETCL on wayleaves and substation land



Wednesday 29th July 2015

The Managing Director/CEO
Uganda Electricity Transmission Company Ltd
P.O.Box 7625 Kampala, Uganda

THE PROPOSED HOIMA-KINYARA 220 kV TRANSMISSION LINE AND ASSOCIATED SUBSTATIONS

Subject: Access through Kinyara Sugar Ltd Estate and Sub Station land.

We refer to your letter ref: WN/jo/Hoima-Kafu/27.07.2015 requesting for access for your transmission line from Hoima through the estate of Kinyara Sugar Ltd towards Kafu along the Kampala-Gulu highway, as well as land for a sub-station at Kinyara, Masindi.

We hereby happily grant your two requests and confirm availability of land for use by Uganda Electricity Transmission Company Ltd as follows:

- a) Way leaves for the Hoima –Kinyara 220 kV transmission line specifically the portion within the Kinyara Sugar Ltd Estate covering approximately 20 km (Area 24.71 acres, and
- b) Sub Station land of 6.4 acres.

Furthermore, Kinyara Sugar Ltd. shall provide all necessary access to the construction crew and later operation and maintenance personnel involved in the project the subject of this letter.

Yours faithfully,


P.V. Ramadan
GENERAL MANAGER

Cc.: 1. CEO, Electricity Regulatory Authority
2. Permanent Secretary, Ministry of Energy and Mineral Development.

Kinyara Sugar Works Ltd
P. O. Box 179
Masindi, Uganda.
Tel: (256) 036 2 600200 Fax: (256) 036 2 600211

www.kinyara.co.ug

P. O. Box 7474
Kampala, Uganda.
Tel: (256) 041 4 236382 Fax: (256) 041 4 236383

Taste the Sweet Success

Annex 11: Terms of Reference

Terms of Reference for the Environmental Impact Analysis (EIA) and the Resettlement Action Plan (RAP) for the proposed Hoima-Kinyara 220kv Transmission Line and related Substations

1.0 Background

The Government of Uganda (GoU) has prioritized the construction of the proposed Hoima-Kinyara 220kV transmission line to provide adequate transmission infrastructure to meet the power supply needs of Western Uganda and evacuate mini-hydro power plants within the project area. The project is part of the overall national grid system plan identified in the UETCL Grid Development Plan.

The Government of Uganda has received financial assistance from the Government of Norway towards the project. The funds are to be applied towards carrying out a feasibility study to enable GOU source financing for construction of the proposed Hoima-Kinyara 220kV transmission line.

The proposed project consists of;

- Construction of approximately 70 km steel tower of 220kV transmission line from the proposed Hoima substation to the proposed Kafu substation at Kibanja.
- Substation Extension at Hoima substation to accommodate Kafu Line..
- Construction of 400/220/33kV, 2X15/20MVA new Kafu substation at Kibanja.
- Construction of two 33kV distribution lines to facilitate rural electrification.
(Approximately 20km of 33kV from the proposed new Kafu substation to join the Masindi – Apac 33kV line, Construction of approximately 20km of 33kV line from the proposed Kafu substation to join the JICA line from Bombo substation at Mijera).

1.1 Project Aims

- To provide adequate transmission infrastructure to meet the energy needs for the Uganda population for social and economic development.
- Provision a quality, sufficient and reliable power supply to the Western Uganda.
- Provision of transmission capacity to evacuate mini hydro power and cogeneration power at Kinyara Sugar Works.
- Facilitate rural electrification and improve the standard of living for the population in project area

1.2. Environmental Impact Analysis

1.2.1 Aim of the EIA Study

The EIA study will assess the potential environmental and social impacts (positive and negative) of the proposed construction of the transmission line and associated infrastructure as described above.

The EIA study will be carried out in a way that complies with Ugandan policies and laws on land and the environment. The studies will also be in line with World Bank safeguard requirements and policies. The environmental Consultant shall review and confirm the line route defined by the Feasibility Consultant in order to determine at the most optimal transmission line routing option for the proposed transmission line.

Objectives of the EIA Study

1. To identify and assess the potential environmental and social impacts and recommend appropriate mitigation strategies.
2. To prepare an Environmental Impact Analysis (EIA) Report/Environmental Statement and establish a link to the resettlement action plan which will be carried out under a separate terms of reference.
3. To consult relevant stakeholders, including potentially affected persons and document their concerns regarding the proposed project. The outcome of the consultations will be reflected in the EIA report and incorporated into the project design as appropriate. The results of the consultations will be made available to all relevant stakeholders, including potentially affected persons.

1.2.2 Environmental Scoping

(a) Environmental Scoping

The Consultant shall carry out an environmental scoping of the physical, biological, socio-economic and cultural environments in close collaboration with the feasibility team. Attention shall focus on but not limited to:

- Impact on the flora and fauna.
- Impact on the drainage and water resources.
- Impact on landscape and visual amenity.
- Impact on recreation.
- Impact on land use and agriculture.
- Impact on protected areas, wetlands, as well as other and critical habitats.
- Impacts on cultural property.
- Impact on property, settlements and community facilities.
- Health and safety aspects.
- Induced development resulting from improved access.
- Security implications.

As part of the scoping exercise, the Consultant will make arrangements for public consultations with the affected population and other relevant stakeholders. The outcome of these public consultations shall be recorded in the EIA report. The results of these consultations will also be made accessible to the relevant stakeholders, including potentially affected persons.

The Consultant shall review the Uganda land law and the environmental legal requirements in addition to World Bank's requirements for EIA on projects of this nature.

The Consultant shall carry out a detailed EIA and Social Impact Assessment (SIA) for the recommended option taking into account the findings of the scoping stage.

1.2.3 Environmental Analysis

The EIA will assess the impacts due to the construction of the lines as described in the project scope and related infrastructure as well as the construction of access roads, and it will be carried out in accordance with IDA/WB guidelines OP4.01 on Environmental Assessment and Uganda's environmental assessment requirements. The EIA will comprise of the following activities:

- Identification and assessment of the environmental and social impacts due to the proposed activities related to the construction of the proposed lines and sub stations.
- Identification of appropriate mitigation measures for the expected impacts.
- Determining cost estimates for mitigation of adverse impacts.
- Identifying capacity building needs for the client to ensure effective monitoring of social and ecological environment related to project activities ;
- Preparation of an Environmental Management Plan (EMP), including cost estimates.
- Proposal of appropriate monitoring indicators that can be followed-up during project implementation.
- Assignment of institutional capacity in UETCL to implement and monitor the implementation of the environmental mitigation measures under the proposed project.
- Review and discussion of Uganda's environmental policy, legal and administrative frameworks, as well as the World Bank's environmental assessment requirements;
- Review and discussion of multilateral environmental Conventions and Protocols to which Uganda has ratified.
- Review and discussion of the International safeguard policies that are triggered as a result of the proposed project activities, and presentation of recommendations as to how they should be addressed under the proposed project.

1.2.4 Environmental Baseline Conditions

This stage will comprise a description of the present environment in the area of influence of the proposed lines and related activities, determined from actual site visits, site specific and regional baseline studies in physical, biological and socio-economic domains. The study area will comprise the full area of predicted impact:

The Project Area Includes:

- The power line corridor and the immediate vicinity.
- The wider hinterland of the lines, where there will be both direct and indirect effects, predominantly socio-economic and including for example the effects of induced

development, proposed mitigation measures on health and safety, and – where necessary - relocation of displaced people from the Right Of Way (ROW) and due to the construction of access routes.

- Any areas where existing and future environment may have effects on the line construction and maintenance, for example, the newly cleared ROW of the transmission line may become an attractive site for un-permitted settlements that in turn gives rise to other environmental impacts and over burdens local infrastructure and public services.

In addition to the existing studies, the consultant shall conduct site visits and meetings with relevant stakeholders as well as project affected persons and potentially affected persons to obtain their views and inputs regarding the environmental and socio-economic impacts of the proposed activities in the project area to carryout base line surveys.

The baseline surveys are intended to provide a measure of existing environment and the socio-economic situation against which future changes due to the line construction can be monitored. The consultant will develop appropriate monitoring indicators.

1.2.5 Assessment of Potential Environmental and Social Impacts

The Consultant will provide a detailed assessment and evaluation of the positive and negative, direct and indirect, immediate and long term, and permanent and temporary impacts due to the construction of the transmission line and related activities, including the construction of access roads, both, during the construction and future operation of these structures and facilities. Impacts will be assessed in either qualitative or quantitative terms, according to their inherent nature and the availability of adequate data to enable predictive analysis to be undertaken.

The Consultant will assess the full range of potential significant impacts on both the natural and human environment together with the strategic and socio-economic implications of the effects.

The Consultant will assess the Social and ecological effects of ROW clearing, where necessary, such as loss of vegetation, impact on natural habitats and wetlands/swamps, loss of land and livelihoods by the population living in the vicinity of the power line corridor, landscape and visual impacts. He will also assess the need for involuntary resettlement and compensation; Clearing of land for tower foundations.

The Consultant will assess the Impact of planned and spontaneous immigration to the areas such as construction and maintenance sites, sanitation at construction sites, disposal sites for construction wastes, occupational health and safety requirements for the works including HIV/AIDS awareness;

The Consultant will assess the social and ecological impacts and their management during the operational stage of the transmission line and related structures and facilities; Institutional requirements to address the identified environmental and social impacts of the project activities.

1.2.6 Mitigation Measures

The Consultant will identify cost-effective mitigation measures to reduce or avoid adverse impacts, or to enhance beneficial impacts. As necessary, these will comprise both appropriate line design especially line route selection and introduction of general and specific environmental protection measures within the vicinity of the lines and the ROW. The former will be developed in parallel with the line design team of the feasibility study and will focus on sound technical and engineering standards. The general and specific protection measures will be incorporated in the Environmental Management Plan (EMP).

The study will determine the extent to which the different mitigation measures will reduce the scale of impacts arising from the scheme, and the level unavoidable residual impacts will be identified. The proposed mitigation measures shall be consistent with Uganda's laws as well as that of the World Bank.

1.2.7 Discussion of Alternatives

The Consultant shall discuss alternative routes in light of the current environmental and social circumstances, and make appropriate recommendations for cost effective options.

1.2.8 Environmental Management Plan (EMP)

The Consultant shall prepare an EMP outlining (a) the exact project activities and their impacts, the proposed mitigation measures, the impacts of the proposed mitigation measures, the institutional arrangements required for effective implementation of the proposed mitigation measures as well as for effective monitoring of the implementation of the mitigation measures, including time horizons and cost estimates for these activities, (b) recommendations pertaining to the strengthening of the institutions responsible for the implementation of the EMP; and (c) relevant monitoring indicators.

The EMP will detail the necessary actions for implementing the measures for environmental protection and shall include but not limited to the following:

- Occupational health and safety requirements for workers (including HIV/AIDS awareness).
- Project related accidents such as traffic and public safety.
- Waste management such as sanitation, disposal of rehabilitation wastes, handling and disposal of hazardous waste.
- Security issues such as storage of materials and equipment, warning of migrating birds and Line vandalism.
- Wildlife and ecological protection.
- Archaeological or cultural protection.
- Loss of vegetation, water and soil pollution.
- Sources of construction materials.
- Other critical areas identified during the study.

The Consultant will identify the agencies responsible for the implementation of the various mitigation and monitoring measures, and the schedule for the implementation, shall be included in the EMP. The EMP will provide a link with the RAP. The EMP shall also review the institutional arrangements for carrying out the mitigation and monitoring measures, including the nature, function and capacity of the environmental agencies at both local and national level.

The Consultant will make recommendations for the expansion and capacity development of staff to allow implementation of the necessary measures. The recommendations should include the budgetary cost estimates for implementing the measures.

1.2.9 Structure of the EIA Report

The EIA report will include the following sections;

- Cover page.
- Table of contents.
- List of acronyms.
- Executive Summary.
- Introduction.
- Description of the proposed project.
- Discussion of the outcome of the environmental scoping exercise.
- Description of the area of influence and environmental baseline conditions.
- Discussion of Uganda's policy, legal, regulatory, and administrative frameworks.
- Discussions of the International safeguard policies triggered by the proposed project.
- Methods and techniques used in assessing and analyzing the environmental and social impacts of the proposed project.
- Discussion of the environmental and social impacts of the proposed project.
- Discussion of the proposed mitigation measures.
- Discussion of alternatives to the current line route and related structures and facilities.
- Presentation of consultations with relevant stakeholders and affected persons.
- Environmental Management Plan (EMP) for the proposed project.
- Monitoring indicators for the proposed project.
- Recommendations.
- List of individuals/institutions contacted.
- References.
- Appendices e.g. Maps

1.2.10 Training

- The consultant shall be required to train staff and thus should include, in the proposal, a one-month training programme in the consultant's home office. The proposal should be

geared towards knowledge transfer. The staff to be trained shall comprise of two Environmental Scientists from UETCL.

- The proposal should clearly show all the associated costs in the offer (e.g. trainers/ expert costs, stationary, administration, travel, per diem, course material for the four weeks.
- The areas of interest to the environment professionals shall cover but not limited to ESIA process and the project cycle, scoping, screening, social issues in projects, impact identification, assessment, monitoring, and the safeguard requirements for the World Bank as stipulated in O.P 4.01, 4.09, 4.10, 4.11, 4.36 and other requirements on safety and health.

2.0 RESETTLEMENT ACTION PLAN (RAP)

In light of the proposed project activities involving the construction of the transmission line as described in the project scope in section 1.0 above, some people will lose their livelihoods. In order to restore or minimize livelihood disruption, the Consultant will prepare a Resettlement Action Plan (RAP) to form the framework upon which the implementing agencies will use to compensate and resettle the Project Affected Persons (PAPs).

The RAP shall be prepared as per the World Bank requirement O.P 4.12 and shall cover:

- The proposed compensation and resettlement and impacts on the displaced persons and other affected groups;
- The legal issues involved in the resettlement;
- The way leaves definitions for the high voltage transmission lines

The RAP shall include the elements below, as relevant. Where any element is not relevant to the proposed project activities, it shall be noted in the RAP.

2.1. Description of the Project

The RAP will be prepared in relation to the actual project activities and their impacts on potentially affected persons, including tenants living on absentee land lords' property. The project is described in Section 2.1 of this document. The Consultant will identify the potential impacts of the project in relation to:

- the project component or activities that give rise to resettlement and/or loss of livelihoods;
- the zone of impact of such component or activities;
- the alternatives considered to avoid or minimize resettlement; and
- the mechanisms established to minimize resettlement, to the extent possible, during project implementation.

2.2 Objective.

The general objective of the Resettlement Action Plan (RAP) is to develop a framework for managing the loss of economic activities and livelihoods or resettlement due to construction of the line, ROW of clearing, setting of temporary camps for equipment storage and construction of access roads.

The specific RAP objectives include:

- To identify and assess social issues related to land and property acquisition, livelihoods and resettlement due to construction activities related to the project and other related infrastructure.
- To consult relevant stakeholders, including potentially affected persons and document their concerns regarding the proposed project. The outcome of the consultations will be reflected in the RAP report and incorporated into the project design as appropriate. The results of the consultations will be made available to all relevant stakeholders, including potentially affected persons.

2.3 Socio-economic Studies

During the study, the consultant will carry out a census of current occupants of the affected line route to establish a basis for the design of the resettlement program, standard characteristics of households to be affected, including a description of production systems, labour, and household organization; and baseline information on livelihoods (including, as relevant, production levels and income derived from both formal and informal economic activities) and standards of living (including health status) of the population to be affected by the project activities. The magnitude of the expected loss, total or partial, of assets, and the extent of the effect, physical or economic; information on vulnerable groups or persons, for whom special provisions may have to be made; and provisions to update information on the affected people's livelihoods and standards of living at regular intervals will also be documented.

The consultant will describe the land tenure and transfer systems, including an inventory of common property natural resources from which people derive their livelihoods and sustenance, non-title-based usufruct systems (including grazing ,use of forest and swamp areas,) governed by local recognized land allocation mechanisms, and any issues raised associated with different tenure systems in the project area; the patterns of social interaction in the affected communities, including social networks and social support systems, and how they will be affected by the project; public infrastructure and social services that will be affected; and social and cultural characteristics of communities to be

affected, including a description of formal and informal institutions (e.g., community organizations, ritual groups, nongovernmental organizations (NGOs) that may be relevant to the consultation strategy and to designing and implementing the resettlement activities.

2.4 Legal framework.

The consultant will carry out a review of the legal framework. This will cover the power of eminent domain and the nature of compensation associated with it, in terms of both the valuation methodology and the timing of payment; the applicable legal and administrative procedures, including a description of the remedies available to affected persons in the judicial process and the normal timeframe for such procedures, and any available alternative dispute resolution mechanisms that may be relevant to resettlement under the project. The consultant will identify the relevant law (including customary and traditional law) governing land tenure, valuation of assets and losses, compensation, and natural resource usage rights; customary personal law related to the project impact; and environmental laws and social welfare legislation; laws and regulations relating to the agencies responsible for implementing resettlement activities; gaps, if any, between local laws covering eminent domain and resettlement and the mechanisms to bridge such gaps.

2.5 Institutional Framework for implementation

The consultant will review the institutional framework and identify the agencies responsible for resettlement activities and NGOs that may have a role in project implementation. The capacity of such agencies and NGOs will be examined and proposals to enhance their institutional capacity of for resettlement implementation will be made.

2.6 Eligibility

The consultant shall propose a criteria for definition of persons to be affected and criteria for determining their eligibility for compensation and other assistance, including relevant cut-off dates.

2.7 Scope of Land/Property Survey and Valuation

The consultant shall propose the methodology to be used in valuing losses to PAPs and how to determine their replacement cost; and a description of the proposed types and levels of compensation under local law taking into account the requirements of OP 4.12 and such supplementary measures as are necessary to achieve replacement cost for lost assets.

2.7.1 Property Survey

Accordingly the Consultant shall:

- Survey all land and assets for expropriation by the transmission line; Install Concrete benchmarks at all angle points and road crossings, Obtain all cadastral maps and other relevant information necessary to identify property owners and other persons that are likely to be affected by the project, produce drawings showing the land tenure system along the alignment and the land shaded uniquely for each type of tenure system.
- Secure and verify copies of registered land titles, maps of the site and immediate neighborhood (for injurious effect purposes) including full cadastral survey of the site.
- Establish and map out the Survey Control Points along the proposed route; carry out topographical route survey capturing outstanding features; digitise the cadastral maps obtained as above, and transform them into coordinate system; superimpose the topographical survey, to produce strip maps, drawings and data complying with requirements of the Chief Government Valuer (CGV) and Commissioner of Survey and Mapping for purposes of acquiring properties and relocation of utilities falling within the site viz. verify the strip maps with the actual situation on the ground.
- Establish the names and particulars of the affected persons, areas covered by their plots to assist the values compute the values of such property.
- Document the damaged crops during survey and prepare a photo documentation to store the information.

2.7.2 Valuation

In accordance with the scope, the Consultant shall:

- Identify the project affected persons using procedures approved by the Chief Government Valuer.

- Carry out detailed valuation of all affected land, properties and livelihoods affected by the project, which will provide the basis for compensation/resettlement.
- Compile land acquisition and resettlement costs for areas that PAPs are to be resettled.
- Ensure the data collection during valuation is done on forms acceptable to the CGV and the process is properly witnessed by the client.
- Ensure that all property such as houses and PAPs are photo documented, including damaged crops, for easy identification during disclosure and payments.

2.8 Resettlement measures

The Consultant will define the compensation and resettlement measures to assist each category of eligible affected persons in order to achieve the RAP objectives. In addition to being technically and economically feasible, the resettlement packages should be compatible with the cultural preferences of the affected persons, and will be prepared in consultation with them.

2.9 Site selection, Site preparation, and Relocation.

The Consultant will identify the Institutional and technical arrangements for identifying and preparing relocation sites taking into account a combination of productive potential, location advantages and other factors comparable to the advantages of the old sites. A time schedule will be designed to take into account the process of acquiring and transferring land and other ancillary resources. The Consultant will define procedures for physical relocation under the project, including timetables for site preparation and transfer; and legal arrangements for regularizing tenure and transferring titles to resettlers including measures to prevent land speculation and influx of ineligible persons at selected sites.

2.10 Housing, Infrastructure, and Social Services

The Consultant will guide the provision of housing and infrastructure (e.g., water supply, feeder roads), and social services (e.g., schools, health services) required in the resettlement sites. He will ensure that comparable services to the host populations or any necessary site development, engineering, and architectural designs for these facilities are made.

2.11 Environmental Protection and Management

The Consultant will define the boundaries of the relocation area; and an assessment of the environmental impacts of the proposed resettlement, and measures to mitigate these impacts.

2.12. Community Participation

The Consultant will develop a strategy for consultation and participation of resettlers and hosts in the design and implementation of the resettlement activities. A summary of the views expressed by the settlers and hosts and how these views were taken into account in preparing the resettlement plan is required. The strategy will also highlight the resettlement alternatives presented and the choices made by affected persons regarding options available to them, including choices related to forms of compensation and resettlement assistance, to relocating as individuals, families or as parts of pre-existing communities or kinship groups, to sustaining existing patterns of group organization, and to retaining access to cultural property (e.g. places of worship, pilgrimage centres, cemeteries). Furthermore, institutionalized arrangements by which affected people can communicate their concerns to project authorities will be defined to ensure that vulnerable groups such as indigenous people, ethnic minorities, the landless, and women are adequately represented.

2.13 Integration with Host populations

The consultant will develop measures to mitigate the impact of resettlement on any host communities, including consultations with host communities and local governments; arrangements for prompt tendering of any payment due the hosts for land or other assets provided to resettlers; arrangements for addressing any conflict that may arise between resettlers and host communities; and any measures necessary to augment services (e.g., education, water, health, and production services) in host communities to make them at least comparable to services available to resettlers.

2.14 Grievance Procedures

The consultant will design affordable and accessible procedures for third-party settlement of disputes arising from resettlement; such grievance mechanisms will take into account the availability of judicial recourse and community and traditional dispute settlement mechanisms.

2.15 Organizational Responsibilities

The consultant will design the organizational framework for implementing resettlement, including identification of agencies responsible for delivery of resettlement measures and provision of services; arrangements to ensure appropriate coordination between agencies and jurisdictions involved in implementation; and any measures (including technical assistance) needed to strengthen the implementing agencies' capacity to design and carry out resettlement activities; provisions for the transfer to local authorities or resettlers themselves of responsibility for managing facilities and services provided under the project and for transferring other such responsibilities from the resettlement implementing agencies, when appropriate.

2.16 Implementation Schedule

The consultant will develop an implementation schedule covering all resettlement activities from preparation through implementation including target dates for the achievement of expected benefits to resettlers and hosts and terminating the various forms of assistance. The schedule should indicate how the resettlement activities are linked to the implementation of the overall project.

2.17 Costs and Budget

The consultant will develop tables showing itemized cost estimates for all resettlement activities, including allowances for inflation, population growth, and other contingencies; timetables for expenditures; sources of funds; and arrangements for timely flow of funds, and funding for resettlement, if any, in areas outside the jurisdiction of the implementing agencies.

2.18 Monitoring and Evaluation

To ensure complete and objective reporting, the consultant will prepare a time based schedule for monitoring of resettlement activities by the implementing agency, supplemented by independent monitors as considered. This will have performance monitoring indicators to measure inputs, outputs, and outcomes for resettlement activities. It will also define the roles of the affected persons in the monitoring process as well as the evaluation of the impact of resettlement and related development activities. The results of resettlement monitoring should guide subsequent implementation.

2.19 Training and Knowledge Transfer

- The consultant shall be required to train UETCL staff and thus should include, in his proposal, a one-month training programme in the consultant's home office to enable the trainees concentrate. The proposal should be geared towards knowledge transfer. The staff to be trained shall comprise of two Social Scientists from UETCL.
- The proposal should clearly show all the associated costs in the offer (e.g. trainers/ expert costs, travel, per diem, course material.
- The areas of interest to the social professionals shall cover but not limited to World Bank safeguard policies on resettlement, social issues in and the safeguard requirements for the World Bank as stipulated in O.P 4.12, 4.11, 4.09.

The consultant should include in his technical bid a detailed training program and schedule indicating how he will impart the above required knowledge.

3. PROJECT SCHEDULE AND REPORTING REQUIREMENTS FOR THE EIA AND RAP

3.1 Duration of the Studies

The EIA and RAP studies are expected to be completed within 6 months as per the attached proposed schedule with the following activity duration estimates. The consultant is to present an activity schedule indicating how he is to carryout concurrently EIA and detailed RAP concurrently in line with the available time frame of 6 Calendar months.

Table 1: Duration Estimate

| Activity | Duration ¹ (months) | Cumulative |
|--|--------------------------------|------------|
| Inception Report | 0.5 | 0.5 |
| Review of previous studies & Reports | 0.5 | 1.0 |
| Line route survey, selection and ESIA Scoping. | 1.0 | 2.0 |

¹ Activity durations are just indicative. Activities should be done within six calendar months.

² EIA and RAP are to be carried out concurrently

| | | |
|----------------------------|-----|-----|
| Detailed EIA study | 1.0 | 3.0 |
| RAP Consultations, Surveys | 1.5 | 4.5 |
| Valuation | 1.0 | 5.5 |
| Reports | 0.5 | 6.0 |

3.2 Reports

The Consultant shall submit the following reports to the Client:

- Inception reports for both EIA and RAP
- Detailed stand-alone EIA and RAP reports

NOTE:

1. The Client shall review and comment on the submitted reports within two weeks from the date of report receipt.
2. The RAP and EIA shall be prepared as self-standing documents.
3. NEMA and the Financier shall review the Draft Environmental Statement and RAP after incorporating the Client's comments for a '*no objection*' before the Consultant submits Final reports.
4. The Chief Government Valuer and the Financier shall review the Draft Environmental Statement and RAP after incorporating the Client's comments for a '*no objection*' before the Consultant submits Final reports.
5. The Environmental Statement and RAP shall be disclosed in Uganda.
6. Thus, the first draft EIA and RAP report will be available to the Government of Uganda for review and comments. Their comments will be incorporated into the final EIA and RAP report which will be available for disclosure and approval by NEMA and the CGV respectively.
7. The EIA and RAP reports shall be submitted in twelve (12) hard copies and one editable (1) soft copy on a CDROM.
8. The Consultant shall make formal audio/visual presentations for the inception, EIA, and RAP.
9. The consultant shall submit monthly progress reports indicating all activities covered with in the reporting period.
10. The cost of acquiring study requirements such as maps shall be borne by the consultant.

3.3 PERSONNEL

The Consultant shall provide all personnel necessary for the completion of the Study. The personnel list, below, is intended as a general guide. It is recognized that within each heading, that personnel with different specific specialties may be required, or that one person may have the qualifications to fill more than one position. It is up to the consultant to propose personnel with the qualifications and experience necessary to perform project tasks to a high technical standard. The Consultant is encouraged to use Local Expertise.

| Position | Description |
|-----------------------------|--|
| Project Manager | A Masters Degree in Environmental Science, EIA or Social Scientist with additional qualification in project management with a minimum of 5 years of relevant working experience in Project Management. |
| EIA Specialist ² | A Masters Degree in Environmental Sciences, EIA with adequate experience of not less 5 years in ecosystems assessments including terrestrial and aquatic environments. A demonstrated understanding of local and international environmental policies and laws, including ability to evaluate general environmental issues in the physical and biological environment including potential impacts. |
| RAP Specialist | A Master Degree in Sociology with a minimum of 10 years experience in resettlement/mitigation or social impact assessment issues related to development schemes on power projects. The RAP Specialist shall have significant experience in related power projects and resettlement related issues especially international safeguard policies. |
| Valuer | A minimum of a University Degree in land economics with 5 years of |

² The specialist shall be currently registered by the National Environment Management Authority (NEMA)-Uganda

| | |
|------------------|--|
| | relevant experience and must be registered by Surveyors Registration Board (SRB). |
| Surveyor | A minimum of a University Degree in survey with 5 years of relevant experience and must be registered by Surveyors Registration Board (SRB). |
| Wild Life Expert | A minimum of a University Degree in wildlife studies with 10 years of wildlife offset evaluations and must be acceptable to the Uganda Wildlife Authority during the study |

3.4 Manning Schedule

The table below shows the estimated manning schedule as an indication of time to be spent on the above activities and shall be used only as a guide to the Consultant.

| Position | Description Of Activities | Estimated Man Months | | |
|---|--|----------------------|------|-------|
| | | Field | Home | Total |
| Project Manager | Field | | | |
| | 1. Inception meetings, | | | |
| | 2. Initial site visit | | | |
| | 3. Presentation of Reports, | | | |
| | 4. Participation in progress meeting | | | |
| | Home | | | |
| | 5. Overall coordination and supervision | | | |
| | 6. Preparation of reports | | | |
| | | | | |
| | 1. Participation in initial survey site visits | | | |
| Home | | | | |
| 2. Preparation of the transmission line design report. | | | | |
| 3. Preparation of tender documents | | | | |
| 1. Preparation of the Financial and economic analysis report. | 1.0 | 2.0 | 3.0 | |
| EIA Expert ³ | Field | | | |
| | 1. Participation in inception meetings | | | |
| | 2. Participation in initial site visits | | | |
| | 3. Stakeholder consultations | | | |
| | 4. Supervision of EIA social surveys for data collection | | | |
| Home | | | | |
| 5. Preparation of EIA report | 0.5 | 2.0 | 2.5 | |
| RAP Expert | Field | | | |
| | 1. Participation in inception meetings | | | |
| | 2. Participation in initial site visits | | | |
| 3. Stakeholder consultations | 0.5 | 2.0 | 2.5 | |

³ The EIA expert should be registered by NEMA as a practitioner

| Position | Description Of Activities | Estimated Man Months | | |
|-----------------|--|----------------------|------|-------|
| | | Field | Home | Total |
| | <p>4. Supervision of social surveys for data collection</p> <p>Home</p> <p>5. Preparation of the RAP report</p> | | | |
| Valuer | <p>Field</p> <p>1. Participation in initial site visits</p> <p>2. Stakeholder consultations</p> <p>3. Supervision of social surveys for data collection</p> <p>Home</p> <p>4. Prepare Valuation data and report</p> | 0.25 | 2.0 | 2.25 |
| Surveyor | <p>Field</p> <p>1. Participation in initial site visits</p> <p>2. Participate in Stakeholder consultations</p> <p>3. Carryout line survey and prepare strip maps</p> <p>Home</p> <p>4. Prepare Strip Maps for the recommended line route</p> | 0.25 | 2.0 | 2.25 |
| Wildlife Expert | <p>Field</p> <p>1. Participation in initial site visits</p> <p>2. Participate in Stakeholder consultations</p> <p>3. Carryout wild life survey and prepare the offset in the reserves affected by the line corridor</p> <p>Home</p> <p>4. Prepare wildlife offset report acceptable to UWA</p> | 0.25 | 2.0 | 2.25 |

4. CLIENT'S INPUTS TO THE STUDY

- (a) The Client shall nominate a Study Coordinator for supervision of the study who will be empowered to take all day-to-day decisions required for the implementation of the study. The Coordinator shall co-ordinate all the activities connected with the study and shall be the main link between the Consultant and the Executing Agencies.
- (b) The Client will provide the Consultant with all the available reports of any relevant studies, maps and documents pertinent to the proposed work.
- (c) The consultant will be responsible for acquisition of all the necessary information and maps that he finds necessary for proper completion of the assignment and is not available with the client.

Annex 12: NEMA comments on the Terms of Reference

You may therefore proceed with the Environmental Impact Study.



Waiswa-Ayazika
FOR; EXECUTIVE DIRECTOR

c.c The District Environment Officer,
Hoima District
P.O. Box 2
HOIMA

The District Environment Officer,
Masindi District,
P.O. Box 253
MASINDI

The District Environment Officer,
Nakasongola District,
P.O. Box 1
NAKASONGOLA

The District Environment Officer,
Apac District,
P.O. Box 1
APAC

registered for conducting of EIA in accordance with the National Environment
(Conduct and Certification of Environmental Practitioners) Regulations, 2003.

Annex 13: List of maps

Map 1: Land cover of the project area

Map 2: Land cover Hoima District

Map 3: Land cover Masindi district

Map 4: Geology of the project area

Map 5: Topography of the project area

Map 6: Soil types of the project area

Map 7: Rainfall map of the project area

Map 8: Biodiversity sampling along the proposed Hoima-Kinyara power line

Map 9: Map of Uganda Showing the Hoima-Kinyara T-Line

Annex 14: Health, Safety, Social and Environment (HSSE) Compliance Monitoring and Enforcement Checklist

UGANDA ELECTRICITY TRANSMISSION COMPANY LIMITED

Project Name:

Health, Safety, Social, & Environment (HSSE) Compliance Monitoring Report No.....

Date..... Site: Location:.....
Contractor.....

Site Manager (Name and Contact)..... HSE Officer..... Site Nurse..... Doctor-on-Call.....

No. of workers at site (A) Expatriates Total..... M..... F..... (B) Nationals: Total..... M..... F (include roles).....

Activities
(i)..... (ii)..... (iii)..... (iv)..... (v).....

| Category | Parameter | Wght | Compliance(C/NC) ¹ | Remarks/Timelines for Corrective Actions |
|---|---|------|-------------------------------|--|
| Health | 1.Doctor-on-Call-10 | 10 | | |
| | 2.Presence of Site Nurse-10 | 10 | | |
| | 3.Presence of HSE Officer-10 | 10 | | |
| | 4.Quality Contraceptives-10 | 10 | | |
| | 4b. HIV/AIDS Management Plan-10 | 10 | | |
| | 5.HIV/AIDS Training (workers)-10 | 10 | | |
| | 6.HIV/AIDS Training (communities)-10 | 10 | | |
| | 6a. Voluntary Counseling and Testing (VCT) for workers | 10 | | |
| | 6b. Voluntary Counseling and Testing (VCT) for Communities | 10 | | |
| | 6c. Distribution of EIC materials on HIV/AIDS to workers | 8 | | |
| | 6d. Distribution of EIC materials on HIV/AIDS to Communities | 8 | | |
| | 7. Pre-employment screening-10 | 10 | | |
| | 8.Pre-Assignment-10 | 10 | | |
| | 9.Post-employment screening-10 | 10 | | |
| | 10.Portable and accessible wholesome drinking water for workers -10 | 10 | | |
| | 11.Safe meals for workers (quality and quantity, meal area, etc) | 10 | | |
| | 12. Site Clinic-10 | 10 | | |
| 13. Records of cases attended to in a Site Clinic (Work-related and general illnesses, segregated data for Workers and Communities) | 10 | | | |
| 14. Zero tolerance to Child Labour (18 and below)-10 | 10 | | | |
| 14b. Zero tolerance to smoking at construction sites/camps | 10 | | | |
| 15. Zero Drug and Alcohol abuse | 10 | | | |
| 16. Zero Defilement-10 | 10 | | | |
| 17.Zero Elopement -10 | 10 | | | |

| | | | | |
|---------------|--|----|--|--|
| | 17b. Zero Sexual Harassment | 10 | | |
| | 18. Kitchen Inspection reports-9 | 9 | | |
| | 19. Kitchen hygiene/sanitation (safety of cooking area, cleanliness, soot removal,.....) | 8 | | |
| | 20. Deworming of workers (records.....) | 10 | | |
| | 21. Potable water for Visitors-7 | 7 | | |
| | 22. Safe meals for Visitors-10 | 10 | | |
| | 23. First Aid Kit (stocked and accessible)-10 | 10 | | |
| | 24. First Aid Contents checklist-9 | 9 | | |
| | 25. Records of cases attended to by the First Aider (5W, 1H and Treatment) | 8 | | |
| | 26. Presence of Trained and available First Aiders per shift/gangs | 10 | | |
| Safety | 1. Personal Protective Equipment (PPE) for workers- (type, adequacy and appropriateness) | 10 | | |
| | 2. Personal Protective Equipment (PPE) for visitors-(type, adequacy and appropriateness) | 9 | | |
| | 3. Safety training for workers--(timing, adequacy and appropriateness) | 10 | | |
| | 4. Safety training for communities--(timing, adequacy and appropriateness) | 9 | | |
| | 5. Tool box talks --(daily, adequacy, participation and appropriateness) | 10 | | |
| | 6. Site emergency operational contacts (conspicuously displayed, accessible, legible) | 8 | | |
| | 7. High Way signages (conspicuously displayed, accessible, legible) | 10 | | |
| | 8. Site signages (conspicuously displayed, accessible, legible) | 8 | | |
| | 9. Visitors register (accessible, legible) | 8 | | |
| | 10. Askari/Security-trained and in uniform-10 | 10 | | |
| | 11. Traffic guides/flag assistants (trained in safety, protected, visible,) | 10 | | |
| | 12. Speed limits (conspicuously displayed, accessible, legible) | 10 | | |
| | 13. Fire extinguishers (appropriate type, accessible, serviced, adequate) | 10 | | |
| | 14. Fire assembly points (accessible, legible, appropriate for the purpose) | 9 | | |
| | 15. Noise management (measurements, affected persons, protection and eng. controls) | 9 | | |
| | 15b. Site office/Workers' camp | 10 | | |
| | 16. Site/Store/Workers' camp Gate(guarded) | 10 | | |
| | 17. Camp/Store/Site Fence (appropriate) | 10 | | |
| | 18. Accident statistical analysis, trends-monthly) | 9 | | |
| | 19. Warning tapes at foundations (conspicuously displayed, accessible, legible) | 8 | | |
| | 20. Barricades at foundations (conspicuously displayed, accessible, legible) | 10 | | |
| | 20b. Zero Open Trenches/Ditches (appropriate) | 9 | | |
| | 21. Car parking area (accessible, legible, appropriate for the purpose) | 9 | | |

| | | | | |
|--------------------|---|----|--|--|
| | 22. Vehicles register (accessible, legible) | 9 | | |
| | 23. Vehicle First Aid Kits (stocked and accessible)-10 | 10 | | |
| | 24. Servicing of vehicles (records) | 10 | | |
| | 25. Valid Drivers' Permits | 10 | | |
| | 25b. Contracts (signed) for PERMANENT/TECHNICAL workers- (persons hired for 4 months and above) | 10 | | |
| | 25c. Probation time (at most 6 months for PERMANENT/TECHNICAL staff) | 9 | | |
| | 25d. Contracts (signed) for CASUALI workers (persons hired for at most 4 months) | 10 | | |
| | 26. Payment of workers' wages-(records) | 10 | | |
| | 26b. Payment for Overtime-10 | 10 | | |
| | 26c. Statutory remittance (NSSF) (availability of records) | 10 | | |
| | 26d. Statutory remittance (PAYE) (availability of records) | 10 | | |
| | 27. Community relations-(commendable public relation-confirm from community members) | 10 | | |
| | 28. Payment of Sub-contractors-(records) | 10 | | |
| | 29. Storage yard land payment (records) | 10 | | |
| | 30. Material storage (segregation, house keeping, labeling and records/inventory management) | 10 | | |
| | 31. Rock blasting license (displayed, valid) | 10 | | |
| | 32. Rock blasting announcements-(timely, language, audible, accessible, records, relocation) | 9 | | |
| | 33. Rock Blasting Technician (competent, valid permit, PPE, medically certified) | 10 | | |
| | 33. Rock Blasting Assistants (competent, valid permit, PPE, medically certified) | 10 | | |
| | 34. Medical Waste Management Plan-10 | 10 | | |
| | 35. Medical waste bins/Injection safety box (Pricks)-(appropriate, colour, size,) | 10 | | |
| | 36. Medical waste bins (Infectious) -(appropriate, colour, size, lining) | 10 | | |
| | 37. Medical waste bins (General)- -(appropriate, colour, size, lining) | 10 | | |
| | 38. Incineration of Medical Wastes-(records, photos) | 10 | | |
| | 39. Aviation Authority Permits- | 10 | | |
| | 40. Construction as per aviation clearances-9 | 9 | | |
| | 41. Compliance with Security/Military Barracks conditions | 10 | | |
| | 42. Treatment of injured workers (records) | 9 | | |
| | 43. Compensation of workers injured/deceased injured at work (records) | 10 | | |
| | 44. Servicing of equipment-e.g Excavators, Piling equip (records) | 9 | | |
| | 45. Examination and Certification of statutory equipment by MGLSD (records) | 9 | | |
| Environment | 1.Mobile toilets/Latrines for Men-(adequacy, accessible, hygiene, privacy, PWD Access, hand washing basins) | 10 | | |

| | | | |
|--|----|--|--|
| 2.Mobile toilets/Latrines for Women--(adequacy, accessible, hygiene, privacy, PWD Access, Foot Operated lined sanitary buckets, hand washing basins) | 10 | | |
| 2b. Well-maintained Soak Pits | 10 | | |
| 3.Bathrooms for Men -(adequacy, accessible, hygiene, privacy, PWD Access,) | 9 | | |
| 4.Bathrooms for Women--(adequacy, accessible, hygiene, privacy, PWD Access,) | 10 | | |
| 5.Environment management training for workers (signed records, photos, videos) | 10 | | |
| 6.Environment management training for communities (signed records, photos, videos) | 10 | | |
| | | | |
| 8.Dustbins (plastics) (labeled, accessible, appropriate, size) | 10 | | |
| 9.Dustbins (biodegradables)- (labeled, accessible, appropriate, size) | 10 | | |
| 10.Dustbins (metals/glass)- (labeled, accessible, appropriate, size) | 10 | | |
| 11.Temporal Waste Dumping site(s) (labeled, accessible, appropriate, size) | 10 | | |
| 11d. Disposal of wastes (transportation, segregation, gazetted dumping sites, etc) | 10 | | |
| 12.Drainage channels (un clogged) | 9 | | |
| 13.Restoration of vegetation-(better or to original state/maintain the indigenous flora) | 10 | | |
| 14.Retainer walls (gradient, signage, activities above, as per soil tests) | 7 | | |
| 15.Restoration of land scape -(better or to original state/maintain the indigenous flora) | 10 | | |
| 16.Dust management (type of dust, timely sprinkling of water, control of traffic) | 9 | | |
| 17. Submission of HSE management reports to MC(accurate, credible, consistent with indicators, concise, etc.) | 10 | | |
| 19. Water Abstraction Permit-(records, displayed, valid) | 10 | | |
| 20. Warning Letters (First) issued to Non-Compliant workers on HSE-9 | 9 | | |
| 20b. Warnings (Strict) issued to Non-Compliant workers-9 | 10 | | |
| 20c. Warnings (Very strict) issued to Non-Compliant workers-9 | 9 | | |
| 21.Oil spill management (containment, waste oil receptors, oil drums, fire protection) | 10 | | |
| 22.NEMA Approval for storage yard (displayed, valid License) | 10 | | |
| 23. Compliance with Wetland Permit Conditions-(displayed, valid License) | 10 | | |
| 24. Compliance with Forest Permit Conditions-(displayed, valid License) | 10 | | |
| 25. Compliance with Traffic Permit Conditions-(displayed, valid License) | 9 | | |
| 27. Grievance Redress Committee (displayed names, valid contacts, accessible, democratically-elected workers' representatives) | 10 | | |
| 28. Functional GRC Committee (minutes, quarterly consolidated reports) | 9 | | |
| 29. District/Municipal Health Inspector's monthly reports for the Site-10 | 10 | | |
| 29b. District/Municipal Labour Officers' monthly reports for the Site-10 | 10 | | |

| | | | | |
|-----------------------------|---|---------------------|-------------|--|
| | 32. Water meters-(accessible) | 9 | | |
| | 33. Payments for water used at Sites-(records) | 9 | | |
| | 34. Submission of Water Abstraction reports | 10 | | |
| | 35. Sand mining License (displayed valid) | 9 | | |
| | 36. Community Engagement meetings | 8 | | |
| | 37. Re-use of construction waste materials e.g wood, steel | 8 | | |
| | 38. Proper disposal of NH construction waste materials e.g cement bags | 10 | | |
| | 39. Destruction Certificates for Hazardous construction waste materials e.g oil drums, oils,... | 10 | | |
| Gender & Culture | 1. Employment of community members-9 | 9 | | |
| | 1b. Employment of Women-9 | 9 | | |
| | 2. Employment of the Elderly-9 | 9 | | |
| | 3. PWD-friendly working environment-9 | 9 | | |
| | 4. Employment of the PWDs-9 | 9 | | |
| | 6. Cultural Resource Management Plan-10 | 10 | | |
| | 7. Avoidance/relocation of cultural resources-9 | 9 | | |
| | 8. Archeological finds reports-8 | 8 | | |
| | 9. Avoidance of Vulgar language-10 | 10 | | |
| | 10. Resting shades for workers | 8 | | |
| | 12. Changing rooms for workers (appropriate, space, separate by sex, privacy) | 8 | | |
| | 13. Workers' leave days (type, duration, wages,) | 9 | | |
| | 14. Maternity leave (duration, wages,) | 10 | | |
| | 15. Paternity leave (duration, wages,) | 9 | | |
| | 16. Activities for Work-life balance (games, sports, travels, etc) | 10 | | |
| | 17. Breast feeding mothers (shelters, breaks, appropriate meals, working hrs) | 9 | | |
| | | TOTAL SCORES | 1353 | |

²Overall compliance (%).....Attachments (attendance lists, permits, photos, etc).....

Recommendations

(i).....(ii).....(iii).....

(iv)..... (v)..... (vi).....

(vii)..... (viii)..... (ix).....

Inspector/Monitor.....Signature.....Date.....

Annex 15: Physical Cultural Resources Management Plan (PCRM)

**UGANDA ELECTRICITY TRANSMISSION
COMPANY LIMITED**

**ELECTRICITY SECTOR DEVELOPMENT PROJECT
(ESDP)**

**THE PROPOSED HOIMA-KINYARA 220KV
TRANSMISSION LINE AND ASSOCIATED SUBSTATIONS**

PHYSICAL CULTURAL RESOURCES MANAGEMENT PLAN

November, 2016

LIST OF ACRONYMS

| | |
|-------|---|
| BKK | Bunyoro Kitara Kingdom |
| DGC | Department of Gender and Culture |
| DMM | Department of Museums and Monuments |
| EPF | Environmental Protection Police Force |
| ESDP | Electricity Sector Development Project |
| ESIA | Environmental and Social Impact Assessment |
| Km | Kilo meter |
| KV | Kilo Volt |
| MGLSD | Ministry of Gender, Labour and Social Development |
| MWE | Ministry of Water and Environment |
| NEMA | National Environment Management Authority |
| NFA | National Forestry Authority |
| OP | World Bank Operation Policy |
| PCR | Physical Cultural Resources |
| PCRM | Physical Cultural Resources Management Plan |
| RAP | Resettlement Action Plan |
| UETCL | Uganda Electricity Transmission Company Limited |
| UWA | Uganda Wildlife Authority |
| WB | World Bank |

1. Background

The Uganda Electricity Transmission Company Limited (UETCL) is a government parastatal which became operational in 2001 after the enactment of the Electricity Act, 1999. UETCL strives to transmit the available generated electricity to meet the load demand at an affordable cost for consumers while maintaining system integrity and reliability. In order to improve its efficiency and reliability, UETCL has embarked on several projects to meet its load demand such as constructing/ extending new power lines and substations, refurbishing and modernizing existing lines and substations among others.

Plans are underway to double the national grid by 2018. And as such, UETCL has secured funds to construct a new 220kV, 40 Km power line running from Hoima to Kinyara sub-station under the Electricity Sector Development Project (ESDP). The project is aimed at reinforcing the capacity of the western transmission lines to cater for the increasing demand of electricity in the districts of Masindi and Hoima. In addition, this investment will evacuate power from the Kinyara Sugar Works to the national grid. The ESDP Project is supported by the World Bank and as part of counterpart funding, the Government of Uganda funds the Resettlement Action Plan (RAP) and taxes.

The proposed transmission line was designed with due considerations to minimize its foot print on settlements, natural habitats and Physical Cultural Resources (PCR). However, there are certain sections of the transmission line in which PCRs of scientific, historical and cultural significance may be inevitably affected. These include graves and/or graveyards, shrines and trees of sacred value.

UETCL included PCRs in compensation packages as fixtures. The remaining task is relocation of the same. The UETCL ESDP Project Implementation Unit will hold consultations with caretakers of these identified properties/artefacts and will come up with proposals for assistance in their appeasement and relocation of shrines, graves and sacred trees.

The PCR resources are affected by the project, if they are directly affected by the right of way which will be fully acquired by UETCL for construction, operation and maintenance of the electricity transmission line. The restrictions will deny the current owners/caretakers and/or users of such property rights to free use or access thereby impeding them from excavation or construction. It is therefore logical for UETCL to facilitate the processes of total relocation during the project cycle.

The Physical Cultural Resources Management Plan (PCRM) is prepared to guide the relocation, restoration, preservation and monitoring of historical monuments and objects of archaeological, paleontological, ethnographical, religious and traditional interest along the Hoima-Kinyara 220 kV project.

2. **Legal and Policy Framework on PCR**

(a) **World Bank Policy**

The World Bank recognizes indispensable role of Physical Cultural Resources (PCR) in the promotion of scientific, historical, economic development and fostering cultural identity of communities. And as such, it is a requirement for all borrower countries to ensure that resources such as burial, shrines, archaeological, paleontological, historical and other sites listed under the Bank's Operational Policy 4.11-*Physical Cultural Resources*, are managed sustainably during the implementation of World Bank funded projects.

The Bank recommends integration of PCR in project planning and implementation through consultations, recognition and respect and institutional and community capacity development. The potential adverse impacts of World Bank-funded projects on PCRs must be identified and mitigation measures proposed during the Environmental and Social Impact Assessments following the conditions set in the World Bank OP 4.01. UETCL will continue to consult and work with the World Bank's Social Development and Environmental Specialists during the implementation and monitoring of this Physical and Cultural Resources Management Plan.

(b) **Ugandan Legal and Institutional Framework**

The 1995 constitution of the Republic of Uganda, under national objectives and directive principles of state policy (XXV), obligates the state to preserve and protect Uganda's heritage. Secondly, infrastructural and other developments in Uganda are currently guided by the National Development Plan 2010/11-2014/15 which fosters growth of cultural heritage sites in the country for enjoyment and posterity.

The National Development policy aims at discovery and upgrading of heritage sites for tourism and cultural purposes. In addition, the Historical Monuments Act, 1967 provides for the preservation and protection of historical monuments and objects of archaeological, paleontological, ethnographical and traditional interests. Under this Act, the Minister has the authority to declare any object of archaeological, paleontological, ethnographical and traditional interest to be a protected object. The Act empowers the Inspector appointed by the Minister to conduct regular maintenance and inspection of preserved or protected objects of cultural value such as tombs, shrines and places of worship.

The ESDP Implementation Unit will therefore work with the Ministry of Tourism, Heritage and Antiquities, Department of Museums and Monuments (DMM) in monitoring and maintaining the physical and cultural resources that are traversed by the Hoima-Kinyara 220 KV power transmission line and substations. DMM is developing a Policy on Museums and Monuments that is expected to improve the management of PCR in the country.

Additionally, the proposed project may raise some cultural and gender concerns that are beyond the mandate of DMM. The Department of Gender and Culture under the Ministry of Gender, Labour and Social Development (MGLSD) will be engaged in regards to cultural issues as stipulated in Uganda National Culture Policy, 2006.

3. General Objective

The overall objective of the Physical Cultural Resources Management (PCRM) is to ensure that the project is implemented with full regard and respect to the traditional beliefs and practices of the affected persons/societies while equally ensuring that the acquired corridor is free from encumbrance of any issue. Thus, it is prudent for UETCL to facilitate the

transfer and settlement of the cultural artifacts found within the designated corridor and where necessary preserve as much as possible all cultural religious spirits/objects found therein, basing on the full knowledge of the project area inhabitants through intensive and extensive consultations.

4. The Physical Cultural Resources

The World Bank describes Physical Cultural Resources as movable or immovable objects, sites, structures, Groups of structures, natural features and landscapes that have Archaeological, Paleontological, historical, Aesthetic or other cultural significance. These are located in urban or rural settings and maybe above or below the ground. The cultural interests are at the local and national level. These resources are integral parts of people's cultural identity and practices.

The physical cultural resources under consideration were limited to the following four major categories;

1. Graves or graveyards (burial grounds)
2. Shrines (with physical manmade structures known as *amasabo*)
Shrines (with natural physical symbolic elements like trees and rocks, among others)
3. Places of worship; churches and mosques.

Although possible chance archaeological finds will be reported during excavation of tower foundations, the PCRs that were documented during the Environmental and Social Impact Assessment (ESIA) and Resettlement Action Planning (RAP) will be verified using the form attached in **Appendix 1**.

The Approaches

Effective management of the resources during project implementation will involve;

- Recognition of resources and Respect
- Integration in planning the project
- Consultation and outreach
- Innovation in approaches
- Avoidance through prudent tower spotting (towers shall be spotted after PCR mapping to ensure avoidance/minimal tower footprint on the PCRs)
- Implementation of the Plan

Stakeholders in PCR Management

During the assessments and consultations, participatory approaches will be used and involve the stakeholders in **Table 1**;

Table 1: Stakeholders and Responsibilities in PCR Management

| S.No | Stakeholder | Responsibility | By when | Frequency of involvement |
|-------------|---|---|---------------------------------------|---------------------------------|
| 1 | Households/Caretakers | Identify PCRs, prepare relocation sites and estimate relocation costs | Before start of construction | Monthly |
| 2 | Village Cultural Committees | Identify PCRs, prepare relocation sites and estimate relocation costs | Before start of construction | Monthly |
| 3 | Uganda Traditional Healers and Herbalists Association | Identify and guide on relocation of healing shrines | Before start of construction | Monthly |
| 4 | Bunyoro Kitara Kingdom (BKK) | Identify Bunyoro Kitara cultural sites and guide on PCR Management Plan | Before, during and after construction | Monthly |
| 5 | Local Government Leaders | To guide in verification of care takers , identification of PCR and relocation strategies | Before, during and after construction | Monthly |
| 6 | Steering and management committees of churches/mosques | These committees guide in planning relocation of places of worship | Before, during and after construction | Monthly |
| 7 | Department of Museums and Monuments (DMM) in the Ministry of Tourism, Wildlife and Antiquities | DMM will help to retrieving, relocating, and storage of archaeological and paleontological and historical resources. And also guide on the PCR Management plan. | Before and during construction | Monthly |
| 8 | Department of Gender and Culture (DGC) in the Ministry of Gender, Labour and Social Development | DGC will oversee and supervise the management of cultural and spiritual resources | Before and during construction | Monthly |
| 9 | Ministry of Water and Environment (MWE) | For PCRs that fall in critical natural habitats, MWE will provide guidance on the | Before, during and after | Monthly |

| | | | | |
|----|--|--|---------------------------------------|-----------|
| | | restoration and management. | construction | |
| 10 | Environmental Protection Police Force | security during PCR relocations and restorations | Before, during and after construction | Monthly |
| 11 | National Environment Management Authority (NEMA) | For PCRs that fall in critical ecosystems, NEMA will provide guidance on the restoration and management. | Before, during and after construction | Quarterly |
| 12 | National Forestry Authority (NFA) | Guidance on replanting and directional felling of sacred trees. | Before and during construction | Quarterly |
| 13 | Uganda Wildlife Authority (UWA) | To ensure that endangered species are managed according to the Wildlife Policy 1999. | Before, during and after construction | Quarterly |

Key PCRM Assumptions

In general, the approaches proposed in this document are based on the assumptions outlined below;

- Relocation procedures need to be undertaken before construction work commences to ensure that traditional religious beliefs and practices are respected and to the extent possible cultural objects are preserved.
- Spirits/objects must be found new dwelling places and the transfer and settlement rituals carried out by facilitating the caretakers.
- Members of the project team, particularly those that are new to the area should be made aware of the customs, beliefs and practices and ensure that they are respected.
- Graves and shrines were compensated for as fixtures but this did not include the expenses for the relocation or appeasement rituals.

- Places of worship like Churches and mosques were taken as affected structures but with an understanding that the effect spreads to the community's belief system and not just an individual or household.
- Most importantly, facilitation of the rituals or processes of relocation/appeasement by UETCL will be limited to only the key elements highlighted in the consultations.

Facilitation Strategies

Relocation of Churches and Mosques

Considering that the institutions serve the surrounding communities in terms of upholding the belief systems and normative behaviour, we have endeavoured as much as possible to use an approach of restoring such institutions in a better condition and as much as possible same localities. In this regard, UETCL will compensate them as institutions after negotiations are made.

Relocation of Burial grounds

Taking cognisance of the importance that Africans attach to the dead, UETCL will assist in the ceremonies, rites and rituals for the relocation of graves or burial grounds. From the consultations that will be held, the company will come up with a list of items to be funded for the caretakers to relocate their physical cultural resources.

Appeasement of spirits and relocation of shrines

In similar manner, UETCL recognises the importance that people attach to certain cultural practices and beliefs in as far as the spiritual aspects are concerned. In most African communities, shrines and their caretakers are regarded highly and revered as places of worship or personification of spirits.

It is from this background that the approach for assistance in the relocation activities is tied to the outcome of consultations with the caretakers of shrines as well as the cultural bodies managing and coordinating the practices. Considering that the fixtures/structures have been compensated for during the general compensation, UETCL will provide funds for the appeasement ceremonies and relocation activities. The amounts will be determined from a consultative process involving relevant stakeholders outlined in **Table 1** above. This

commitment for facilitation of relocation and restoration of PCRs is in line with best international practice basing on general World Bank guidelines and safeguard policies.

Annex 16: Site Disciplinary Committee (SDC) composition

| S.No | Designation at Site | Position in the SDC |
|-------------|----------------------------------|----------------------------|
| 1 | Site Manager | Chairperson |
| 2 | HSE Officer | Secretary |
| 3 | Site Nurse | Member |
| 4 | Caterer | Member |
| 5 | Security Officer | Member |
| 6 | Site Foreman | Member |
| 7 | LC1-Representative | Member |
| 8 | Workers' Representative (Male) | Member |
| 9 | Workers' Representative (Female) | Member |