E4636

Republic of Uganda

Ministry of Energy and Mineral Development

Rural Electrication Agency

Energy for Rural Transformation III-(ERT III) Project

Environmental and Social Management Framework

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Table of Contents

Acronyms

ACODE	Action Coalition on Development and Environment
ACSR	Aluminum Conductor Steel Reinforced
APL	Adaptable Project Loan
ACSR	Aluminum Conductor Steel Reinforced
BDMP	Battery Disposal and Management Plan
BoU	Bank of Uganda
BPs	Bank Procedures
CBD	Convention on Biological Diversity
CBO	Community Based Organization
CDMs	Clean Development Mechanisms
CDO	Community Development Organization
CICs	Community Information Centers
CFL	Compact Fluorescent Lamps
CFRs	Central Forest Reserves
CGV	Chief Government Valuer
CSF	Credit Supply Facility
DC	Direct Current
DDPs	District Development Plans
DEA	Directorate of Environment Affairs
DEO	District Environment Officer
DRC	Democratic Republic of Congo
DWD	Directorate of Water Development
DWRM	Directorate of Water Resources Management
EHS	Environment Health and Safety
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EPA	US Environment Protection Agency
ERA	Electricity Regulatory Authority
ERT I, II, III	Energy for Rural Transformation Phases I, II and III
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FAO	Food and Agriculture Organization
FI	Financial Intermediary
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Green House Gases
GoU	Government of Uganda
GPOBA	Global Partnership Output Based Aid
GRM	Grievance Redress Mechanism
HFO	Heavy Fuel Oil

HIV/AIDS	Human Immuno Virus/Acquired Immuno Deficiency Syndrome
ICRs	Implementation Completion Reports
ICT	Information and Communications Technology
IDA	International Development Association
IDPs	Internally Displaced People
IEE	Initial Environmental Evaluation
IFC	International Finance Corporation
IREMP	Indicative Rural Electrification Master Plan
ISRs	Implementation Supervision Reports
IUCN	International Union for Conservation of Nature
KfW	Kreditanstalt für Wiederaufbau
LDCs	Licensed Distribution Companies
LG	Local Government
LGRC	Local Grievance Redress Committee
LV	Low Voltage
m.a.s.l	Meters above sea level
MEMD	Ministry of Energy and Mineral Development
MoES	Ministry of Education and Sports
MoFPED	Ministry of Finance, Planning and Economic Development
MoH	Ministry of Health
MoLG	Ministry of Local Government
MoLHUD	Ministry of Lands, Housing and Urban Development
MoWE	Ministry of Water and Environment
MW	Mega Watt
NDP	National Development Plan
NEA	National Environment Act
NEMA	National Environment Management Authority

NFA	National Forestry Authority
NGO	Non-Government Organization
OBA	Output Based Aid
ODs	Operational Directives
OP	Operational Policies
PAP	Project Affected person
Pb	Lead
PCRs	Physical Cultural Resources
PIM	Project Implementation Manual
PDO	Project Development Objective
PIPs	Project Implementation Plans
POPs	Persistent Organic Pollutants
PRG	Partial Risk Guarantee
PSFU	Private Sector Foundation Uganda
PV	Photovoltaic
PVTMA	PV Targeted Market Approach
RAP	Resettlement Action Plan
REA	Rural Electrification Agency
REB	Rural Electrification Board
REF	Rural Energy Fund
RESP	Rural Electrification Strategy and Plan
RoW	Right of Way
SHS	Solar Home Systems
SIA	Social Impact Assessment
SME	Small Micro Enterprises
SP	Service Provider
ST	Service Territories
STC	Standard Test Conditions
SWER	Single Wire Earth Return
ToRs	Terms of Reference
UAREP	Uganda Accelerated Rural Electrification Project
UBOS	Uganda Bureau of Statistics
UCC	Uganda Communication Commission
UECCC	Uganda Energy Credit Capitalization Company
UNRA	Uganda National Roads Authority
UPE	Universal Primary Education
UPPET	Universal Post Primary Education and Training

USA	United States of America
USE	Universal Secondary Education
UWA	Uganda Wildlife Authority
VIP	Ventilated Improved Pit Latrine
VRLA	Valve Regulated Led Acid
WB	World Bank
WENRECO	West Nile Rural Electrification Company
WHO	World Health Organization

GLOSSARY OF TERMS

Cumulative Impacts/Effects: The total effects on the same aspect of the environment resulting from a number of activities or projects.

Developer/Proponent/Sponsor: the entity – person/ company/agency – proposing to develop/implement/install a new project/sub- project or expand an existing project under the ERT III Project.

Direct Impacts: An effect on the environment brought about directly by the ERT III project activities.

Disclosure: Information availability to all stakeholders at all stages of the development of projects.

Distribution: means the ownership, operation, management or control of distribution facilities for the movement or delivery of electricity to consumers.

Endangered Species: An endangered species is a species of organisms that will likely become extinct.

Environmental and Social Impact Assessment (ESIA): A comprehensive analysis of the project and its effects (positive and negative) on the environment and social structures and a description of the mitigative actions that will be carried out in order to avoid or minimize these effects.

Environment: physical, biological and social components and processes that define our surroundings.

Environmental and Social Monitoring: The process of examining a project on a regular basis to ensure that it is in compliance with an Environmental and Social Management Plan (ESMP) as will be approved by NEMA after ESIA study.

Involuntary Resettlement: The forceful loss of land resources that requires individuals, families and / or groups to move and resettle elsewhere.

Impact: A positive or negative effect that a project has on an aspect of the environment and social structures.

Indirect impact: A positive or negative effect that a project indirectly has on an aspect of the environment.

Lead Agency: The agency with primary responsibility for the protection of the environment. For instance, the lead agency for environment matters in Uganda is the National Environment Management Authority (NEMA).

Mitigation Measures: The actions identified in an ESIA to negate or minimize the negative environmental impact that a project may have on the environment and social structures.

OP (Operational Policy) and BP (Bank Procedures): OPs are broad policies of the Bank. They are typically accompanied by BPs (Bank Procedures) that describe how the Bank implements the policies.

Pollution: contamination altering the state of purity.

Project and Sub-Project: a set of planned activities designed to achieve specific objectives within a given area and time frame. With respect to ERT III Project, the terminology can be confusing. The project in World Bank terms in the ERT III project; and all proposals subject to intermediary loans are subprojects.

Project Brief: An outline of the planned development giving brief background on the project in terms of in-puts, activities to be undertaken and likely impacts.

Scoping: The initial stage in an environmental assessment that establishes the extent of the development and its likely environmental and social parameters that will be affected.

Screening: An initial step in which, a project will be considered for environmental and social assessment as well as, the level and focus of the assessment as per the Third Schedule of the National Environment Act Cap 153.

Significance: Level or scale of importance.

Significant effect: An impact with a magnitude on the environment and social structures.

Stakeholder: Any person, group, institution or agency that has an interest in the project, and the environmental effects that the project may bring about.

Threatened Species: Threatened species are any species (including animals, plants, fungi, etc.) which are vulnerable to endangerment in the near future.

Vulnerable Species: A vulnerable species is one which has been categorized by the International Union for Conservation of Nature (IUCN) as likely to be become

Endangered unless the circumstances threatening its survival and reproduction improve.

EXECUTIVE SUMMARY

Background

The Government of Uganda is implementing a World Bank (WB) funded Energy for Rural Transformation (ERT) project as a three-phase Adaptable Programme Loan (APL). The Programme Development Objective is to increase access to energy in rural areas. After successful implementation of the first phase of the Programme, the second phase (ERT II) is now under implementation up to June 2016. Preparations have now commenced for the third phase of the Programme expected to be effective by August 2014 and last for 5 years up to 2019. The program has the following components;

Programme Components

Component 1: Rural Energy Infrastructure: On-grid investments will finance all on-grid activities. In designing the grid projects and in line with the Indicative Rural Electrification Master Plan (IREMP) criteria for project choice, REA will target to connect all social amenities i.e. schools, health centers and water sources within the project areas.

Component 2: Energy Development, Cross Sectoral Links and Impacts Monitoring: This component will finance installation of solar PV systems for institutions such as schools, health centers and water pumping stations – all in rural areas. As was done for the ERT II, these will be implemented by the respective line ministries (i.e., Ministry of Health (MoH), Ministry of Education and Sports (MoES) and Ministry of Water and Environment (MWE)) but in collaboration with Rural Electrification Agency (REA) and MEMD/PCU to synchronize plans. Special considerations will be made for Universal Secondary Education (USE) and the World Bank supported Uganda Post Primary Education and Training Programme (UPPET) schools that have enrolment less than 500 students to receive solar energy packages. The Private Sector Foundation of Uganda (PSFU) will will support supply side energy efficiency measures (such as energy audits, cost sharing of power factor improvement equipment and solar water heaters). It will also continue to finance feasibility studies and related technical assistance support to facilitate private investment in renewable energy (pico/mini-hydro) generation using the Business Uganda Development Service (BUDSERT) approach developed during the ERT-1. Component 2 includes inter alia: the development of three pico hydros (5 kW each) and three micros (16 kW, 20 kW and 45 kW) hydropower plants which are community based initiatives and will require construction of weirs; these will be implemented by the PSFU through financing to be shared with private developers – in this case, the user communities. . Finally, the Uganda Energy Credit Capitalization Company (UECCC) will provide credit facilities and other credit enhancement instruments (eg., guarantees) for the participating financial institutions (PFIs) to facilitate access to finance for consumers and suppliers for off-grid electricity

access. Technical Assistance provided under this component will finance the necessary consultancy services, capacity building activities and operations costs as agreed. The overarching role of impact monitoring for the ERT III will be implemented by the Ministry of Finance, Planning and Economic Development (MOFPED).

***Component 3**: Renewable Energy Development:* This component will finance feasibility studies of other renewable energy resources such as geothermal energy, studies for seven small hydropower (0.5 MW – 20 MW) development etc., and will be implemented by the Ministry of Energy and Mineral Development (MEMD). For the Feasibility Studies of Small Hydropower Development activity under the Ministry, sites of capacity ranging from 0.5MW to 20MW will be considered, with a dam height not exceeding 15 meters. These studies will facilitate the development of SHPP at a later date by the private sector. The proposed Project will not finance construction of any SHPP. The feasibility studies will include environmental scoping to establish key environmental aspects that may be of concern.

Environmental and Social Management Framework

As part of preparation for ERT-III, Environmental and Social Management Framework (ESMF) has been prepared to provide guidance on how environmental and social aspects shall be identified, assessed and managed.

Review of ESMF for ERT II

A review of ESMF for ERT II was undertaken as one of the key tasks in this assignment and the key short comings in ESMF for ERT II noted included:

- Inadequate articulation of institutional framework
- Lack of indicative cost for ESMF implementation
- Inadequate coverage of Physical Cultural Resources in ESMF
- Lack of Grievance Redress Mechanism
- No environmental and social baseline data

Purpose and Scope of ESMF for ERT III

This ESMF provides guidance on how environmental and social aspects shall be identified, assessed and managed. Specific locations have not been clearly identified at this stage, hence it provides a general impact identification framework to assist project implementers to screen the projects and institute measures to address adverse environmental and social impacts.

Approach and Study Methodology in ESMF Preparation

The ESMF has been prepared in accordance with applicable World Bank Environmental and Social safeguard policies and Uganda environmental and social impact assessment guidelines, and involved data literature reviews; field reconnaissance studies, public consultations and discussions with relevant sector

institutions, including districts, private sector, statutory agencies and local communities.

Key laws and regulatory frameworks
These include:

National Policy Framework

- Renewable Energy Policy, 2007
- The National Environment Management Policy 1994;
- The National Cultural Policy, 2006;
- The National Water Policy, 1999;
- The National Land Use Policy, 2011;
- Forestry policy, 2001
- Energy policy, 2001
- Public Health Policy 1964
- The National Gender Policy, 1997;
- The National HIV/AIDS Policy, 2004;
- The National Policy for the Conservation and Management of Wetland Resources, 1995; and
- The Uganda Wildlife Policy, 1999

The Ugandan legal framework

- The Constitution of the Republic of Uganda, 1995;
- The National Environment Act, Cap 153;
- The Electricity Act, 1999
- The Public Health Act, 1964
- The Land Act, Cap 227;
- The Water Act, Cap 152;
- The Uganda Wildlife Act, Cap 200;
- The Occupational Safety and Health Act, 2006;
- The Petroleum Supply Act 2003
- The Petroleum Supply Regulations, 2009
- Historical Monument Act, 1967;
- The National Forestry and Tree Planting Act, 2003;
- The National Environment (Impact Assessment)Regulations, 1998
- The National Environment (Waste Management) Regulations, 1999;
- The National Environment Regulations (Noise Standards and Control), 2003
- The National Environment (Control of Smoking in Public Places) Regulations, 2004
- The National Environment Regulations (Hilly and Mountainous areas Management), 2000
- The National Environment (Audit) Regulations, 2006 (12/2006);and
- The National Environment (Wetlands, Riverbanks and Lakeshores Management) Regulations (SI 153-5).

International and Regional Environmental instruments/obligations for Uganda

- The African Convention on the Conservation of Nature (1968)
- The Ramsar Convention (1971) on wetlands of International Importance
- The Protection of World and Cultural Heritage convention (1972)
- Convention on Biological Diversity- (CBD 1992)
- The East African Community (EAC) Protocol on Environment and Natural Resources Management
- Basel Convention
- Stockholm Convention
- Montreal Protocol
- Rotterdam Convention
- United Nations Framework Convention on Climate Change (UNFCCC, 1992)

World Bank Safeguard Policies

The safeguards policies triggered are:

- OP 4.01 Environmental Assessment, including the World Bank's Environmental Health and Safety Guidelines
- OP 4.04 Natural Habitats
- OP 4.11 Physical Cultural Resources
- OP 4.12 Involuntary Resettlement
- OP 4.36 Forests
- OP 7.50 Projects on International Waterways

Key Stakeholder Issues Raised

ISSUE RAISED	REMARK/PROPOSED MEASURES
• A number of key institutions have not been included on the proposed ERT III routes yet they needed the power. What criteria were used in selecting the routes? Was it done on the desk? Who did REA consult in identifying the routes? Is there another phase during which those institutions can be included in supply of power?	• The focus of the ERT III is to develop the rural electrification infrastructure and accelerate consumer connections. REA gathers information on regional demand profiles and the costs on-grid, isolated grid and standalone projects. Then, it establishes priorities for public and private investments in underserved rural areas, including for "regional equity projects".
• Worries over affordability of tariffs by the local communities;	• Section 4(1) of the Electricity Act (1999) empowers ERA to establish a tariff structure and investigate charges, whether or not a specific complaint has been made for a tariff adjustment; approve the rates of charges and terms and conditions of electricity services provided by transmission and distribution companies, and develop and enforce performance standards for the

	generation, transmission and distribution of electricity, among others. Therefore, the price of electricity under the ERT III is an issue to be addressed by ERA.
• Requested that the extension of the 33KV lines should be done in parallel with power extension to their premises;	• Issue brought to REA's attention and to be considered by management as detailed project implementation plans are still under preparation and the request can be considered.
• The total economic value of an affected forest should be calculated and compensated for, and not only the timber value of the felled trees;	• Valuation and compensation issues are addressed and elaborated by the standalone Resettlement Policy Framework prepared alongside this ESMF.
• The valuation criterion for the destroyed property was not fair to most PAPs. People wanted to know the rates to be applied before actual compensation;	• Valuation and compensation issues are addressed and elaborated by the standalone Resettlement Policy Framework (RPF) prepared alongside this ESMF.
• They needed prompt compensation in case the line affected their properties or sources of livelihoods. Other issues raised in the consultations are summarized in Annex 11.	• Government of Uganda has budgeted for compensation and relocation issues and this will be implemented before project implementation commences.
• There is urgent need for power to run district and sub-county activities in remote sub-counties because everything is now computer based;	• Connection of the districts to the grid was and still remains one of the key priorities of the ERT project.
• Needed to be sure that the local people would get employed on the project;	• Issue brought to the attention of REA and will be considered during project implementation. It will be ensured that the local people are involved in project implementation.
• There are no local grievance redress committees at lower levels (Village level) to handle minor complaints; and	• This ESMF elaborates the grievance redress mechanism to be adopted to deal with grievances that may arise during the project implementation.
• Other users of the road reserves like the telecommunication companies, water supply, etc. should all be encouraged to undertake EIAs for their projects and their EIAs linked to those conducted by REA because the cumulative impacts of all these developments may be a threat to the ecosystems traversed, (wetland or Forest);	• Critical issue to understand the cumulative impact of the various projects that utilize road reserves. Assessment of cumulative impacts will have to be done as part in the respective subproject assessments. UNRA is in-charge of management of road reserves and jointly with Local Government could take this up.

Project Impacts and Mitigation

The ERT III project will support interventions designed to increase access to modern energy, information and communication technologies in Uganda. The project is expected to have positive overall environmental impact through promoting renewable energy generation and energy efficiency. Some project activities, however, may have localized adverse environmental impacts, e.g. changes in hydrology, vegetation clearance or soil erosion through construction and operation of mini hydropower dams. It is important to note that, most small hydropower projects equally produce localized impacts which can be mitigated and tend to be restricted to the specific sites These all imply that, ERT III project will likely generate minimal negative environmental and social impacts. Based on the preliminary assessments as the specific locations of the subprojects are unknown at this point, overall, the impacts of the ERT III will be of small scale, localized and of short-term nature which can be effectively mitigated through the mitigation measures proposed and by following the requirements and guidance in this ESMF. This ESMF provides a step-by-step guidance on how to identify potential adverse environmental and social impacts from project activities, and how to plan, implement and monitor measures to mitigate them. Access to common assets/resources and improved livelihoods of project affected persons, due to potential land acquisition for infrastructure development if any, will be addressed in an inclusive manner. A Resettlement Policy Framework (RPF), which sets out the guidelines for the resettlement action plans (RAPs) to be prepared for any subproject that triggers the Involuntary Resettlement Policy has been prepared alongside this ESMF.

Subprojects Screening and Assessment

Step 1: Environmental and Social scoping of the proposed projects will first be carried out.

Step 2:Categorization –ERT III schemes which largely involve construction of power distribution lines of 11 and 33 kv will likely be restricted to existing road reserves, no land take is anticipated, issues of resettlement and compensation are also of minimal scale and therefore a Project Brief will suffice. EHS guidelines for Electric Power Transmission and Distribution shall be used to guide management of impacts associated with forested areas, wetlands, electric and magnetic fields and hazardous materials handling. In addition, the PV schemes are all not listed under the Third Schedule of NEA, but their use and final disposal will be guided by WB EHS guidelines. The project will finance only feasibility studies of the small and mini-hydro and geothermal projects and will not support any actual construction activities. The development of the renewable energy projects is to be undertaken by the private sector through partial risk guarantee. Should at a later stage of implementation consider actual construction, the client (GoU) is encouraged to apply and use IFC Environmental and Social Standards to guide the Safeguards studies. For all other subprojects (PV installations), a standardized Environmental and Social

Checklist and WB EHS guidelines will be used to screen and obtain and present additional information on potential environmental and social impacts and to recommend mitigation measures. The ERT III ESMF places ERT III project under Category B type as per World Bank categorization, implying that the resultant project impacts are easily assessed, mitigated and managed.

Step 3: Assessments – The ESIA will be conducted by the consultancy firms registered by NEMA. However, Project Briefs can be prepared by the Developer or non-NEMA registered persons. A Project Brief doesn't require preparation of ToRs and their approval is by NEMA. However, in case an ESIA needs to be undertaken, the ToRs for the study will be prepared by the project implementing agency and approved by NEMA. The ESIA report will identify and assess the potential environmental and social impacts for the planned activities, including health and occupational impacts, assess the alternative solutions, and will design the mitigation, management and monitoring measures to be implemented.

As part of the assessment, the ESIA will also assess the vulnerability of different groups in particular project contexts (in terms of potential exclusion from project benefits, negative project impacts, and the need for specific culturally compatible mechanisms for participation, e.g. for women, the widowed, permanently disabled, elderly etc.), and will incorporate adequate measures to address such vulnerability in the ERT III project design.

Where for particular project components land acquisition (temporary and/or permanent) is unavoidable, a Resettlement Action Plan, in line with the Resettlement Policy Framework (RPF), will be prepared. The RPF sets out a clear framework for the assessment, mitigation and compensation and, where necessary, the settling of disputes arising out of resettlement, land acquisition, loss of assets/access to assets/livelihoods.

Step 4: Stakeholder Involvement: The implementing agencies will identify direct and indirect stakeholders and will prioritize stakeholder consultations to inform the design and decision making of the project, and thus improve the effectiveness, relevance and sustainability of all project components.

Public consultation will be initiated during the scoping and ESIA preparation stages and views of stakeholders (general public and lead agencies) have to be included in a Project Brief as well. Public consultation will also be an integral part of the process throughout the planning and execution of the project. REA and the respective implementing agencies will interact closely with PAPs/communities, project personnel, government departments, NGOs right from the early stages of the project preparation on a regular basis for developing and implementing the respective project ESIAs and RAP where applicable.

The inclusion of a gender perspective and the participation of women are essential, as well as the involvement of community members of different ages as appropriate. Given the social setup of the identified Vulnerable Groups, consultation will definitely require time and an effective system of communication amongst interested parties to ensure that it adequately deals with their needs, priorities, and preference. This can be best achieved through discussions in focus groups specific to each category (female only groups, youth only groups and so on). The consultative and communication strategy has to place a special emphasis to ensure the participation of vulnerable groups in decision making throughout ERT III planning, implementation and evaluation.

Step 5: Review and Approval –Following the internal review of the Project Brief or ESIA by the implementing agency and the Bank in case of a full ESIA, the EIS or the Project Brief will be forwarded to NEMA for final review and clearance. If the Executive Director is satisfied that the subproject will have no significant impact on the environment, or that the assessment (Project Brief or EIS) discloses sufficient mitigation measures to cope with the anticipated impacts, he may approve the subproject ESIA. The Executive Director of NEMA or his delegated official shall then issue a EIA Certificate of Approval for the project.

Step 6: Environmental and social monitoring aims at checking the effectiveness and relevance of the implementation of the proposed mitigation measures. Overall, the Project Implementing Agency will have the lead role in monitoring to ensure that its various environmental and social obligations are met, and will have to fulfill the requirement for an environmental and social audit, not less than 12 nor more than 36 months after project completion or commencement of operations respectively in line with the National Environment Act and the National Environment (Audit) Regulations of 2006. The District Environment Officers in conjunction with the District Community Development Officers will also monitor the implementation of environmental and social mitigation measures. Suitable project monitoring indicators will be developed by the Project Implementing Agency based on the mitigation measures and the ESMP or RAPs. At the end of subproject construction phase, Environmental and Social issues shall be part of a Certification of Compliance for the completion of works issued by the Implementing Agency. Environmental and social issues shall be signed off by Implementing Agency's Environmental Specialist.

Project Implementation Framework

Institution	Responsibility and Safeguards Capacity for ESMF Implementation
MEMD/PCU	The MEMD is the lead agency for all energy projects in Uganda. The ERT III project will be housed in the MEMD which will be overall Project Coordination Unit (PCU) for ERT III project. It will be responsible for environmental and social planning, coordination, monitoring and evaluation, and the implementation of all activities of ERT III Project in consultation with the other implementing agencies while

	closely coordinating with the Bank. **Responsibility** • Overall Project Coordination Unit (PCU) for ERT III project, • PCU shall be responsible for oversight role and the implementation of mitigation measures and general compliance of the project with any permits, licenses and Approval Conditions and related regulations and standards on environment. • report on matters of resolving complaints and grievances regarding the ERTIII activities by stakeholders • Component 3 – Renewable Energy Development will finance studies of other renewable energy resources such as geothermal energy, studies for small hydropower development etc., and will be implemented by the MEMD. • enabling the development of potential small hydropower sites • Exploring additional generation from geothermal sources, • Market and street lighting • Consumer awareness on energy efficiency. **Capacity** – MEMD has a Senior Environmental Officer, fully qualified to provide support to ERT-III. However, MEMD is in the process of recruiting a Safeguards Officer for Electricity Support Development Project (ESDP) and will be assigned to implement this ESMF and ensure overall coordination and management of Environmental and Social aspects of ERT-III together with ESDP.
REA	REA is the lead government institution for implementation of rural transformation energy projects and will lead implementation of Component 1 Rural Energy Infrastructure. **Responsibility** • REA will take lead in implementation of project component 1 • For Component 1, REA Environmental Unit shall be responsible for oversight role and the implementation of mitigation measures and general compliance of the project with any permits, licenses and Approval Conditions and related regulations and standards on environment. • report on matters of resolving complaints and grievances regarding the ERTIII activities by stakeholders. **Capacity** - REA has an Environmental Unit with two Environmental Specialists who have sufficient training and experience in environmental and social issues and can effectively coordinate and provide expert advice to contractors on how to effectively implement the required safeguards under Component 1. A way leaves Unit also works hand in hand with environmental unit during RAP process. In addition, REA expects to recruit a Social Development Specialist in the financial year (2014/15) to fully address all social issues including compensation and resettlement including vulnerability issues projects including ERT III. The Social Development Specialist will train and guide the CDOs at the district level on all social issues including issues of vulnerable groups. The CDOs will also be facilitated by REA to implement and monitor the project on ground.
UECCC	**Responsibility -** UECCC provides Technical Assistance and new financing options to facilitate private sector led energy projects. The UECCC will utilize their portion of funds to facilitate local commercial finance by providing credit enhancement products such as partial risk guarantees, and other refinance facilities. This is under component 2.
ERA	**Responsibility -** The primary duties of ERA include licensing, tariff setting,

	development and enforcement of performance and safety standards. ERA will ensure that, the operations and costing of energy from the planned project will be in accordance with its set standards and tariffs.
NEMA	**Responsibility** – review and approve environmental impact assessments and Project Briefs as well as monitoring project implementation in accordance with the National Environment Act and the respective regulations. **Capacity** – NEMA has adequate capacity to monitor the ERT III through its Department of Environmental Monitoring and Compliance in addition to the District Environment Officers in the respective project areas that will be able to report any cases of noncompliance. Although NEMA has no social scientists, NEMA Environmental Inspectors capture social issues/complaints during their inspections where feasible. But overall, NEMA captures both environmental and social issues either through the mandatory annual compliance audits or through monitoring and inspection reports. The District Environmental Officers who are gazetted Environmental Inspectors also carry out environmental monitoring of the projects in their respective districts. Therefore, there is need for close coordination between the DEOs and CDOs in order to fully integrate social issues into the monitoring reports prepared by the DEOs.
MoFPED	**Responsibilities** – overarching role of impact monitoring for the ERT III. **Capacity** – No capacity to implement this ESMF but it is important to note that MoFPED will not be directly involved in implementing the project on ground hence no need for environmental and social safeguards capacity for the ERT III.
MoH	**Responsibility** – implement solar PV systems for health centers in collaboration with REA - Component 2 **Capacity** – The MoH has the Environmental Health Division which could be engaged for purposes of implementing the ESMF requirements. However, it has been recommended that the supplier will have to cater for end-of-life issues through procurement process. Key personnel from MoH will be required to attend training workshops on ESMF implementation to be organized by MEMD/PCU. In addition, they will have to seek advice from MEMD/PCU's Safeguards Officer on all environmental and social issues of the ERT III that may arise.
MoES	**Responsibility** – In terms of providing PV systems to schools, the Ministry of Education and Sports (MoES) has demonstrated satisfactory implementation capacity and will carry out these installations. As such, implementation of PV systems for schools by the Ministry of Local Government (MoLG) is to be handled by MoES. **Capacity** – MoES does not have an Environmental Unit or the necessary expertize to ensure safe handling and disposal of waste associated with solar PV materials. However, it has been recommended that the supplier will have to cater for end-of-life issues. Key personnel from MoES will be required to attend training workshops on ESMF implementation to be organized by MEMD/PCU. In addition, they will have to seek advice from MEMD/PCU's Safeguards Officer on all environmental and social issues of the ERT III that may arise.

MoWE	**Responsibility** – MoWE will implement solar PV systems as well as grid extensions for water pumping stations in collaboration with MEMD/PCU. **Capacity** – MoWE does have in-house capacity in terms of qualified staff to implement this ESMF.
PSFU	**Responsibility** – PSFU will continue with their successful investment components such as Power Factor Correction Equipment, Solar Water Heaters and Private Sector Small Hydropower Development and Productive use of energy that they piloted under ERT I. It could also include supporting the Efficient Cooking Stove initiative that is currently under discussion and funded by a Russian Trust Fund. **Capacity** – PSFU does not have an Environmental Unit or the necessary expertize to implement this ESMF. Key personnel from PSFU will be required to attend training workshops on ESMF implementation to be organized by MEMD/PCU. In addition, they will have to seek advice from MEMD/PCU's Safeguards Officer on all environmental and social issues of the ERT III that may arise.
LGs	**Responsibility** – Work with MEMD/PCU to implement the project within their respective jurisdictions. **Capacity** – Every district has a designated District Environment Officer whose responsibility is to monitor all environmental affairs of the district including compliance of activities within their jurisdiction. In addition, every district has a Community Development Officer who is responsible for mobilizing communities to participate in projects as well as coordinating and reporting on the impact of projects (positive and negative) on the communities. District Land Tribunals are also in place for some of the project districts to handle land related issues of the ERT III. However, the districts will require facilitation to monitor project implementation as provided for in the ESMF budget.
Contractors	**Responsibility** – Actual implementation of the project on ground including installations, etc. The Contractor on his part will also be responsible for planning, implementing and reporting on mitigation measures during the execution of the project works. **Capacity** – The Contractors are unknown at this point. However, the selection criteria will include past environmental and social performance as well as adequacy of contractor's staff to effectively put mitigations in place.
World Bank	The World Bank will be responsible for review and clearance of ESIAs/Project Briefs as well as offering implementation support supervision to the project's environmental and social performance through missions. World Bank will also be responsible for reviewing regular monitoring reports and officially disclosing the ESIAs on its website. Technical guidance may also be provided by World Bank to GoU/ Implementing Agencies as needed from time to time.

ESMF Implementation Budget

Item	**Cost in USD**				
	Year 1	Year 2	Year 3	Year 4	Year 5

Mobilization and training in ESMF Safeguards requirement and general project management including GRM issues coordination (targeted include implementing agencies and LGs)	150,000	100,000	100,000	100,000	100,000
Update/Development of Environment and Social Compliance Monitoring Information Management System	25,000	-	-	-	-
Mobilization and involvement of , CSOs and vulnerable groups	80,000	80,000	80,000	80,000	80,000
Facilitation of CSOs to implement and monitor the vulnerable groups	40,000	40,000	40,000	40,000	40,000
Projects supervision (civil works, health and safety, HIV issues etc.)	100,000	100,000	100,000	100,000	100,000
Environmental Audits	65,000	65,000	65,000	65,000	65,000
Annual Total	**460,000**	**385,000**	**385,000**	**385,000**	**385,000**
Total Budget Estimate for ESMF Implementation			**$2,000,000**		

Disclosure

This ESMF will be disclosed both in-country in one or two of the local dailies, on REA's website and at the World Bank's infoshop in compliance with relevant Ugandan regulations and the World Bank Operational Policies. REA will also provide copies of the respective ESIAs and RAPs for disclosure at the World Bank Infoshop for public access.

Conclusions

The ERT III project will support interventions designed to increase access to modern energy, information and communication technologies in Uganda. The project is expected to have positive overall environmental and social impacts through promoting renewable energy generation, access and energy efficiency. Some project activities, however, may have localized adverse environmental and social impacts, especially the small hydropower and geothermal projects. Based on the preliminary assessments as the specific locations of the subprojects are unknown at this point, overall, the impacts of the ERT III will be of small scale, localized and of short-term nature which can be effectively mitigated through the mitigation measures proposed and by strictly following the requirements and guidance in this ESMF.

In terms of capacity, MEMD, REA, MWE, MoH have capacity to implement environmental issues of this ESMF while other agencies like MoES, etc do lack capacity to effectively implement this ESMF. The key personnel from these agencies will be required to attend training workshops on ESMF implementation to be organized by MEMD/PCU. In addition, they will have to seek advice from MEMD/PCU's Safeguards Officer on all environmental and social issues of the ERT III that may arise. Overall, the implementing agencies have inadequate

capacity to effectively handle social issues and challenges of the ERT III. However, REA will recruit a Social Development Specialist in the next financial year (2014/2015) to coordinate the social aspects of ERTIII Component 1.

Recommendations

a. There is a lot of misinformation in the communities on the proposed project which is mixed with far-fetched expectations on compensation, provision of free electricity to the communities and associated benefits. This state of information can be a potential risk to the smooth implementation of the project. To counter this, there should be a robust sensitization and awareness Project on ERT III to prepare the target communities on the project before its implementation;

b. During the public consultations, stakeholders observed the need for Government to ensure that, the grid extension and intensification lines should to the extent possible, be restricted to the road reserve to avoid anxiety and undue expectations from the local population with regards to compensation. However, where distribution lines cross sections of wood lots especially at road sides, under such instances, the concerned landlords or institutions should be compensated for the loss and damage to the sections of the woodlots affected by the project;

c. Furthermore, grid extension and intensification works will involve erection of distribution lines across wetlands and protected areas. Such ecosystems are habitats of birds and associated biodiversity. Instances of bird collision with such power lines are reportedly common across such ecosystems. This ESMF provides for horizontal alignment of conductors in wetland areas to reduce bird electrocution;

d. More often than not, attention on environmental aspects of ERT projects has tended to focus on environmental and social aspects of grid extension and intensification components without corresponding attention given to PV components yet these equally have a potential to cause serious environmental and social impacts. It is suggested that, right from the procurement of PV equipment, environmental and social compliance measures should be integrated especially management and disposal of components that reach their end of lives.

This ESMF recommends the following for inclusion of gender issues to enable the ERT III fulfil the objectives of the Energy Policy:

- Ensure that the process of electrification of social and community buildings (health, education, etc.) as well as expanding access to

electricity for the promotion of economic activities in rural areas includes a balance of men and women during consultations and outreach;

- Explore the possibility to expand the distribution of solar lamps and all off-grid component to organizations dedicated to social and economic empowerment of women and women championed households/families;
- Awareness: integrate a gender dimension and promotion of economic and poverty alleviation importance into consumer awareness and promotion campaigns; and
- At Project implementation: Engender the capacity building process for rural energy actors as well as incorporate the gender aspects in project implementation process.

1 INTRODUCTION

1.1 Background

Uganda covers an area of 241,038 square kilometers of which about a third is covered by fresh water bodies and wetlands and is endowed with numerous natural resources. It is mainly a plateau astride the equator with favorable tropical climate and average temperature ranging from 18 to 28^{0}C. The country has a relatively young population with about 60 per cent below 18 years of age and a total population estimated at 32 million people (UBOS, 2010) of which, an estimated 51 per cent of this are female.

Currently, Uganda's development is constrained by a number of factors including low trade competitiveness i.e. the ability to produce goods and services that can be favorably traded on the global market which positions a country at an advantage towards attracting investments. Another is the low industrialization and value addition; Uganda's Gross Domestic Product (GDP) is still largely dominated by primary products. This has led to unfavorable balance of payment, skills transfer, low levels of employment and high poverty levels. This is compounded by low levels of science, technology, engineering and innovation (STEI) level compared to many developed countries. According to World Economic Forum in 2010, Uganda was ranked 121 out of 142 countries in terms of overall competitiveness of its goods and services by the World Economic Forum in 2010. Therefore, to develop a strong private sector and be able to attract Investments, Uganda has to improve on the above factors.

1.2 Energy Sector in Uganda

1.2.1 Key Sectorial Mandates and Goals

The Energy Sub-sector's mandate is "to establish, promote the development, strategically manage and safeguard the rational and sustainable exploitation and utilization of energy and mineral resources for social and economic development". The main policy goal in the energy sector which is guided by *The Energy Policy of Uganda (2002)* is "to meet the energy needs of the Ugandan population for social and economic development in an environmentally sustainable manner" and the *Renewable Energy Policy (2007)* whose overall Policy Goal is "to increase the use of renewable energy so that its proportion (excluding biomass) represents up to 7.5% of the total energy consumption by the year 2016". The Ministry of Energy and Mineral Development (MEMD) is the Government lead agency responsible for the management and development of the energy sector through coordinated national policy formulation, implementation and monitoring. The mission of the Ministry is to create conditions for the provision of safe, reliable, efficient, cost effective and environmentally appropriate energy services to all sectors on a sustainable basis and thereby contribute to the economic growth of the country.

1.2.2 Energy Policy objectives

The key energy policy objectives are:

a. **To increase access to affordable and reliable energy services:** The focus is provision of energy services to meet basic needs of the poor, stimulate productivity capacity and to meet energy needs for the community services as schools, clinics and water supply facilities;

b. **To stimulate economic development:** The energy sector is envisaged to provide input in the development process by establishing an efficient energy production, transmission, distribution, and end user system in an environmentally acceptable manner with due regard to gender issues. This also includes facilitating increased availability of energy services, including grid and non-grid electrification to rural areas, apart from electrifying the remaining district headquarters;

c. **To build gender balanced capacity:** The Government aims to build gender-balanced capacity in planning, implementing and monitoring energy sector projects;

d. **To reform the market for energy services.** Appropriate reforms have been undertaken for the petroleum and electricity sub-sectors. Consequently, the Government of Uganda has restructured the power sub-sector and privatized the generation and distribution business for increasing efficiency and attracting private investment in the sector;

e. **To adequately take into account environmental considerations for all energy activities:** The Government will promote access to improved technologies for promotion of energy efficiency and conservation in all sectors and reduction of the negative impacts of energy consumption; and

f. **To enhance the development and utilization of indigenous renewable energy sources and technologies:** The Government intends to exploit the indigenous renewable energy sources and technologies for expansion of electrification services to rural areas, in order to reduce deforestation, indoor health hazards, and time spent by rural women in search and collection of firewood.

1.2.3 Uganda Vision 2040

According to the Uganda Vision 2040, energy and in particular electricity is a driver of socio-economic transformation of a nation. For Uganda to shift from a peasantry to an industrialized and largely urban society, it must be propelled by electricity as a form of modern energy. To achieve the targets of this Vision, Uganda will develop and generate modern energy to drive the industry and services sectors. It is estimated that Uganda will require 41, 738 MW by 2040 thus

increasing its electricity per capita consumption to 3,668 kWh. Furthermore the access to the national grid must significantly increase to 80 per cent.

According to the Vision, the required capacity will be generated from different energy sources namely: hydro power (4500MW); geo-thermal (1500MW); nuclear (24000MW); solar (5000MW); biomass (1700MW); peat (800MW) and thermal (4300MW). The source of energy and its contribution will be determined after detailed feasibility studies of energy mix. The main emphasis will be on use of energy source that will provide a competitive tariff compared to other countries. Due to climate change, emphasis will be on other renewable forms of energy including; wind, solar and biogas will be harnessed and promoted. Government will invest in R&D and provide incentives to encourage use of renewable energy.

Furthermore, 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. Government will provide incentives to lower the cost of electricity infrastructure, facilities and equipment.

1.2.4 The Rural Electrification Programme

Since 2001 to date, government has undertaken the rural electrification programme in line with the electrification strategy and plan, in ensuring the participation of both public and private sectors. These rural electrification activities can be divided into the following categories:

(a) The expansion of the main grid;
(b) The development of isolated and min-grid systems for relatively concentrated areas with a potential of productive use;
(c) The renewable energy power generation for sale to the main grid and for mini-grids;
(d) The installation of solar photovoltaic systems for isolated settlements that cannot be economically connected to the grid.

The planning and construction of rural electrification projects have mainly focused on the following objectives:

(a) The connection to the district headquarters
(b) Connection to trading centres and other productive enterprises to increase economic activities for income generation
(c) Provision of electricity for social services (health, education and water supply)
(d) Household energy use which normally occurs where electricity is extended.

1.3 Energy for Rural Transformation (ERT) Project

1.3.1 Overview of ERT

In order to realize the Rural Electrification Strategy and Plan (RESP1) objectives, funding was sought from the World Bank through the Energy for Rural Transformation (ERT) project. This RESP1 prescribed a multi-technology approach to extending modern energy services to the rural communities. These technologies included grid extension, independent grids and solar PV, recognizing the sparse nature of settlements and the large task and length of time it would take to extend the grid to many parts of the country. In November 2001, the World Bank approved the ERT Programme as a three phase adaptable Programme Loan (APL). To support the Government desire to use energy schemes to reduce poverty and cause rural transformation. The purpose of the ERT programme is to develop Uganda's energy and information/communication technologies (ICT) sectors, so that they make a significant contribution to bringing about rural transformation, i.e., these sectors facilitate a significant improvement in the productivity of enterprises as well as the quality of life of households.

1.3.2 Energy for Rural Transformation Phases I and II

The ERT I was conceived and implemented in a framework of six components implemented by eleven agencies. The components were: (i) Main-grid-related power generation and distribution (ii) Independent grid systems (iii) Solar PV systems (iv) Cross-sectoral linkages (v) Energy Sector Capacity Building and Training and (vi) ICT. The components were implemented by: (i) Rural Electrification Agency (REA) (ii) Bank of Uganda (BoU) (iii) Uganda Communications Commission (UCC) (iv) Private Sector Foundation Uganda (PSFU) (v) Ministry of Health (MoH) (vi) Ministry of Water and Environment (MoWE) (vii) Ministry of Local Government (MoLG) (viii) Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) (ix) Ministry of Finance, Planning and Economic Development (MoFPED) (x) Ministry of Energy and Mineral Development (MEMD) and (xi) Ministry of Education and Sports (MoES).

As a follow-up to the ERT I, GOU prepared and has been implementing the ERT II in a framework of three components: (i) Rural Energy Infrastructure (ii) ICT (iii) Energy Development, Cross-sectoral linkages and Impact Monitoring. The implementing agencies remained the same as in ERT I with the exception of BOU which was replaced with the Uganda Energy Credit Capitalization Company Ltd (UECCC). The ERT I outturn shows that it was implemented over 7 years from 2002 to 2009, drawing US$ 56.2million of IDA funds and US$ 11.5million in grants[1], a total of US$ 67.7million.

[1] ERT I Implementation Completion Report, Annex III, p.56

Phase I of the ERT Project lasted 6 years and ended in February 2009 and Phase 2 was declared effective on November 25, 2009 to run for a period of four years up to June 2013 but has now been extended up to June 2016.

The implementation of ERT II started in 2009 and was planned to last for 4 years, closing in June 2013. However, due to implementation challenges, the GoU recently agreed with the World Bank to extend the ERT II for a maximum of three years with the latest closing date set in June 2016. As of 30 June 2013, the ERT II had disbursed US$ 54.5million of the IDA credit and US$ 4.8million in GEF grants, a total of US$ 59.3million. The overall ERT disbursement position shows that GoU has accessed US$ 127m and implementation has been going on for 11 years. ERT II is set to be completed by June 2016 and the total ERT investment from the IDA credit and GEF grants will reach US$ 152.7m over a period of 14 years.

1.4 Energy for Rural Transformation Phases III

1.4.1 Target of ERT III

The broad-based Energy for Rural Transformation (ERT) project phase III specifically targets rural households who have still not connected 18 months or more after their area has been electrified under earlier projects including the ERT II. The ERT III like the ERT I and II projects addresses the issue of low access to electricity in rural areas by making connection accessible and affordable.

1.4.2 Project Development Objectives

The Program's long-term objective in rural areas transformation is retained in the ERT III because it is as relevant now as it was when the program was first designed. The proposed ERT III Project is the third and last phase of the ERT Program, and is aimed at increasing access to energy in rural areas of Uganda that is expected to facilitate improvement in the productivity of enterprises and the quality of life of the households. The main project development objective is to increase rural access to electricity. The other objectives will be to increase the use of renewable energy and promote energy efficiency. Energy efficiency was not originally included in the long-term program but was added during Phase I when Uganda's unexpected shortage of power at peak times created an opportunity to initiate energy efficiency measures. These objectives will be achieved by shifting the focus to rapid growth in investments so as to reach the Government's long-term targets for rural electrification and renewable energy development while consolidating the outcomes of ERT I and II activities.

1.4.3 Project Components

Component 1: Rural Energy Infrastructure: (US$94.4 million – US$81.3 million IDA, US$3.1 million GEF; US$10.0 million GoU). On-grid investments will finance all on-grid activities. In designing the grid projects and in line with the IREMP criteria for project choice, REA will target to connect all social amenities i.e. schools, health centers and water sources within the project areas. Coordination will be

enhanced to ensure that the social amenities planned to receive the grids in the vicinity are not targeted for connection with solar energy packages under the line ministries. Since most of these social institutions do not connect to the grid when it is extended partly due to internal wiring, it is proposed that a provision be made under connections budget to cater for internal wiring. Off-grid investments will include installation of fixed solar home systems (SHS). Possibilities are being explored to include financing of mobile solar systems as well on a pilot basis under collaboration with the Lighting Africa Initiative. All on-grid activities will be implemented by REA. Technical Assistance will be provided to finance the necessary consultancy service and training. Limited capacity building is being proposed for ERA and the SPs in order to enhance their regulation and connections capacities respectively. In addition, discussions have been held with the Carbon Finance group the World Bank and two PRE-PINs are under preparation so that the programme can receive carbon credits under the CDM mechanism. It is proposed that additional funds received from this arrangement will enhance access to energy services.

Component 2: Energy Development, Cross Sectoral Links and Impacts Monitoring: (US$20.5 million – US$16.1 million IDA, US$4.4 million GEF). This component will finance installation of solar PV systems for institutions such as schools, health centers and water pumping stations – as was done for the ERTII; these will be implemented by the respective line ministries (i.e., MoH, MoES and MWE) but in collaboration with REA to synchronize plans. Special considerations will be made for USE and UPPET schools that have enrolment less than 500 students to receive solar energy packages. It is proposed that the successful ICT activities (Computer and internet connection services in schools and health centers) under ERT II be continued in ERT III but shall be implemented by line ministries in collaboration with UCC. The Private Sector foundation of Uganda (PSFU) will support supply side energy efficiency measures (such as energy audits, cost sharing of power factor improvement equipment and solar water heaters). It will also continue to finance feasibility studies and related technical assistance support to facilitate private investment in renewable energy (pico/mini-hydro) generation using the Business Uganda Development Service (BUDSERT) approach developed during the ERT-1. Component 2 includes inter alia: the development of three pico hydros (5 kW each) and three micros (16 kW, 20 kW and 45 kW) hydropower plants which are community based initiatives and will require construction of weirs; these will be implemented by the PSFU through financing to be shared with private developers – in this case, the user communities. Finally, the UECCC will utilize their portion of funds to facilitate local commercial finance by providing credit enhancement products such as partial risk guarantees, and other refinance facilities. The overarching role of impact monitoring for the ERT III will be implemented by the MOFPED. Technical Assistance provided under this component will finance the necessary consultancy services, capacity building, and impact monitoring and operations costs as agreed.

Component 3: Renewable Energy Development: (US$ 3.5 million – US$2.1 million IDA, US$1.4 million GEF). This component will finance feasibility studies of other renewable energy resources such as geothermal energy, studies for small hydropower development etc., and will be implemented by the MEMD. The small hydropower projects include run-of-the river hydropower projects with a capacity of up to 20 MW and dam height of less than 15 meters. The project will not support actual construction of the SHPP and Geothermal. The project will support SHPP feasibility studies that will include environmental and social scoping and analysis of potential impacts of small hydro and the findings shall be used by GoU at a later stage to develop TORs for ESIA. Technical Assistance provided under this component will finance the necessary consultancy services, capacity building and operations costs as agreed. It is proposed that the MEMD may collaborate with the Ministry of Local Government to promote the project activities and ensure ownership of investments at local government levels.

1.4.4 Changes in Project Design

The proposed design and allocation of funds responds to the implementation experience of ERT I and ERTII as well as overall changes in Uganda's economy and the power sector as described below. It is also clear that, some changes are needed in view of the implementation experience, changing conditions in the power and ICT sectors, and changes in the economy.

1.4.4.1 Changes Based on Implementation Experience of ERT I and ERT II

Based on implementation experience of ERT-I and ERT-II, the most significant change in project design will be to drop the component and some activities under the Information and Communication Technology (ICT) component that have received immense private sector investments. The ICT sector has steadily grown mainly through private sector led investments though, this has started in the urban areas and is expected to expand and gradually cover the rural areas as well. In addition, the World Bank has separate project for ICT sector. It is now proposed that ERT III retains the ICT services for rural health centers and schools. These will be implemented by line ministries in collaboration with UCC. On providing connections to agro-industries, in the course of its rural electrification projects, REA targets, among others, rural enterprise including agro-business farms. In addition, other donors (such as the USAID) have shown interest in financing electricity connections for the agro-industry. This will be supplemented by GoU budgetary support to promote further growth of the industry. Finally, in terms of providing PV systems to schools, the Ministry of Education and Sports (MoES) has demonstrated satisfactory implementation capacity and will carry out these installations. As such, implementation of PV systems for schools by the Ministry of Local Government (MoLG) to be handled by MoES.

1.4.4.2 Changes Based on Sectoral Development

While the design of ERT I and ERT II was guided by the policy parameters of the RESP-1, the design of the proposed ERT-3 will be guided by the policy directives of the recently approved RESP-2. For each Service Territory, the relevant Service Provider will be accountable for increasing access, both on-grid and off-grid. Agreed targets will form a part of performance indicators and will be included in a ―Lease Agreement‖ between REA and individual SPs. While capital financing for on-grid electrification shall be provided under a system of long-term leasing and financing contracts to be concluded with the SPs, off-grid electrification services comprised of other energy service technologies not dependent on grid electricity shall be planned, offered and supplied to eligible consumers in the STs in tandem with on-grid electrification services.

1.4.4.3 Changes Based on Implementation Arrangements

The recent approval of the RESP-2 will lead to significant changes in implementation arrangements for on-grid connections. Unlike implementation of the RESP-1, where accountability for increasing access was not clearly defined, under the RESP-2, the SPs will be responsible for carrying out connections and increasing access. Given the overall financial weakness of the SPs, REA will procure service connections materials (that will be financed through the proposed ERT III Project) in bulk and have them delivered at the individual stores of the SPs. As a part of common utility practice, the SPs will finance consumer connections through advances paid by the consumers. Through special arrangements as stipulated in the legal agreements between REA and individual SPs, the recipient SPs will pay back REA the cost of materials received in a manner satisfactory to REA and individual SPs. These amounts will be deposited in a dedicated account managed by REA who will then reuse these funds for future procurement and supply of service connection materials. Thus, the recycling of funds ―Revolving Funds‖ will make additional funds available even after the project financing has ceased. Appropriate audit arrangements (non-consultancy services) will be in place to verify the connections made including adherence to technical standards. This will ease the shortage of funds somewhat but more funds will still be needed to attain the target of ―Vision 2040. For development of off-grid electrification, on the solar home systems, implementation experience of the SHS under the ERT II through the Photo-Voltaic.

Targeted Market Approach (PVTMA) has been slow though it is gaining momentum now. During the four year period (2009-2013), 10,000SHS were installed, on subsidy basis. This is very low compared with some of the better implementation experiences in other countries. As such, the GoU is considering several options that will aim at accelerating the installation of SHS including extending refinancing facilities to solar vendors on the basis of a declining subsidy regime leading to its ultimate removal.

Based on findings of a study (financed by the World Bank) under the Uganda Accelerated Rural Electrification Project (UAREP), a second Rural Electrification Strategy and Plan (RESP-2) was formulated for the period 2013 through 2022to address these issues. This Policy document was approved by the Cabinet in July 2013. Under the RESP-2, a new business model has been developed that promotes a centralized planning and management of the RE sector and simplifies program implementation. The RESP-2 takes an area coverage approach, whereby the country is divided into 13 Service Territories (ST) each to be served by a Service Provider (SP) that will be responsible for all management, operational and maintenance activities within its dedicated/assigned Service Territory. Currently, there are six LDCs that operate as SPs covering eight STs. Thus, there are five STs that have no operators and until such time that permanent SPs selected through a transparent selection process are appointed, a proposal for having an interim operator for these five STs is under consideration. The selection will be based on a transparent tendering process that will be open for bidding for the private sector (including cooperatives). The map below shows the 13 Service Territories created through the RESP-228. The RESP-2 also proposes the conversion of the REA to an autonomous government entity along with the granting of sufficient policy and administrative decision making authority. Goo is already working on the necessary legal reforms to convert REA into an autonomous entity.

1.4.5 Key Project Results and Indicators

The key results that would reflect and measure success in achieving the PDOs would include:

(a) number of Km of grid extension line constructed,
(b) number of on-grid connections made;
(c) number of households and enterprises/institutions using Solar PV systems;
(d) number of Health Centres with access to electricity using solar systems;
(e) number of rural schools with access to electricity using solar systems; and
(f) number of water pumping stations with access to electricity using solar systems,
(g) number of solar water heaters installed and MW of electricity availed for use in other establishments,
(h) tones of $C0_2$ emission reductions,
(i) number of independent grids serving rural communities,
(j) number of SME's supported and number of institutions adopting institutional cook stoves.

1.4.6 Project Funding

The total ERT program amount is currently at US$165.15 million, of which the first phase (ERT I) was for US$49.15 million, and the second phase (ERT II) was approved for US$75.0 million29. The remaining US$41.0 million was earmarked for ERT-3. In order to meet the connection targets of the ERT II, an Additional

Financing for ERT II (AF-ERT II) was approved for US$12.0 million in FY13. In view of the major transformational role that rural electrification plays and in response to the needs of ―Vision 2040‖, IDA allocation for the third and final phase has now been increased to US$100 million thereby raising the total IDA support for the program to US$236.15 million. Along with co-financing (joint) from GEF, for US$30.02 million, the entire ERT program will be providing a total of US$266.17 million of WB Group support. Lately, additional co-financing (parallel) from an Output Based Aid program for US$16.0 million (equivalent) comprising funds from the GPOBA (US$5.5 million), KfW (Euro 5.0 million) and the GoU (US$4.0 million) has been made available; this operation became effective in December 2012. As connecting households to the grid would eventually lead to emission reductions due to replacement of mostly fossil based lighting, possibilities are being explored of assessing other market-based instruments such as carbon finance, or other results-based finance instruments based on greenhouse gas emission reductions to improve the sustainability of providing energy access.

Table 1: Summary of ERT III Financing

Component	IDA	GEF	GoU	Total
Component 1: Rural Energy Infrastructure	81.6	3.1	10.0	94.7
Component 2: Energy Development, Cross Sectoral Links and Impacts Monitoring	16.5	4.4	0.0	20.9
Component 3: Renewable Energy Development	1.9	1.4	0.0	3.3
Total	**100.0**	**8.9**	**10.0**	**118.9**

(Source: ERT III Project Summary, MEMD 2013)

1.4.7 ERT III Project Areas

ERT III will be implemented in the areas which are summarized on regional basis as in Annex8.

Table 2: Proposed Regional Areas for ERT III Extension

No.	Region	Extent (Km)
01.	West Nile	345.8
02.	Eastern	307.00
03.	Central	303.7
04.	Southern	125.00
05.	South Western	80.00
06.	Rwenzori Region	54.00
07.	Central North	214.00
08.	Mid-Western	176.7
09.	North Western	221.5
	Total (kms)	**1,828**

(Source: Draft ERT III Project Summary, REA 2013)

2 SAFEGUARD LESSONS ON PREVIOUS ERT PROJECTS AND ERT III ESMF

A review of ESMF for ERT II project was undertaken as one of the key tasks in preparation of ERT –III project and it was established the document was lacking in the following aspects which merited more less rewriting a fresh the ESMF.

2.1 Some of the Shortcomings in ESMF for ERT II

These include:

2.1.1 Inadequate articulation of institutional framework

The ESMF for ERT II does not give adequate coverage of policy, legal and institutional framework under which the project is implemented which is important in defining the compliance framework for the project. The ESMF for ERT II indicated that REA was established to initiate and bring ERT projects to fruition and is the financial intermediary to which environmental monitoring and evaluation responsibilities have been delegated for the ERT programme. It also notes that REA has the primary responsibility for environmental/social monitoring of all project activities that are financed through the ERT programme, in relation to the Bank. However, the ESMF for ERT II also noted that ERA has a major role to play too in monitoring compliance with the environmental conditions of operating licenses. Therefore, long term operational monitoring becomes the responsibility of the ERA. It also noted that ERA is able to assist REA in enforcing ESMF requirements by altering operating license conditions, if necessary.

This was inadequate since the ERT II had components implemented by a number of different agencies including UCC, MoES whose responsibilities were not clearly indicated. To address the above gaps in the ESMF for ERT II, this ESMF for ERT III clearly states the roles and mandates of the different implementing agencies as well as their existing safeguards capacities and recommendations to address the capacity gaps to ensure successful implementation of the ESMF.

2.1.2 Lack of indicative cost for ESMF implementation

ERT-2 ESMF does not provide indicative cost for ESMF implementation which would give planning and costing for the tool during project implementation. In that regard, this ESMF for ERT III gives an estimated budget committed by the implementing institutions to ensure its implementation.

2.1.3 Inadequate coverage of Physical Cultural Resources in ESMF

The ESMF for ERT II does not provide adequate coverage of PCR aspects, it does not for instance, outline Chance Finds Procedures that would be helpful in guiding excavation aspects during the project implementation process.

However, in this ESMF for the ERT III, a Chance Finds Procedure has been outlined (Annex 5) for management of unknown Cultural resources in the

project and management of known PCRs including avoiding such sites, relocation or translocation and where unavoidable, compensation.

2.1.4 Lack of effective and functional Grievance Redress Mechanism

The operationalization of the ESMF as well as ERT III subprojects is likely to trigger some complaints amongst the communities and areas of its implementation. Experience has shown that, though there are existing frameworks for redress of grievances regarding environmental and social aspects in projects, the aggrieved parties do not usually get the necessary assistance. Grievance Redress Mechanisms provide an avenue for expressing concerns and achieving remedies for aggrieved communities, promote a mutually constructive relationship and enhance the achievement of project development objectives. Such a mechanism was lacking in the ESMF for ERT II.

Based on such experience, a GRM has been outlined in the ESMF in Chapter 6and should be made known to the potentially affected communities in the project areas. The grievance redress mechanism has the following primary components:

- Receive and record/enter a complaint in a complaints log book or register;
- Screen and validate the complaint;
- Formulate a response;
- Select a resolution approach, based on consultation with affected person/group and the local leaders;
- Implement the approach;
- Settle the issues;
- Track and evaluate results;
- Learn from the experience and communicate back to all parties involved.

Periodically report on the performance to the public and to the funding agency

2.1.5 Limited coverage of preliminary baseline data

ESMF for ERT II had very limited data on baseline environment of the project areas where the project is implemented. In view of these limitations in the ERT II ESMF, the ESMF for ERT III is fairly explicit and broad in its coverage. Chapter 3 presents environmental and social baseline information that includes the following among others:

- Climate
- Topography
- Geology
- Vegetation cover
- Protected areas

- Land tenure
- Income, poverty and other livelihood data
- Gender issues
- Literacy levels

The above information will enable the implementing agencies to have a better idea of the characteristics of the project areas, the challenges to be expected and the strategies to enhance the project benefits as well as community ownership of the project among other critical issues.

2.2 Some Lessons in the implementation of Safeguards in ERT Projects

Through consultations and review of literature regarding ERT II activities, some of the issues regarding environmental and social aspects include:

2.2.1 Implementation of Environmental and Social Safeguards for ERT II Projects

The ESMF of the ERT 2 recognized that the financial intermediary (FI) and the sponsor are both, first and foremost, focused on the technical and economic delivery of electricity to the rural areas. Their concerns are business oriented and their skills and interests lie in the areas of engineering, economics and business. They have not been trained specifically in areas of environmental management and although they may have a passing interest in environmental and social matters, these are not main areas of focus. FIs and sponsors recognize their environmental responsibilities both to the GoU and the Bank and require guidance in order to meet the needs of these two authorities.

The ESMF for ERT II pointed out that effective mitigation of environmental and social issues for the ERT projects was to be achieved by establishing an institutional framework with qualified and experienced staff. It also noted that it was imperative that certain institutional arrangements be in place before the ERT projects go ahead and in accordance to Ugandan laws and Bank requirements. In that regard, it recommended a functioning and trained Environmental Liaison Unit at MEMD/PCU, a functioning and trained Rural Electrification Agency Environmental Unit within the REA, an Information Resource Centre at REA and an environmental monitoring tracking system. The tracking system has not been operationalized and it is planned to be operationalized in ERT-III after some modifications. Both of these units have been formulated and are functioning well as REA has two full-time Environmental Specialists which is a great achievement.

Overall, ERT 2 implementing agencies have endeavored to implement as far as practical and within their existing capacity the ESMF for ERT 2. However, the need to strengthen their capabilities in managing environmental and social aspects in future rural electrification projects is recognized.

2.2.2 Conducting Environmental Screening

In all the ERT I and II, all the project are scrutinized during their preparatory and design stages to ensure compliance of the projects with both the national and donor environmental and social requirements and accordingly, appropriate levels of Environmental Assessments have been prepared.

2.2.3 Integration of Environmental Assessment Mitigations Measures into the Project Designs

After conducting Environmental Assessments, mitigation measures are integrated into project designs and as part of their monitoring procedures.

2.2.4 Monitoring of Safeguards

MEMD which houses the project Coordination Unit will put in place a multi-disciplinary team that includes safeguards staff from the implementing agencies that work closely with the District Local Governments to holistically monitor project compliance taking into account the environmental and social issues raised in the Environmental and Social Assessments. The project implementing Agencies periodically submit these reports to financing institutions, NEMA as well as to internal reporting lines and the monitoring results acted upon, when and where required. This ESMF recommends bringing onboard all the other implementing agencies to be involved in the environmental and social monitoring of the project.

2.2.5 Development of Mechanism for tracking environment and social compliance

As part of its support for the ERT Project, MEMD/PCU will develope a system to track project/sub-project environmental and social compliance including but not limited to monthly monitoring of the projects under implementation

2.3 Some Safeguards Challenges in ERT II Projects

Through consultations and review of literature regarding ERT II, a number of issues emerge that need to be addressed in subsequent ERT projects. Some of the salient aspects include:

2.3.1 Challenges in involving stakeholders in monitoring compliance

ESMP considerations involve a cross-section of stakeholders from line agencies who by their mandate, play oversight role in ensuring that, activities under their sectors are compliant with environmental requirements. However, from consultations during this study, it emerged that, more often than not, involvement of such institutions in undertaking this responsibility is hampered by amongst others, resource and technical constraints. It is hoped that under ERT III, mechanisms of ensuring their effective involvement will be through use of a budgetary provisional under capacity and technical assistance.

2.3.2 Staffing of contractors teams

Contractors do not have environmental specialists in their teams who are to routinely monitor and report compliance of their works in line with EIA provisions for the projects.

2.3.3 Valuation challenges

There is a difference in what people believe is the value of their assets in the wayleaves and what professional valuers estimate. In addition, District approved rates are usually used to determine compensation but in most cases, Districts usually take long to revise these rates, and hence cause complication/ complaints. These issues complicate the compensation and resettlement activities with attendant effect of delaying implementation. In consultation with the CGV, the proposed way forward, bearing in mind that OP 4.12 recommends compensation at a replacement cost in order to leave the PAPs at or better than the prevailing status is that rates for the neighboring districts may be adopted where feasible and used in place of district rates that have not been updated for a long time.

2.3.4 Compensation concerns

This issue has been raised by the Management of the NFA. Compensation for the RoWs for distribution lines through sections of central forest reserves has largely focused on trees that are lost during extension of distribution grid through sections of CFRs. However, NFA wants the compensation process to be holistic covering aspects such as lost carbon sequestration potential and other values of such ecosystems. It is proposed that, ESIA Teams that will be conducting the environmental assessments should include Ecological Economists who can capture such costs as part of the ESIA process and such costs will be integrated into the overall projects costs for the project.

2.3.5 Cutting of Old and Mature Roadside trees

In a number of areas where ERT 2 has been implemented, a number of roadside mature trees (including fruit trees such as mangoes) some of which were planted by the colonial government have been cut down to clear RoW for the distribution lines without any compensatory planting measures nor proper salvage harvesting. Some of the affected trees are of conservation concerns (endangered or threatened) in some areas. A part from being of conservation value and historical importance, communities express concerns with loss of mango trees which are sources of food in the areas.

2.4 Environmental and Social Management Framework for ERT III

2.4.1 Purpose and Justification

The ESMF seeks to ensure compliance of the project with applicable safeguard policies at the time of preparation of the project, while also providing the overall framework for addressing social and environmental risk management issues in

project activities that are implemented beyond its readiness preparatory work. It is important to note that, though specific ERT III projects have not been clearly identified at this stage, the ESMF provides a general impact identification framework to assist project implementers to screen the projects and institute measures to address adverse environmental and social impacts. Specific information on country- wide project locations, land requirements, bio- physical features etc. when known at a later stage will trigger the preparation of appropriate Project Briefs, ESIAs reports and/or ESMPs. This therefore implies that, the ESMF simply refers to potential general social and environmental impacts of possible project activities, which cannot be identified during this early stage in the context of a traditional ESIA.

2.4.2 Approach and Study Methodology in ESMF Preparation

2.4.2.1 Review of existing literature/documentation

Review of key project documents was pivotal in providing the consultant with an in-depth understanding of the project, its objectives as well as other pre-requisite details. Some of the key documents that were reviewed include:

- ESMF for ERT II 2006
- Uganda Vision 2040
- Rural Electrification Strategy and Plan for the Period 2013-2022;
- Energy for Rural Transformation (ERT) program Project Implementation Plans;
- Review of applicable laws, regulations and guidelines was equally undertaken; and
- World Bank Safeguard Policies.

2.4.2.2 Field Visits and Impacts Identification

The proposed project implementation areas were visited through deliberate inspection of their respective characteristic features i.e. the environmental and social setup to initiate a baseline before project implementation. This was done with a view of assessing the values that are likely to be affected and identifying the potential impacts of the project components. An interaction with the respective persons in these locations was carried out to capture their input.

2.4.2.3 Stakeholder Consultations

Consultations were held with relevant stakeholders including District Local Government Officials (District Environment Officers, District Production Officers, District Engineers, Chief Administrative Officers, District Planners and District Engineers) officials from MEMD, MWE, NEMA, MoES, MoH, UNRA, UCC, National Forest Authority (NFA) and Uganda Wildlife Authority (UWA) and local communities among others.

2.4.2.4 Potential Users of the ESMF

This ESMF will be useful in planning and implementation of the proposed project activities. In this regard, the ESMF will primarily be useful to MEMD/PCU, REA and the different implementation agencies.

3 BASELINE ENVIRONMENTAL AND SOCIAL INFORMATION

An attempt has been made to document baseline environmental and social settings on regional basis as summarized herein.

3.1 Baseline Environmental Information

3.1.1 West Nile Areas

This covers the planned ERT III areas of Pakwach-Rhino Camp-Wandi-Yumbe-Moyo Areas and their baseline information is summarized as follows:

3.1.1.1 Climate

The Districts receive about 1267mm of annual rainfall and have distinct dry periods that begin from December to February. November and March have moderate rainfall. The two major peaks in rainfall occur in April (short rainy season) and between August and October (major rainy season). Areas along the Nile receive lesser rain (860mm) than the rest of the district areas. The highest temperature is 45^{o}C in the months of January to February and lowest 29^{o}C in the months of August to October.

3.1.1.2 Topography

Arua, Yumbe, Nebbi and Moyo Districts comprise rolling plains from the Nile floor in the Rift Valley 600 m.a.s.l to the DRC where the plain drastically changes to between 1200–1400 m.a.s.l. The landscape in the project area can be generally grouped into three topographical zones as follows:

- Madi Plateau: Occurs at an altitude of about 900 m.a.s.l and occupies the eastern parts including Madi-Okollo County;
- Western Highland: This upper plateau occurs at an altitudinal range of 1200 to 1800 masl whose parent rocks include basement complex metamorphose which is responsible for the formation of the hilly terrain; and
- Rift Valley: The Rift Valley escarpments are highest in the south and fade off to the north. They consist of several fault camps arranged, roughly parallel with the Albert Nile. These scarps separate the Rift Valley plains from the Madi Plateau.

3.1.1.3 Geology

According to the generalized geology map of Uganda, West Nile region of Uganda is underlain by pre-cambrian rocks of basement complex as well as Pleistocene to recent rift valley sediments. The basement complex rocks include granitic and high grade metamorphics for which the name Gneissic-Granulitic-Complex has been proposed (Schluter, 1997). The oldest unit embedded into the Gneissic-Granulitic- Complex in the West Nile region comprises largely granulite facies grade rocks, for which the name Watian Group is used. The

Watian is apparently of Meso-archean age. Rock types include acid and intermediate granulites and charnockites, quartz diorites, banded, porphyroblastic and quartz-feldspathic types.

3.1.1.4 Soils

The soils covering most parts of the districts of Arua, Moyo and Nebbi are mainly ferralitic and sand loams. These soils have fine texture with rather loose structure, which are easily erodible and leached. Most soils in the area are acidic. Soil types in these areas comprise:

- Yellow – red sandy, clay loams littosols varying from dark grey to dark which are slightly acidic and mainly derived from granite, gneissic and sedimentary rocks. They occur on gently undulating – hilly topography mainly in Madi Okollo County;

- Brown – yellow clay loams with laterite horizon with a variety of dark brown to dark greyish brown, which are slightly acidic. These occur mainly in Nebbi district especially in Padyere County and parts of Madi in Arua District, occurring on flat ridge tops or as undulating topography; and

- Light grey white loamy soils with laterite horizon ground, structure – less loamy sands occurring from Bondo and through parts of Okollo.

3.1.1.5 Drainage and Water Supply

Apart from ground water, major surface water bodies in the districts include Lake Albert and the Albert Nile with dendrites and tributaries that originate from the upland terrain. The major perennial rivers include the Nile, Ora and Namrwodho although the water volumes fluctuate due to changes in climate and human activities. There are other rivers and streams such as Korpio, Wangnyang, Nyibola, Oceke, and Kivunje which are either seasonal or intermittent.

3.1.1.6 Flora

The vegetation in the project areas consists of largely intermediate savannah grassland. This type of vegetation is that found between the moist and the dry savannah. The vegetation type is characterized by open canopy of trees of 10-12 meters high and underlying grasses of 80 centimeters high. The trees are fire tolerant and are therefore able to regenerate themselves after bush fires. The area can be categorized into the following ecological settings based on the dominant vegetation communities. *Combrentum-Butyrospermum* vegetation communities dominated by trees such as; *Butyrospermum paradoxum*,(Shea butter tree), *Combretum spp*, *Annona senegelesis,* and a mix of *Acacia hockii.* The trees are a climax community resulting from repeated seasonal fires. Underneath the trees are expanses of Graminae communities such as *Hyperrehenia rufa, Impereta cylindrica, Panicummaximum, Acacia.* Other plants observed included; *Ficus natalensis, contyetum, Borrassus aethicpum* (Fan

Palm) and *Digiteria scalarum*. There are also some herbs like *Bidens pilosa, Ageratum coinzoides, Amarathus spp* and Lantana camara which are characteristic of weedy areas and repeated cultivations. Tree species include; *Eucalyptus* spp., *Tectona grandis* (Teak), Jacaranda, *Cupressus, Thevethia peruviana*, Pines, Hibiscus, Bougainvillae and Flamboyant. *Pennisetum purpureum* (elephant grass) are among the most common plant species in the areas of ERT III in the region.

Although the hills in sub-counties of Metu and Itula are covered by forests, the major vegetation cover in Moyo district is savannah woodland with isolated thorn shrubs found near the streams and rivers (Moyo DDP, 2011).

3.1.1.7 Fauna

From literature and field visits in the project areas, no significant wild animals are reported in these areas save for occasional birds and mammals like monkeys, squirrels, and large rats. Consultations with Ajai Wildlife Reserve Wardens revealed that the reserve still habits large mammals like dykers, antelopes, leopards, though these only occasionally come close to the road during the night. Other common animals in the areas comprise largely livestock such as; cattle, goats, sheep, and pigs.

3.1.1.8 Safe Water Coverage

There are a number of water sources in the four districts including boreholes, protected springs, open wells and piped water especially in urban centers. The safe water coverage of West Nile region is generally above 50% but below the national average of 63% due to drying up of water sources following climate change and decommissioning of some water sources that are non-functional for a long period of time. This leaves a very big percentage of the population in West Nile region without access to clean and safe water. For example, according to the DDP (*2011/2012-2015/2016*) for Moyo District, it is reported that the district in total had 977 safe water points including household connections and the safe water coverage declined from 61.4% in June 2010 to only 47.0% by March 2011 below the national average of 63.0%.

It envisaged that, improvement and extension of the electricity distribution grid under ERT IIII can be a stimulus to improve operations of other utility providers especially water supply.

3.1.1.9 Housing and Settlement Pattern

The Districts have a spatial population, which is unevenly distributed. Settlement in Nebbi, Yumbe, Arua, and Moyo like in other areas is determined by natural resources and availability of infrastructure. The districts have two main patterns of settlements. These include: dispersed rural homesteads and nucleated urban centers. The project area has a mixture of household structures and the quality of buildings differ both in rural and urban centers. The urban areas are dominated by permanent structures and semi-permanent structures in some

instances. In rural areas, the dwelling units are dominated by semi-permanent and temporary structures made of mud and wattle with grass thatching.

3.1.1.10 Population

The population of the project areas is summarized in the subsequent Table 3 as follows:

Table 3: Population for ERTA III areas in the West Nile Region

DISTRICT	1991 CENSUS		2002 CENSUS			Populations Projections						PROJECTED		% OF RURAL POPULATION
						2011			2012			HOUSEHOLDS		BELOW POVERTY LINE
	Total	Sex Ratio	Male	Female	Total	Male	Female	Total	Male	Female	Total	2010	2011	2005
ARUA	**368,214**	93.1	268,746	290,329	**559,075**	361,100	390,600	**751,700**	373,700	403,000	**776,700**	**134,790**	**139,440**	52.6
NEBBI	**185,551**	92.7	126,832	139,480	**266,312**	160,300	177,100	**337,400**	164,700	181,500	**346,200**	**65,890**	**67,740**	54.5
YUMBE	**99,794**	93.9	126,226	125,558	**251,784**	259,600	244,900	**504,500**	282,000	263,500	**545,500**	**78,890**	**85,390**	62.9
ZOMBO	**131,315**	91.8	81,224	87,824	**169,048**	102,700	111,500	**214,200**	105,500	114,300	**219,800**	**45,100**	**46,350**	52.9

(*Source: UBOS 2013 Population Projections*)

3.1.1.11 Energy Sources

West Nile region is one of the regions with the lowest electricity consumption levels as most parts of the district lack electricity supply. Only Arua and Nebbi Districts are covered under the West Nile Rural Electrification Project at the moment. Moyo district is currently being supplied by a thermal generator that generates about 750KV of electricity for only about six hours a day, which explains why its use is restricted to the urban area and its outskirt. Even then few people within the town have access to electricity in their homes. Only 0.9% of the households had access to electricity by 2013 UBOS Population projections.
The use of electricity is further constrained by high power tariffs and inadequate transmission and distribution network. Moreover, the supply of electricity in West Nile also experiences disruption due to shortage in fuel supply; although this has improved in recent past. This inadequate and unreliable power supply in the district is a big disincentive to investors and hampers value addition to agricultural products. The limited electricity supply also affects the effective teaching and learning in secondary schools and hence poor performances. Districts such as Arua and Moyo have got a number of potential sites for hydro electricity generation but there is a challenge of attracting investors and lobbying from the government through the rural electrification Project to develop the sites for hydro electricity supply. The main power source for domestic needs in the Project area is firewood for cooking and foundries like brick making. Except in trading centers, charcoal is not a fuel of choice in the project area as it is costly for ordinary people.

Kerosene/paraffin is the main source for lighting for most households that can afford it. Other energy sources for lighting in the project area include; solar torches and battery run torches. The youth in the project area have improvised a home-made torch fitted with energy saving bulbs that can run for as long as 3 months using 4-6 batteries.

3.1.1.12 Poverty and Livelihood Analysis

There is gender and location specific variations in the way the local people define poverty. Women are concerned more with availability of land, water, household food and welfare of children when they view poverty while men look at it largely from availability of money at household. Despite these, the perceived major causes of poverty at households in the proposed project areas include:

- natural calamities like drought, floods, and hail storms;
- rampant laziness and drunkardness;
- high unemployment levels among the youths;
- poor health among the population caused by high morbidity and mortality;

- extended families and polygamous life with large family sizes; and
- Poor conditions of social infrastructure and other amenities like electricity.

3.1.1.13 HIV and AIDS

According to Uganda Demographic and Health Survey 2011, the West Nile region which includes ERT III areas of Yumbe, Arua, Nebbi and Moyo are reported to have the lowest HIV/AIDS prevalence of 2.3% which is lower than the national figure of 6.5. However, the prevalence ratio is higher amongst the women than the men. Currently there are voluntary counselling and testing (VCT) sites spread out in the ERT 3 areas in the region as far back as 2002 by the AIDS Information Centre (AIC). These centres also conduct other HIV/AIDS activities such as awareness creation, Condom distribution, and care for AIDS orphans. Apart from HIV/AIDS services delivered by the Ministry of Health, there are also a number of civil society organizations such as Nyapea Safe Motherhood Child Care Association, Nebbi Women Club, TASO in all the project districts in the region and other Faith Based Organizations which also deliver HIV/AIDS interventions in the areas.

3.1.1.14 Physical Cultural Resources-PCRs

Some areas along the proposed ERT III project areas have grave yards such as a grave yard at Bura mosque (Km 62+800), grid location 36N0308345 0378465 in the Kululu sub county. Grave yards are widespread in the area and constitute some of the common PCRs.

3.1.2 North Eastern Region

This covers areas of Kumi, Serere and Soroti whose baseline information is summarized as follows:

3.1.2.1 Geology and soils

The stratum of the districts above areas is an extension from a section of Karamoja region to the greater Teso areas and is comprised mainly of pre-Cambrian system, the Mesozoic and cenozoic groups. The other groups of rocks include the Mesozoic and Cenozoic eras; they are associated with volcanic eruptions in the eastern parts of the region represented by mountains of Tororo. The altitude in the areas ranges between 100-2500m above sea level.

3.1.2.2 Vegetation

The vegetation of the ERT III areas in Kumi, Serere and Soroti sections is mainly savannah grassland type with dotted trees and shrubs. Other areas have savannah woodland composed of different tree species; the most notable include *Combretum collinum, Vitellaria paradoxa* and *Piliostima thonningii* widely spread in the district. Some areas bordering Karamoja have semi-arid conditions and are characterized by thorny trees such as *Balanites spp, Acacia sieberiana,* and *Acacia senegal*. At present, the natural forest cover in these areas has been seriously degraded mainly through repeated cultivation.

3.1.2.3 Population

The population details of the three districts of Serere, Soroti and Kumi where ERT III projects will be implemented in the region are summarized as follows:

Table 4: Population Summaries for Serere, Soroti and Kumi ERT III

DISTRICT	1991 CENSUS			2002 CENSUS									PROJECTED		% OF RURAL POPULATION BELOW POVERTY LINE
							2011			2012			HOUSEHOLDS		
	Total	Sex Ratio		Male	Female	Total	Male	Female	Total	Male	Female	Total	2010	2011	2005
KUMI	**102,030**	90.7		79,518	85,847	**165,365**	119,300	125,200	**244,500**	125,100	130,400	**255,500**	**46,400**	**48,500**	44.6
SERERE	**90,386**	93.7		85,925	90,554	**176,479**	137,900	141,200	**279,100**	145,800	148,300	**294,100**	**49,250**	**51,910**	47.2
SOROTI	**113,872**	92.6		94,222	99,088	**193,310**	151,300	154,600	**305,900**	159,800	162,200	**322,000**	**56,720**	**59,860**	46.5

(Source: UBOS 2013 Population Projections)

3.1.2.4 Housing situation in the district

The housing situation in the areas is generally poor with most dwelling units constructed of mud and wattle. The commonest roofing material is grass that is easily destroyed by fires and rots after a few years, some have iron sheet roofed houses although the floors are of mud and wattle (Figures 5 and 6). The floors of the houses are just rammed earth with no cement making their condition to be unfavorable to human health, bearing in mind that most households sleep on the floor with local materials like mats for bedding. There are very few permanent buildings. They exist mostly in trading centers and rural growth centers that are mushrooming in most parts of the district.

3.1.2.5 Gender Dimension

Overall the level of gender mainstreaming in development Projects is low despite the efforts made previously. Therefore, the participation of women in developmental process is low. The communities in the district are largely patriarchal in nature. In Serere, Kumi and Soroti areas (like most parts of Uganda), the place of women and men in terms of their roles in the community can be largely categorized into two; reproduction and production respectively. It is a practice that in more than 90% of the households and communities in the district, men hold sway in matters relating to control of resources and access to them. These resources mainly include productive assets like land, capital and finances. The males are by tradition the heads of households under the traditional clan systems.

3.1.2.6 Energy sources

In these areas, the main source of energy for cooking is wood fuel, used by about 99.9% of households, while 0.02% of households use electricity/gas, 0.03% use paraffin and 0.07% use other services. Paraffin is main service of lighting used by 55.26% of households, 0.16% use electricity/gas, firewood 22.32% and 0.07% of households use other sources for lighting. Natural vegetation resources are getting scare with communities starting to plant private woodlots to meet their wood needs for fuel and construction. In some areas especially in Kumi areas, there is acute shortage of fuel wood to the extent that, women resort to tree stumps to cut pieces of wood.

The proposed ERT III Project is aimed at increasing access to energy in rural areas of Uganda that is expected to facilitate improvement in the productivity of enterprises and the quality of life of the households. Since most of these social institutions do not connect to the grid when it is extended partly due to internal wiring, it is proposed under the ERT III that a provision be made under connections budget to cater for internal wiring of public institutions. Off-grid investments will include installation of fixed solar home systems (SHS). Possibilities are being explored to include financing of mobile solar systems as well on a pilot basis under collaboration with the Lighting Africa Initiative.

3.1.2.7 Socio- Economic and Aspects of Livelihoods

The people in the proposed project areas are partially traditionally pastoralists who do earn their livelihood through livestock rearing and crop production at subsistence level. This was however disrupted in 1990s following insurgency and cattle rustling by the Karimojong with its attendant effects on the communities. The whole of Teso region became impoverished as the economic base was completely depleted. With the gradual return of peace in the early 1990's, the population began to resettle and engage in small-scale production activities. Through individual and some NGO efforts, the economic recovery had begun to take shape with livestock and crop production levels rising. On average about 64% of the population of Teso areas falls below the poverty line (i.e. the population is spending less than US $ 1 per person per day on basic human requirements such as health, food, shelter (UBOS, 2010).

There are a number of women and youth amongst vulnerable groups operating some income generating activities such as hair and beauty salons, restaurants as well as tailoring enterprises. However, due to lack of electricity, their operations are hampered and very costly and some have even abandoned the businesses due to lack of electricity for their operations. The ERT III targets to connect business entities as well as all social amenities i.e. schools, health centers and water sources within the project areas.

3.1.2.8 Gender in production Project areas in Teso

As in most districts in Uganda, crop farming for consumption and sale is the predominant economic activity of both women and men in the communities in the areas of Teso and those of ERT III. A part from farm-based income, women are also engaged in brewing (beer and spirits), except for a relatively small percentage who are successful traders or owners and managers of service enterprises, such as bars and restaurants. On the other hand, men are engaged in a broader range of income activities most of which are physically demanding activities, such as collection and sale of forest products especially charcoal burning, and higher income gender-prescribed manufacturing activities, such as brick making and carpentry which rely on both physical strength and skills acquired through training or passed down informally. Such trainings traditionally favor men more than women. Farm labor is also a common form of employment though often practiced periodically according to opportunity and need and is one of the sources of cash and in-kind income for poor and medium-income households. Generally, enterprises or activities falling into the lowest income bracket are performed by both men and women.

In the course of its rural electrification projects under ERT III, REA targets, among others, rural enterprise including agro-business farms. In addition, other donors (such as the USAID) have shown interest in financing electricity connections for the agro-industry. This will be supplemented by GoU budgetary support to promote further growth of the industry.

3.1.2.8.1 Gender Empowerment and Opportunities

In many respects, the circumstances for women in ERT III areas rotate on their empowerment being hinged on farming based income generating activities. However, the importance placed on farm based labour both by men and women implies less concentration on non-farm activities, particularly amongst women who are already the predominant force in own-farm production. Brewing is the major female source of off-farm income, with the benefit being that the working capital for brewing is only tied up for a short period of time (during the short brewing cycle), and are thus relatively easily available when cash is required for other purposes.

For example, if a household member falls ill, the profits from a small batch of beer can be used to buy medicine, and/or the working capital used for investment in health care or another needed service/commodity (Smith, 2010). Aside from brewing, there is reportedly a relative small, although potentially influential (unaffiliated) group of women who are progressively engaging in more capital intensive and fairly profitable predominantly service-based enterprises such as restaurants, bars, transport amongst others. The women have seized such opportunities against culturally prescribed norms, and are reportedly working hard to effectively build up such businesses or small enterprises.

As part of the assessment, the ESIA will also assess the vulnerability of different groups in particular project contexts (in terms of potential exclusion from project benefits, negative project impacts, and the need for specific culturally compatible mechanisms for participation, e.g. for women, the widowed, permanently disabled, elderly etc.), and will incorporate adequate measures to address such vulnerability issues during project implementation.

3.1.2.9 Land tenure in Teso Region

In Teso region, the most common mode of land ownership is customary system, which is almost the same as customary law in other parts of northern Uganda. Under customary tenure in Teso, the clan elders have the responsibility for administering land, but this includes the right to say who can sell land and to whom. This is because, they have the responsibility to protect the land for all the clan, and to make sure that everyone in the clan is given rights to land. The family head manages the land on behalf of the family as the steward of the land. His rights to manage the land go together with the responsibility to look after the rights of others to use the land, and to make sure that the next generation will also be able to enjoy the land. Other people in the family also have rights over the land. Security of tenure over land always comes with land allocation, on condition only that a household is able to use the land. The family head is responsible for ensuring security of tenure, with clan authorities as the overall guarantor.

The clan on its part has therefore the responsibility for overseeing the administration of all the land. This means making sure that there are heirs appointed at household levels to manage the land and to oversee and authorize any land sales. The clan also owns land which is communally used, such as for hunting and grazing. It is responsible for ensuring proper use of the land and that, there are no trespassers. A son becomes head of household after marriage and is allocated land to hold and to manage for the good of his family. He is the steward of that land and his wives, children and other family members also have rights to that land, but he is the overall 'manager'.

3.1.3 Central Region Baseline Information

This covers Gomba and Butambala, Luwero, and Mubende and Masaka areas and their baseline conditions are as follows:

3.1.3.1 Topography of the areas

Generally, the relief of these areas is in the range of 1066-1548m above sea level, with varied landscape features. The nature of land in the parts of the project areas is largely composed of undulating landscape with some hills and flat areas. These areas are characterized by patches of bare hills and the shrubs which are concentrated in the valleys and lowlands. The low areas have wetlands with vegetation characteristic of impended drainage. The undulating nature of the landscape gives green belts between high areas.

There areas have geomorphologic features which occur in terms of;

- Remnants of lowland surfaces that covers the greater parts of these areas,
- Zones of tors and insel-bergs occur in a number of areas such as in Semuto in Luwero, Kasozi in Mubende and Bulotogo,
- Remnants of upland surfaces are evident at the northern frontiers,
- Areas of in-fill are associated with the rivers such as Nabakazi, Kisojo, Katabalanga, Kasambya, Kitenga and Kiganda sub-counties and also around L. Wamala and northeast of Kasambya, and
- Deposits and platforms of extended L. Victoria found at the fringes of L. Wamala, in Myanzi and Kiganda sub-counties.

3.1.3.2 Geology

The relief of these areas is in the range of 1066-1548m above sea level, with varied landscape features. The landscape generally corresponds to wetlands peneplain type which is part of the mid-tertially or Buganda surface, and is essentially a plateau land. The same landscape is represented in large parts of east, central and southern Africa. The landscape is the result of a long period of quiescence from the end of the Karoo era to early tertiary, during which sub-aerial erosion reduced the plateau land to a very low relief. This almost perfect peneplanation was followed by slow uplift, which commenced in the early tertiary and the consequent dissection by the rejuvenated drainage system. As a result an elevated and dissected plateau consisting of flat-topped hills or their remnants and intervening valleys was formed.

3.1.3.3 Rainfall

The rainfall pattern in the areas is bimodal with two seasons and annual rainfall varying between 560mm-1,272 mm. The months of March to May and September to November receive very heavy and well-distributed rains of up to 1,200 mm. There are two dry seasons from June to July and December to February. This therefore provides for two-season crop farming in some areas.

3.1.3.4 Climate

It can be described as modified equatorial climate; the mean diurnal maximum temperatures range between 180°C and 350°C while the corresponding minimum diurnal range is 80°C and 250°C. The rainfall is well distributed throughout the year, with the average annual rainfall being 1,300mm. The peak rain period is March–May and October – November. The reliability of rainfall generally declines northwards. Dry seasons occur from December–February and June–July.

3.1.3.5 Fauna

The project areas have ecological communities ranging from grasslands, woodlands, bush land, and a number of plantation forest communities and wetlands ecosystems. All these favor existence of diverse wildlife ranging from invertebrates to vertebrates. However, only birds (Guinea fowls, turraco, francolins) and monkeys were seen during the reconnaissance. Domestic animals reared include: Cattle, sheep, pigs and goat rearing with cattle being the dominant. None of the animals encountered is of conservation concern (not rare, threatened or endangered).

3.1.3.6 Flora

The natural vegetation of Rakai, Masaka, Sembabule and Mubende District vary with the different ecosystems that characterize the areas. Savannah grassland and shrubs dominate the districts vegetation. Generally, the plants here can be categorized into 3 plant communities:

a. Dry *Combretum* savanna; which includes tree species like *Combretum bandeau, C. ghasalense, C. molle* and *Albizia zygia* and the common grasses being *Hyparrhenia filipendula, Cybopogon afronardus,* and *Themeda triandra*. These communities occur in parts of Luwero, Masaka and much of Mubende and Sembabule areas;
b. Dry Acacia savanna which cover two communities of grass that are *Cymbopogon afronardus* and *Themeda triandra.* It is dominated with *acacia* woody cover and was observed in Mubende, Kyegwegwa, Sembabule areas; and
c. Swamp vegetation in the low lands; contained various species of vegetation like *Cyperus papyrus*, *Miscanthidium*, *Mimosa pigra*, *Cyperus articulata* and phragmites (reeds).

The wetlands are heavily grazed and natural vegetation is degraded save for pockets of natural stands of central forest reserves. Apart from natural forests, communities are engaged in agro forestry, planting mainly *Eucalyptus spp*, and Pine. The major crops grown/observed in the project included; bananas, maize, coffee, beans, vegetables, ground-nuts, cassava, yams, sweet potatoes, Irish potatoes.

3.1.3.7 Population

UBOS 2013 gave the population project for Districts of Mubende, Gomba, Butambala, Nakaseke, Mukono, Luwero and Masaka as in Table below.

Table 5: Population Summaries for ERT III Areas in the Region

DISTRICT	1991 CENSUS		2002 CENSUS									PROJECTED		% OF RURAL POPULATION
						2011			2012			HOUSEHOLDS		BELOW POVERTY LINE
	Total	Sex Ratio	Male	Female	Total	Male	Female	Total	Male	Female	Total	2010	2011	2005
BUTAMBALA	**74,062**	97.9	42,598	44,157	**86,755**	48,400	49,800	**98,200**	49,200	50,200	**99,400**	**19,560**	**19,850**	20.7
GOMBA	**119,550**	101.9	66,852	66,412	**133,264**	75,900	74,800	**150,700**	77,100	75,700	**152,800**	**32,220**	**32,690**	26.3
LUWERO	**255,390**	98.2	167,979	173,338	**341,317**	211,500	217,500	**429,000**	217,500	222,700	**440,200**	**93,400**	**95,890**	18.3
LWENGO	**212,554**	97.1	117,625	124,627	**242,252**	128,200	136,700	**264,900**	129,600	137,700	**267,300**	**59,360**	**60,040**	21.5
MUBENDE	**277,449**	102.8	211,582	211,840	**423,422**	292,800	295,500	**588,300**	304,300	306,300	**610,600**	**126,440**	**131,350**	32.6
MUKONO	**319,434**	100.8	209,461	213,591	**423,052**	264,800	271,600	**536,400**	272,500	278,500	**551,000**	**125,760**	**129,270**	15.8
NAKASEKE	**93,804**	102.1	68,769	68,509	**137,278**	92,600	92,200	**184,800**	96,000	95,100	**191,100**	**39,860**	**41,240**	24.8

3.1.3.8 Education

On a general note, an analysis of the regions access to quality education which is one of enhancement indicators to better standard of living paints a mixed picture in in the region especially in rural settings. On one hand, access indicators to education includes aspects such as net intake as well as net enrolment, which all indicate quantitative and incremental progress over the years (ACODE 2011). The net intake increased from 86.8% in 2007 to 118.3 in 2009 while net enrolment increased from 122.1 to 148.3 over the same period. Quality enhancement indicators such as pupil-teacher ratio and pupil-classroom ratio, on the other hand, indicate a state of stagnation. For example, the pupil-teacher ratio that had improved to 58 from 49 in 2007 and 2005 respectively had declined to 50 during the 2011. Similarly, the pupil classroom-ratio has oscillated between 64 and 65 over the last five years in areas of Luwero, Masaka and Mubende.

It is also evident that, increase in the demand for primary education in the region has not been matched with adequate investment to cater for the quality needs for the pupils. One of the major challenges is the poor classroom infrastructure in many of the schools in the district. Most classroom blocks are in a deplorable state, characterized by dilapidated and at times incomplete structures. In some areas, classes are conducted in makeshift structures.

Component 2 of ERT III will finance installation of solar PV systems for institutions such as schools, health centers and water pumping stations – as was done for the ERT II; these will be implemented by the respective line ministries (i.e., MoH, MoES and MWE) but in collaboration with REA to synchronize plans. Special considerations will be made for USE and UPPET schools that have enrolment less than 500 students to receive solar energy packages. It is proposed that the successful ICT activities (ICT services in schools and health centers) under ERT II be continued in ERT III but shall be implemented by line ministries in collaboration with UCC.

3.1.3.9 Economic Activities

Within central Uganda and south west Uganda, like other parts of the country subsistence farming is the most important economic activity employing the majority (over 80%) of the local population (Figure 9). The economy is basically reliant on crop production and livestock production. Main food crops include finger millet, maize, beans, bananas, sorghum, sweet potatoes, Irish potatoes, cassava and groundnuts. Coffee is the major cash crop in most parts of this region. Fruits and vegetables such as passion fruit, tomatoes, pineapples, onions and cabbage are also grown. Others sources of livelihood are fishing and the upcoming fish farming, agro-forestry, sand excavation, and brick making. This

high percentage of the population that is engaged in agriculture implies that people's economic livelihoods are mostly dependent on exploitation of natural resources with all its attendant effects including natural resource pressure and degradation. Families and individuals are also involved in brewing and distilling local drinks as a source of revenue.

Within the trading centers, there are small scale food processing activities, grinding mills, crafts, service provision like communications/mobile phone services, entertainment, hair cutting and dressing, tailoring, produce selling, groceries, drug shops and clinics, animal drugs, educational services, bars and restaurants, discos which individuals pursue in response to various demands of the communities within the vicinity.

It envisaged that, improvement and extension of the electricity distribution grid under ERT IIII can be a stimulus to improve operations of other utility providers especially water supply. Currently most of the towns in the regions do not have piped water systems and it is therefore hoped that, better power supply can be a stimulus towards improvement of water supply system

The extension of electricity will bring about improved delivery of services by sectors such as health especially vaccination, deliveries and surgical operations, education and general facilitation of trade activities.

Further, the extension of electricity to trading centers is expected to stimulate the start-up and growth of small scale enterprises like small scale food processing activities, grinding mills, crafts, service provision like communications/mobile phone services, entertainment, hair cutting and dressing, tailoring, produce selling, groceries, educational services, bars and restaurants, discos which individuals pursue in response to various demands of the communities within the vicinity.

3.1.3.10 Land Tenure System

The basic unit of the *mailo* system is a square mile, hence the derivation of *mailo*, which is also equivalent to 640 acres. The term is used in Uganda to describe a land tenure system that came into effect when the kingdom of Buganda signed an agreement with the British-administered Uganda Protectorate there in 1900. *Mailo* tenure was introduced as a result of the 1900 Buganda Agreement. Under this Agreement, land was divided between the Kabaka (King) of Buganda, other notables and the Protectorate Government. The basic unit of sub-division was a square mile (hence the name *mailo*). Originally, there were two categories of ownership under the *mailo* system (private and official *mailo*). Official *mailo* land was transformed into public land in 1967. Under this system, land is held in perpetuity and a certificate of title is

issued. The principal advantage of this system is that it provides security of tenure, thus allowing long-term investments including those related to conservation. Absentee landlordism and lack of access by regulatory agencies are disadvantages that limit sound environmental management. Absentee landlordism encourages squatters on *mailo* land and the squatters have no incentives for the sustainable management of a land resource they do not own.

3.1.4 North Western Area

These include Hoima and Kibaale Districts and include areas of Buseruka-Kabaale - Kasio Tonya – Kyenzige.

3.1.4.1 General Description

The region is largely lies within the Albertine Graben. The Albertine graben is a Cenozoic basin formed and developed on the Precambrian orogenic belts of the African Craton. Rifting was initiated during the late Oligocene or Early Miocene (25- 40 million years ago). The Albertine Graben has a sharp variation in rainfall amounts, mainly due to variations in the landscape (NEMA, 2008). The landscape ranges from the low lying Rift Valley floor to the rift's escarpment, and the raised mountain ranges. The region is characterized by patches of quite extensive crop and livestock farms and pockets of subsistence cultivation.

3.1.4.2 Geology and Soils

The geology of the project areas fall within the proterozoic rocks which are close to the shores of L. Albert. This formation is close to the larger expanse of granitoids. Most of the soils in the project area are a mix of both clay sandy loams with little differentiation into clearly defined horizons. The soils, especially those found in the valley to the south of the site, occur in clay sediments and are dominantly darkish in color. The soils are generally acidic in nature with minimal water holding capacity especially during rainy seasons.

3.1.4.3 The Drainage System

Large parts of the region drains into the Nile. Within this region there is Lake Albert where most of the rivers and streams originating in the areas drain into the lake which in turn, drains into the Nile. The key drainage system include rivers such as; Nkusi, Wambabya, Hoimo and Waaki which enter Lake Albert at the southern and northern tips of the districts. R. Kafu on the other hand drains into Lake Kyoga and ultimately to the Nile.

3.1.4.4 Climate

The Albertine Graben has a sharp variation in rainfall amounts, mainly due to variations in the landscape (NEMA 2008). The project area receives a bimodal rainfall pattern with totals ranging from about 800 mm to 1500 mm per annum. The peak periods are between March–May and September to December. This presents a very important potential for agriculture in the area. The maximum temperatures in the areas are above 30°C which can sometimes reach 38°C.

Average minimum temperatures are relatively consistent and vary between 16°C and 18°C. 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 the north-east to south-west direction or vice versa.

3.1.4.5 Vegetation

The vegetation at the proposed project site was mainly grass and shrub that included *Hypherhenia, Combretum, Conyza floribunda, Pigra thickets*, *Acacia hockii* and *Euphobia candelabrum*. Trees and thicket shrubs were observed to be more predominant at the southern end towards the wetland. There are generally no plants or animals of ecological importance that would be affected by the proposed project to be established.

3.1.4.6 Wildlife

There are a number of small animals in the remote areas especially in the Bugoma forests and Albertine rift valley, large game such as buffaloes, hippos, bush and water bucks, and recently wildebeests in the Kabwoya wild life reserve.

3.1.4.7 Demographics

According to population census 2002 total population of the Hoima District was 343,480 persons, comprising of 50.5% males and 49.5% females which was 1.4 percent of the National population. Of this population, Ugandans were found to be 316,945 (92%) and the non-Ugandans were 26,535 (8%).The sex ratio was 101.9 males per 100 females, the growth rate (1991-2002) is 4.7 percent which is relatively high compared to the National rate of 3.2 percent for the same period, though comparatively lower than for the neighboring districts of Kibaale with a population 412,785 persons and growth rate of 5.4 percent.

3.1.4.8 Land Use and Land Tenure System

The two districts cover an estimated total land area of 3,612.17km^2. Out of this, about 79.1% is under agriculture, settlement and other miscellaneous land uses. The remaining 20.9% are under protected areas form of land use. Protected areas include forest reserves and wild life conservation areas. These districts practice 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.

3.1.4.9 Land tenure

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.

3.1.4.10 Agriculture

The areas of Hoima and Kibaale Districts comprises of 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. Furthermore, soils on the Rift Valley floor are dominantly sandy with excessive drainage characteristics, making the moisture deficiency problem even worse. 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. As a result of both moderate to high rainfall and moderately productive soils in these areas, rich agricultural activities take place based on both food and cash crops. 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 in Hoima.

3.1.4.11 Oil and Gas Sector

Commercially viable petroleum resources have been discovered in the Albertine Graben, activities of exploration, appraisal and development are being undertaken more intensively, and an Early Production Scheme to process and produce gas, naphtha, kerosene, diesel and heavy fuel oil. The heavy fuel oil will be used to produce thermal electricity at the Mputa/ Kabaale area in Kaiso-Tonya flats. A fully fledged utilization plan of a refinery and or a pipeline has been earmarked for Kabaale Parish, Buseruka Sub County in the district.

3.1.4.12 Standard of Living

Wide parts of the project area is sparsely populated, the distribution of the houses and settlements is dispersed. Most frequent are single houses in agricultural land or pasture areas. The houses are typically a combination of temporal and semi-permanent with few scattered permanent structures in the village areas

3.1.4.13 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.

Ventilated improved pit latrines (VIPs) are out of financial reach of households and although sanitation is not one of the community priorities, increasing the number and improvement of the traditional pit latrines are actually the most cost effective option to achieve safe disposal of excreta. At Lake Albert shore areas, water supply and sanitation are extremely poor. Most villages use the water of the lake as the main drinking water supply. The water is not boiled or treated. There is poor sanitation. 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.

It envisaged that, improvement and extension of the electricity distribution grid under ERT IIII can be a stimulus to improve operations of other utility providers especially water supply. Currently most of the towns in the regions do not have piped water systems and it is therefore hoped that, better power supply can be a stimulus towards improvement of water supply system.

3.1.4.14 Gender Analysis

Despite several groundbreaking advances, particularly in the political and legal spheres, gender inequality remains a persistent feature of social, economic and political arenas in most parts of the country. Women remain disadvantaged in education and employment and in the ownership of land and although fairly well represented on local councils, they continue to occupy few leadership positions. In Hoima and Kibaale Districts, out of a population of 343,042 in 2002, 49.5% were women, with population growth rate of 4.8% for women as opposed to 4.4% for men. 9.2% of the population is urban and 90.8% is rural. On the shores of Lake Albert, there are 1.5 men for every woman. Child bearing begins very early; by age 17, 43% of all girls have either given birth or are pregnant with their first child and over 70% have given birth by age 19. Although women want an average ideal family of 5 children, total fertility averages 7 live births per women. Only 15% of married women use contraceptive methods, up from 5% in 1989, and there is a large unmet demand for family planning services. (FAO, 2010)

3.1.4.14.1 Female-headed Households

In the areas of Hoima and Kibaale, women head 29% of total households. Although 83% of male headed households are currently married and living with spouse, 54% of the female-headed households are without spouses. The percentage of female headed households is higher in urban (33%) than in rural areas (26%). In addition to women headed households. 1% of households are headed by children under 18 due to various factors mostly by AIDS. Girls head 80% of child headed households.

3.1.4.14.2 Sexual and Reproductive Health

Most women and men say they have changed their behavior since learning about HIV/AIDS. However the number of cases of AIDS among women exceeds that of men. The highest incidence is among women aged 20-29, girls aged 15-19 are six times more likely to be zero-positive than boys of the same age. For women, an important risk factor in contracting HIV is being married.

3.1.4.14.3 Gender and Employment

About 24% of Hoima women are employed, 26% are either poor, young to go to school or disabled or too old to work, 21% are still in school or 29% classify themselves as housewives. Nevertheless, women constitute 47% of the active labour force including wage employment, self-employed and unpaid family workers. Only 21% of the employed women are in formal sector employment in administrative, managerial and professional occupations and only 0.05% of the senior positions in the civil service are held by women. The majority (77%) of workingwomen are unpaid family workers.

3.1.4.14.4 Gender and Poverty

In the two districts, there are wide variances between men and women with women poor accounting for more than 56% of total poverty. Poor households tend to be larger, have older or less educated households and are more likely to be headed by a female.

3.1.4.14.5 Gender and the Agricultural Sector

Agriculture accounts for about 70% of GDP and provides employment for about 60% of the population hence the growth of agriculture largely determines the performance of the district economy. Women contribute 60-70% of the labour for agricultural production and they produce 70-80% of the food grown. 72% of all employed women and 90% of all rural women are engaged in agriculture, compared with only 53% for rural men. Women are 51% total adult labour force, 39% of the owner operators, 79% of the unpaid family workers and 44% of the casual labourers in the sector. Slightly less than half (47%) of the children employed in agriculture are girls, mostly as unpaid family labourers. Women do 55% of the land preparation, 85% of the planting, 85% of the weeding and 98% of the processing. Although 78% of the women control the family food stocks

and determine the day-to-day outflow of food from storage, decisions to market are usually made by men (70%) or jointly by husband and wife (15%).

3.1.5 Rwenzori Areas

Under this region, the project areas include Karugutu-Ntoroko including Semiliki Safari Lodge and baseline data is summarized as follows:

3.1.5.1 Geology

The ERT III areas are within the Precambrian Geological strata which has been severely deformed and metamorphosed during the recent Cenozoic geological period into acid and basic gneisses. Weathered products from these gneisses have later been deposited in the plains. Generally, the areas are overlaid by volcanic tuffs and minor lavas. The rest of the lower areas towards Ntoroko generally consist of blackish and sandy clay loams.

3.1.5.2 Soils

The soils in the areas of Bundibugyo and Ntoroko are of organic, ferrosols, podsol/eutrophic and hydromorphic. Bwamba Complex is the dominant soil deep reddish-brown sandy clay loams. Soils of this unit are developed on the hill wash pediments skirting the Rwenzori West of Bundibugyo, bordering the forest reserve; the land surface is very deeply dissected and consists almost entirely of a series of very narrow steep soiled ridges. The general soil fertility and suitable climate condition of Bundibugyo is the most important Arabica coffee growing area in the western region of Uganda.

3.1.5.3 Climate

The area experiences bi-modal rainfall pattern in which, the first rains are shorter and occur during the months of March-May and the longer rains from August-December. Annual rainfall ranges from less than 800 mm to 1600 mm and is greatly influenced by altitude. Rainfall distribution in the Rwenzori region enable agricultural (crop growing) to take place through the year. For most at the foothills and the slopes of the Rwenzori Mountains, the rainfall amounts are comparatively reliable since a majority of the crops can be grown in the first and second seasons. Due to the wide temperature variations influenced by altitude, temperature can be extreme, from very high at the plains to below zero at the peak areas. From 2001-2011 annual average was 23.9^0C with minimum and maximum averages of 17.7-30.2^0C respectively.

3.1.5.4 Vegetation

The vegetation communities in the project can be categorized into the following zones and each of these sections has characteristic vegetation types due a host of factors. The vegetation in the foothills areas is largely of natural type and borders parts of North Rwenzori Central Forest Reserve. The vegetation communities in this section comprise *Cynometra-Celtics* (medium altitude moist semi-deciduous forest); forest/savanna mosaic at medium altitudes;

undifferentiated semi-deciduous thicket; *Acacia-Albizia-Beckeropis-Cymbopogon* (mosit acacia savanna) and *Themeda-Heteropogon* (grass savanna).

3.1.5.5 Protected Areas

3.1.5.5.1 North Rwenzori Central Forest Reserve

North Rwenzori CFR was first gazetted under legal notice No 275 /1940. Various amendments were made under legal notice 245/1947 and 41/1948 which are now amended in Section 33 of the National Forestry and Tree-Planting Act 2003, which permits a number of a local community to cut firewood, or bamboo, unreserved, unplanted timber trees for their use in reasonable quantities. The northern and southern boundaries of north Rwenzori are Rivers Sempaya and Nyakibale respectively. On the east, the reserve extends to Fort Portal-Bundibugyo road and then follows a cut line of planted with *Eucalyptus* spp and *Euphorbia* spp up to Nyabisokoma stream. From Nyabisokoma stream it extends towards Fort Portal-Bundibugyo road, which is the boundary from Nyabisokoma stream to Burunga, pass, the western Rwenzori hills from the source of Nyakibale to the source of Mangiro River. Chiefly eucalyptus and Erythrina planted singly at wide internal along the line which then follows the Mangiro River from its source to the main road south of Sempaya. On the other sites near the eastern boundary *Acacia polyacantha* forms almost pure wood land with height of 40-50 feet and dense under storey of *Pennisetum purpureum*. Borassus palms are fairly common on the eastern side of the CFR with species such as *Gardenia jovis tonentus* and *Cyathea dregei*. The greatest obstacle to the establishment of plantations above 4,500feet on North Rwenzori is the difficulty of access in such ragged topography both for establishment and tending purposes and for extraction.

3.1.5.5.2 The Semliki National Park (SNP)

Semiliki National Park was gazetted in 1993 and occupies an area of 220 km^2 and occupies flat and gently undulating landform ranging from 670–760 m above sea level. Many areas of SNP flood in the rainy season due to its topography and poor drainage. SNP is the only lowland tropical rain forest in East Africa which is classified as semi-deciduous. It has 336 recorded tree species of which, 24 are restricted to SNP. Some tree species are considered to be endangered. The Park has 63 species of mammals, 374 species of butterflies and moths. The biodiversity is attributed to the diverse habitats such as swamp forests swamps, grasslands, bush land and extensive system of hot springs, warm swamp and savannah woodland.

3.1.5.5.3 Semliki Widlife Reserve

Semliki Wildlife Reserve is Uganda's oldest wilderness reserve, originally gazetted in 1932 as the Toro Game Reserve. Extending from Ntoroko on the southern shores of Lake Albert to the north east of the Bundibugyo road, it has thick

swampy grounds close to Lake Albert. The rest of the area is typical savannah interspersed with *Acacia-Combretum* woodland. Small patches of *Borassus* palm appear and significant stretches of riparian woods along the river courses.

The scenery is magnificent on a clear day, the Congolese Blue Mountains (2500m m.a.s.l) are clearly visible in the west with the majestic Rwenzoris and their glacial peaks in the north; Lake Albert's eastern shore culminates at the foot of the sharp Rift Valley escarpment. The valley floor itself is relatively flat and sits at about 600m above sea level. The reserve is home to a variety of large and small game, as well as a number of different primate species, including chimpanzees. The game populations in the reserve were at one time enormous but the poaching and hunting that occurred during the civil war and throughout the 1980's saw the numbers plummet. However, since the early 90's the reserve has been protected and although the numbers do not yet equal those of the reserve's heyday, they are increasing rapidly. The shore of Lake Albert and the swamps that surround it are home to a variety of common and rare water birds including shoebill storks and colonies of red-throated bee-eaters.

3.1.5.6 Sempaya Hot Springs

Sempaya hot springs are found inside Semiliki National Park. These hot springs have a geyser shooting up from an eight-meter wide hole at hot temperatures is famous for the Sempaya male and female hot springs. Two hot springs situated in a tract of hot mineral encrusted swampland, rich in visible bird, insect and mammal life accessed by modern trail network. One can see a two meters jet of hot water (130^{o}C) and a pool (12m diameter) of oozing boiling water (106^{o}C). Interestingly, you can boil food like eggs in the natural boiler within ten minutes and eat it. They bubble up from the depths of the earth to demonstrate the powerful subterranean forces that have shaped the Rift Valley many centuries ago.

3.1.5.7 Ethnicity and Language

The tribes in Ntoroko District are the Bakonjo, Bamba, Batwa and the Banyabindi and languages spoken are Rukonjo, Rwamba and Runyabindi.

3.1.5.8 Population

The ERT III will largely cover Ntoroko District and its population is summarized as in Table 6.

Table 6: Ntoroko District Population as of 2013 UBOS Projections

DISTRICT	1991 CENSUS			2002 CENSUS									PROJECTED		% OF RURAL POPULATION
							2011			2012			HOUSEHOLDS		BELOW POVERTY LINE
	Total	Sex Ratio		Male	Female	Total	Male	Female	Total	Male	Female	Total	2010	2011	2005
NTOROKO	**24,255**	107.1		25,214	25,855	**51,069**	38,900	41,000	**79,900**	41,000	43,100	**84,100**	**14,080**	**14,770**	27.7

3.1.5.9 Socio-economic Characteristics

Agriculture is the main income earner for the District and it is where most of the households obtain their livelihood. Many households rely on crop and livestock sales as their main source of income. Maize, cassava and beans are the main items traded in as well as cattle keeping and fishing. Cocoa and palm oil are grown in the highland and lowland zones. A recent District survey under Demographic and Health Survey 2011 indicated that, in Ntoroko men owned 51.8 % of land; women 12.3 % and jointly owned 35.9 %. Only 18% of households had received agricultural extension services in the previous 12 months including Government and non-government services.

3.1.5.10 Literacy Levels

The population and household survey (2002) reported the literacy rate of the population aged 10 years and above to be 58% and 29.7% of the population10 years and above had never been to school, 23.1% of the population above 15 years had completed primary education and only 3.3% above 20 years had completed secondary school.

3.1.5.11 Food security

Regarding food security, 59.2 % of the people eat less than 3 meals a day and approximately 50% of the respondents attributed food insecurity to crop failure. The survey found out that women take the lead in selling the agricultural produce although men control most of the proceeds from the sales. A low level of labour productivity with market access difficulties and scarce savings characterizes the poor farmers that induce them to implement strategies that tend to maximize their vulnerability. The gender specific activities involved in the cocoa production and processing shows that women are involved in all the activities. Women are overworked and engendered division of labour assigns enormous duties to both women and girls, whereby some girls have to stay at home to perform the household chores at the expense of their education (DDP, 2012).

Table 7: Major Cash Crops in Ntoroko District

Crop	Estimated Area (Ha)	Annual Production	Revenue (UGX, 000s)
Coffee Robusta coffee (before the coffee wilt disease)	1670	600 kg/Ha	601,200
Arabic coffee	850	600 kg/Ha	408,000
Vanilla	135	400 kg/Ha	43,200

Cocoa	2500	9,000 tonnes	2,700,000
Oil Palm	N/A	400,000 liters of crude palm oil	32,000

Source: (District Development Plan, Bundibugyo, 2010)

3.1.5.12 Settlement and Housing

The settlements vary from semi-permanent to permanent houses mostly with corrugated iron sheet roofs and tend to be near the main roads with some being trading centers. However, the lower floodplains areas have mainly temporal dwelling structures which are occupied by pastoral communities. The structures are temporal implying there is a tendency for communities to shift with their livestock in case of floods. The dwellings tend to be nucleated on family basis.

3.1.6 Central North and North-North West Areas

These comprise ERT III areas of Ngeta-Ayala-Alito-Ogur-Adwari-Patongo, Dokolo-Agwata HCIII, Aceng-Dokolo-Atur, Dokolo-Apapai-Tirir and Otuboi-Orungo-Acuna areas in greater Lango region. Others in greater Gulu are Gulu-Olwiyo-Pakwach with off Gulu-KochGoma, Spur Agong. The other leg goes to areas of Spur-Wiii-Anoka and Alele-Lira. The baseline information of these areas is summarized as follows

3.1.6.1 Topography

The relief of Gulu, Lira and Dokolo districts consists of complex low landscape with relatively uniform topography marked by few sharp contrasts like Oroko and Ajulu hills, Ayamo, Awere and Omoro. Generally, the altitude ranges between 1,000-1,200 meters above sea level. The relief of Amuru consists of complex low landscape with relatively uniform topography marked by few sharp contrasts like Kilak hills in the north-eastern part of the district (Kilak County). Generally, the altitude ranges between 1,000-1,200 meters above sea level.

3.1.6.2 Hydrology and Drainage

The up and down wrapping of underground rocks accompanied by faulting, shearing and jointing has influenced the drainage pattern in the northern districts to form a dendrite drainage pattern. Here many rivers and streams are held responsible for the formation of this drainage pattern. The major ones are those flowing into the Nile, which include rivers: Aswa, Unyama, and Tochi.

3.1.6.3 Geology

The major rock types that form the geology of Amuru and Gulu districts are composed of remnants of low land surfaces and scarps related to rift or Aswa, sediments of western rift valley, zone of Tors and inselbergs areas of infill, remnants of upland and hot springs. In Lira district, the major geological formations are the basement complex (mainly undifferentiated acid gneiss)

covering most of the district. Dokolo areas are underlain by Precambrian Basement Complex, comprising undifferentiated gneisses and granulite facies rocks. No other formations have been mapped, although there may be recent sediments comprising silts, alluvium and lake deposits adjacent to Lake Kwania and along the base of some of the larger river valleys.

3.1.6.4 Soils

According to Langlands (1974) classifications, the soil of Gulu and Amuru districts consists of ferruginous soil with a high percentage of sandy soils and therefore susceptible to erosion. Due to its sandy nature, the soil has low water retention capacity and high rate of water infiltration. The soils are usually deep with little differentiation into clearly defined zones and possess fine granular structure, others moulded into large, weak coherent clods that are very porous. Gulu, and Lira districts are endowed with vast fertile soils like in Orapwoyo in Odek and Adak in Lalogi and this has resulted to very high crop yield. Dokolo areas are endowed with mainly sandy loam soils of ferralitic type. Its bottomland is constituted mainly of deposits of alluvium. Generally, the soils all over the district are well drained, fertile and suitable for production.

3.1.6.5 Climate

The type of climate experienced in Gulu consists of dry and wet seasons. The average total rainfall received is 1,500 mm per annum with the monthly average rainfall varying between 14 mm in January and 230 mm in August. Normally the wet season extends from April to November with the highest peaks during May, August and October, while the dry season begins in November and extends up to March. The otherwise continental climate of Lira District is modified by the large swamp area surrounding the southern part of the District.

The continental climate of Lira District is modified by the large swamp area surrounding the southern part of the district. The rainfall in the district is bimodal with one peak during April-May and the other in August-October. The average annual rainfall in the district varies between 1200-1600 mm decreasing northwards. The rainfall is mainly convectional and normally comes in the afternoons and evenings. The average minimum and maximum temperatures are 22.5^0C and 25.5^0C, respectively. Absolute maximum temperature hardly goes beyond 36^0C, and absolute minimum hardly falls below 20^0C. The Equatorial Trough which brings rainfall passes over the district and the South easterly winds which also brings rains to the district passes over Lira. Land and sea breezes are common in the district. Wind run is low (1-4m/sec) during the rainy season and moderate (4-8m/sec) during the dry season.

3.1.6.5.1 Rainfall

The average total rainfall received in Amuru district is 1,500 mm per annum with the monthly average rainfall varying between 14 mm in January and 230 mm in August. Normally the wet season extends from April to October with the highest

peaks in May, August and October, while the dry season begins in November and extends up to March. In Lira district, the rainfall is bimodal with one peak during April-May and the other in August-October. The average annual rainfall in the district varies between 1200-1600 mm decreasing northwards. The rainfall is mainly convectional and normally comes in the afternoons and evenings. The rainfall in Lira district is bimodal with one peak during April-May and the other in August-October. The average annual rainfall in the district varies between 1200-1600 mm decreasing northwards. The rainfall is mainly convectional and normally comes in the afternoons and evenings.

3.1.6.5.2 Temperature

The average maximum temperature in Amuru is 30^0C centigrade and the minimum being 18^0C. The average maximum temperature in Gulu is 50^0C, and the minimum being 18^0C, Relative humidity is high during the wet season and low in the dry season. While in Lira, the average minimum and maximum are 22.5^0C and 25.5^0C, respectively. Absolute maximum temperature hardly goes beyond 36^0C, and absolute minimum hardly falls below 13^0C.

3.1.6.6 Biological Environment

The vegetation of Gulu, Amuru, Lira, Pader consists of intermediate savannah grassland which are dominated by trees such as; *Butyrospermumparadoxum*,(Shea butter tree),*Combretum spp, Anno senegelesis,* and a mix of *Acacia hockii*. The trees are a climax of seasonal fires in the dry season. Underneath the trees are expanses of *Graminae* communities such *as Hyperrehenia rufa, Impereta cylindrica, Panicum maximum, Acacia.* Other plants observed included; *Ficus natalensis, contyetum, Borrassus aethicpum (Fanpalm*) and *Digitria scalarum*. There are also some herbs like *Bidens pilosa, Ageratum Coinzoides, Amarathus spp and Latana camara.* Tree species included; Eucalyptus, *Jacaranda, Cupressus, Thevethia peruviana, Pines, Hibiscus, Bougainvillea and Flamboyant. Pennisetum purpureum* (elephant grass) is among the most pronounced plant species in the areas.

Other vegetation communities in Adwari-Otuke areas are a mix of trees such as *Annona senegalensis, Grewia mollis* and *Combrentum.* These vegetation communities were observed along the following routes of the project namely; Lira-Aloi-Adwari-Patongo-Kalongo route and on Gulu-Opit-Rackoko-Corner Kilak-Pader route. It has a section of natural forest and another of plantation, with Pines. The pines within 15 meters from the road are 6-10metres high. The reserve was gazatted in 1963, and it covers 780.7ha. No significant wild animals were observed save occasional birds and mammals like squirrels, large rats were observed. The areas have herds of livestock such as; cattle, goats, sheep, donkeys and pigs.

3.1.6.7 Population

In 2006 and 2007, Lira District experienced a massive return of Internally Displaced Persons. In a period of 14 months, over 310,000 of the estimated 350,000 left camps to return to home villages The national population census of 2002 estimated the population of the district, as constituted in 2010, at 290,600, with an annual population growth rate of 3%. Given those statistics, it is estimated that the population of Lira District in 2010, was about 368,100.

The projected population of Gulu District as of June 2011 was 353,663 people, compared to 298,527 people in 2002 of which 60 percent live in rural areas. The population density as of 2002 was 86 persons/sq km, compared to 102 persons/sq km in 2008, while the average household size is still 5.1 persons with sex ratio of 97 males per 100 females. The possible reason for this disparity is that more males than females have died during the conflict, besides, other biological sex survival intricacies.

The 2002 national census estimated the population of the district at approximately 62,000. As of June 2009, the district population was estimated at about 77,800. As for Dokolo district areas, the 2002 national census estimated the population of the district at approximately 131,000.The district population is growing at an estimated annual rate of 3%. Given those statistics, it is estimated that the population of the district in 2010 was approximately 166,100. As for Pader, the 2002 national census estimated the population of the district, as configured after July 2010, at approximately 142,320 people.

Table 8: UBOS Population Estimate for ERT 3 Projects Districts in Central North Districts

DISTRICT	1991 CENSUS		2002 CENSUS			Project Populations						% OF RURAL POPULATION
						2011			2012			BELOW POVERTY LINE
	Total	Sex Ratio	Male	Female	Total	Male	Female	Total	Male	Female	Total	2005
AMOLATAR	**68,473**	100.0	47,828	48,361	**96,189**	61,400	62,500	**123,900**	63,200	64,200	**127,400**	56.5
AMURU	**88,692**	97.8	66,919	68,804	**135,723**	85,500	88,500	**174,000**	88,000	90,800	**178,800**	76.5
DOKOLO	**84,978**	96.4	62,988	66,397	**129,385**	85,800	91,300	**177,100**	88,900	94,500	**183,400**	56.5
GULU	**211,788**	95.7	146,750	151,777	**298,527**	190,500	195,100	**385,600**	196,300	200,200	**396,500**	70.2
LIRA	**191,473**	97.7	142,380	148,221	**290,601**	190,100	200,200	**390,300**	196,400	206,700	**403,100**	52.8
OTUKE	**43,457**	99.3	30,514	31,504	**62,018**	40,700	42,600	**83,300**	42,200	43,800	**86,000**	62.2

(Source: UBOS 2013 Population Summaries)

3.1.6.8 Land Tenure

Land tenure system in the regions is largely customary land tenure type with the exception of church missions, hospitals and schools a number of which hold Freehold land tenure titles. Inheritance of land is usually passed on to a male heir and negotiations affecting land acquisition is always geared to the male head of the household after the clan head has given the go ahead.

3.1.6.9 Land Use and Settlement

Currently, the Districts in the project area have spatial populations, which are unevenly distributed. Accessibility to socio-economic infrastructures has largely determined population distribution in the districts while natural resource endowments largely determined and greatly influenced the settlement pattern. It is worthwhile to mention that in the past two decades or so the population settlement pattern in the districts has had a departure from natural resource endowment potentials and existence of socio-economic activity determinants to security concerns. People predominantly live in grass thatched houses.

3.1.6.10 Energy Sector

The most predominant source of energy in the project districts in the region is wood fuel in which, nearly 98% of the households depend on wood fuel as the source of domestic energy. However hydroelectricity and fossil fuel are also used. The use of solar energy is progressively being adopted but mainly in health centers and education institutions. According to the DDPs of the districts, there are plans to conduct awareness on adoption of other sources of energy in the district. There are also plans to promote the use of renewable energy and energy efficient technologies in the areas. After being in camps for over 4 years, a lot of deforestation was massively done hence insufficient wood fuel for the rural population. There is need to step up Agro forestry activities as well as training on energy saving stoves including use of farm waste such as straws, rice husk, etc. Rural electrification as well as use of renewable energy such as solar must be encouraged as well as biogas construction.

3.1.6.11 HIV/AIDS

HIV/AIDS is presently one of the leading causes of death among the adults and children under five in this region. It is estimated that between 25–40 percent of HIV/AIDS positive mothers in Uganda transmit the virus to their children. HIV/AIDS has also led to the exacerbation of certain diseases like pneumonia, meningitis and tuberculosis, which had hitherto been controlled. The role played by women and youth in animal production cannot be under estimated. Up to 80% of the exotic and 30% of the local animals are managed by women. Women have increasingly participated in workshops on production, partly because the department had given enough attention to this aspect. Mobilization by Community department, NGOs and the Department of Production is aimed at

consolidating what has been achieved in the area of increased participation of women and youth in workshops and other production activities. Although both men and women participate in animal production, the authority of ownership has in most cases remained with men. In order to reverse this dominance by men, the community needs continuous sensitization.

3.1.6.12 Gender

Women should have the right to equal treatment with men and that right should include equal opportunities in political, economic and social activities. To a good extent this has been achieved in politics as 43% of the councilors are female; unfortunately their impact has been less as their numbers would suggest. Reasons for this are:

- Most women councilors do not actively participate in council deliberations because they lack the skills and knowledge. Subsequently their influence on decisions is limited, resources are not distributed equally to address women problems in council, and
- Though affirmative action is established to favor the marginalized groups on the basis of gender, age and disability. Training and sensitizing women groups to handle women projects in council shall improve performance.

3.1.6.13 Economic Situation in the Region

The economy of the districts in the ERT III areas in the region is mainly based on agriculture, with 81% of the population engaged in subsistence farming. Other sectors in economy include agro processing industries (3.1%), commercial activities and banking (15.9%). At independence, cotton was the major cash crop but its production has declined and has lost glory. Crops hitherto were mainly food crops such as millet, simsim, cassava, groundnut, beans, pigeon peas, cowpeas, sorghum, sweet potatoes and other recently introduced crops such as rice, sunflower, soya beans, maize and horticultural crops serve both as food and cash crops. Cattle used to be a big source of wealth as well, but this has totally been eroded by cattle rustling and Lord's Resistance Army (LRA) war from 1987-2006 which virtually depleted the stock of animals from 316,000 in 1987 to about 80,000 in 2002. With improved security situation since 2006, the region is progressively getting out of danger of sporadic cattle thefts. Industrialization in the region is still at very low level with most industries involved in agro-processing such as edible oil production, bakery, maize and rice milling and secretarial services.

4 POLICY AND LEGAL FRAMEWORK

4.1 The Policy Framework

The policy framework for the Environmental Management for the ERT III project is principally premised on the National Environment Management Policy 1994 and related policies.

4.1.1 The National Environment Management Policy, 1994

The key policy objectives include the enhancement of the health and quality of life of Ugandans and promotion of long-term, sustainable socio-economic development through sound environmental and natural resource management and use; and optimizing resource use and achieving a sustainable level of resource consumption. ***With regard to ERT III, aspects of Environmental Assessment have been integrated into the project with the objective of ensuring sustainability in the project.***

4.1.2 Uganda's Vision 2040

According to Vision 2040, for Uganda to shift from a peasantry to an industrialized and largely urban society, it must be propelled by electricity as a form of modern energy. To achieve the targets of this Vision, Uganda will develop and generate modern energy to drive the industry and services sectors. It is estimated that Uganda will require 41, 738 MW by2040 thus increasing its electricity per-capita consumption to 3,668 kWh. Furthermore the access to the national grid must significantly increase to 80 percent.

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. Government will provide incentives to lower the cost of electricity infrastructure, facilities and equipment.

4.1.3 The Energy Policy, 2001

The policy goal is to meet energy needs of Uganda's population for social and economic development in an environmentally sustainable manner. The policy recognizes linkages between the energy sector and other sectors such as economy, environment, water resources, agriculture, forestry, industry, health, transport, education, decentralization and land use. Hence at the sectoral level, the policy strengthens provisions of the National Environment Management Policy, 1994 that emphasizes need for environmental impact assessment. This policy recognizes the energy sector as potentially having more significant environmental

impacts than most other economic sectors. Since energy development and environmental damage are related, the policy recognizes need to mitigate both physical and social environmental impacts of energy projects. Objective (5) of the policy aims at managing energy-related environmental impacts and it states that the Government will ensure that environmental considerations are given priority by energy suppliers and users to protect the environment and monitor compliance with environmental protection guidelines. ***This study is in line with this policy in so far as it seeks to outline a frame work impacts anticipated in the project and proposed measures for their mitigation.***

4.1.4 Electricity Policy, 2002

The energy policy recognizes linkages between the energy sector and the other sectors. In particular policies on the economy, environment, water resources, agriculture, forestry, industry, health, transport, education, decentralization and land use have to be taken into consideration. Specifically, the energy policy seeks to meet the following broad objectives:

- To establish the availability, potential and demand of the various energy resources in the country;
- To increase access to modern affordable and reliable energy services as a contribution to poverty eradication;
- To improve energy governance and administration;
- To stimulate economic development; and
- To manage energy-related environmental impacts.

4.1.5 The National Cultural Policy, 2006

The National Culture Policy, 2006 complements, promotes, and strengthens the overall development goals of the country. Its specific objectives include amongst others, the need to promote and strengthen Uganda's diverse cultural identities and to conserve, protect, and promote Uganda's tangible and intangible cultural heritage**. ERT III** ***has outlined Chance Finds Procedures to ensure protection and conservation of any PCRs that will be encountered during project implementation.***

4.1.6 The National Water Policy, 1999

The overall water resources policy objective is to sustainably manage and develop the water resources in a coordinated and integrated manner to secure/provide water of an acceptable quantity and quality for all social and economic needs. ***ESMF outlines measures to control erosion, siltation as well as potential for pollution from oil spills, creosote and sanitary wastes in areas of project implementation.***

4.1.7 The National Land Use Policy

The overall policy goal is to achieve sustainable and equitable socio-economic development through optimal land management and utilization in Uganda. ***The policy recognizes amongst others, the need for the protection and sustainable use of land resources through conducting environmental assessments and implementation of measures outlined in such assessment studies.***

4.1.8 The National Gender Policy, 1997

The government adopted a National Gender Policy of 1997, a tool to guide and direct the planning, resource allocation and implementation of development programs with a gender perspective. The adoption of the gender policy has facilitated Uganda's gender mainstreaming programs in all sectors of the economy (implying, the planned works project should equally integrate gender into the implementation of works. ***REA as an agency implementing ERT III projects has mainstreamed gender dimensions into its activities, plans and policies.***

4.1.9 The National HIV/AIDS Policy, 2004

The policy provides the principles and a framework for a multi-sectoral response to HIV/AIDS in Ugandan's world of work. The policy applies to all current and prospective employees and workers, including applicants for work, within the public and private sectors. It also applies to all aspects of work, both formal and informal. ***ERT III will have to mainstream HIV/AIDS interventions into its plan, Projects and activities.***

4.1.10 National Policy for the Conservation and Management of Wetland Resources, 1995

The Policy has established principles by which wetlands resources can be optimally used and their productivity maintained in the future and end existing unsustainable exploitative practices in wetlands. All proposed modifications and restorations on wetlands shall be subject to an ESIA, the result of which shall determine whether such restoration or modification shall proceed and if so to what extent. ***The ESMF has measures for controlling degradation of wetlands and controlling their siltation.***

4.1.11 The Uganda Wildlife Policy, 1999

Government will encourage a range of participatory approaches such as empowering the people to participate in the conservation and management of the country's natural resources, and related decision making processes that affect their livelihood. ***Consequently, control of wildlife loss during implementation of ERT III projects is one of the key measures in subsequent EIAs for subprojects under the Project.***

4.2 The Legal Framework

4.2.1 The Constitution of the Republic of Uganda, 1995

The right to a clean and healthy environment is enshrined in Article 39 of the Constitution of Uganda, 1995. ***To ensure ERT III compliance with the Constitutional obligations on sustainability, an ESMF has been prepared which outlines mechanisms for environment assessment and mitigation measures included therein.***

4.2.2 The National Environment Act, Cap 153

Section 20 of the Act makes it a legal requirement for every developer to undertake an environmental assessment for projects listed in the Third Schedule of the Act. In this case, agriculture amongst others, including large scale agriculture, use of new pesticides are some of the projects in the Third Schedule to the Act that require an ESIA to be conducted before they are implemented. ***ESMF outlines some of the salient impacts in ERT III as well as mechanisms for conducting further assessments on the project sub-components.***

4.2.3 Electricity Act, 1999

The Electricity Act provides for the establishment of the Electricity Regulatory Authority (ERA); provides for its functions, powers and administration as well as for the generation, transmission, distribution, sale and use of electricity. In addition, it also provides for the licensing and control of activities in the electricity sector and for plant and equipment and for matters relating to safety; to liberalize and introduction of competition in the electricity sector amongst others. Section 62 of the Act stipulates that, the Government shall undertake to promote, support and provide rural electrification Projects through public and private sector participation in order to achieve equitable regional distribution access to electricity; maximize the economic, social and environmental benefits of rural electrification subsidies; promote expansion of the grid and development of off-grid electrification; and stimulate innovations within suppliers. ***The Project is consistent with the Act in trying to provide power to rural communities.***

4.2.4 The Land Act, Cap 227

The Land Act vests land ownership in Uganda in the hands of Ugandans and that, whoever owns or occupies land shall manage and utilize the land in accordance with the Forest Act, Mining Act, National Environment Act, the Water Act, the Uganda Wildlife Act and any other law [section 43, Land Act]. ***The planned ERT III has integrated Environmental Assessments in its ESMF in compliance with the Act provisions.***

4.2.5 Land Acquisition Act, 1965

This Act makes provision for the procedures and methods of compulsory acquisition of land for public purposes whether for temporary or permanent use.

The Act requires that adequate, fair and prompt compensation is paid before taking possession of land and property. Dispute arising from the compensation to be paid should be referred to the court for decision if the Land Tribunal cannot handle. ***These provisions are meant to ensure that the process of land acquisition is in compliance with existing laws and that the affected persons receive fair, timely, adequate compensation. Therefore, where land need for land take is anticipated, these provisions will guide the process of compensation amongst others in the ERT III.***

4.2.6 National Forestry and Tree Planting Act, 2003

The National Forestry and Tree Planting Act 2003 is the main law that regulates and controls forest management in Uganda by ensuring forest conservation, sustainable use and enhancement of the productive capacity of forests, to provide for the promotion of tree planting and through the creation of forest reserves in which human activities are strictly controlled. ***Specifically, the Act provides for EIA to be conducted where projects are undertaken in areas of CFRs and it is important that such an EIA considers comprehensive ecosystem aspects such as lost carbon sequestration potential.***

4.2.7 Uganda Wildlife Act, 1996

The Act provides for sustainable management of wildlife as well as consolidates the law relating to wildlife management amongst others. In Article 15, the Act provides that, any developer desiring to undertake any project which may have a significant effect on any wildlife species or community shall undertake an EIA in accordance with the National Environment Act. ***Hence, the ESMF has provided for measures for the management of impacts in protected areas that will likely be traversed by ERT 3 facilities.***

4.2.8 The Occupational Safety and Health Act, 2006

The Act provides for the prevention and protection of persons at all workplaces from injuries, diseases, death and damage to property. ***The ESMF provides for provision of safety gear for workers during implementation of ERT III activities.***

4.2.9 Historical Monument Act, 1967

The Act provides for the preservation and protection of historical monuments and objects of archaeological, paleontological, ethnographical and traditional interest. Section 10(2) requires that any person who discovers any such object takes such measures as may be reasonable for its protection. ***This implies, the project will undertake the Chance Finds Procedures in addressing possible encounters of any archaeological resources during project implementation***.

4.2.10 The National Environment (Audit) Regulations, 2006 (12/2006)

The Audit Regulations apply to environmental audits under the Environment Act, environmental audits under the ESIA regulations, voluntary environmental audits by the owner and any other audits as may be required or prescribed [Regulation 3]. ***The ESMF provides for the need for an Audit at the end of ERT III Project.***

4.2.11 Environmental Impact Assessment Regulations, 1998

The procedures for conducting EIAs are stipulated in the Regulations. The Regulations require environmental assessments to be conducted to determine possible environmental impacts, and measures to mitigate such impacts. At the end of the study, the environmental assessment report is submitted to NEMA to take a decision as to whether to approve or reject the project. ***The Guidelines also stipulate that the ESIA process will be participatory, that is the public will be consulted widely to inform them and get their views about the proposed project which in this case, has been undertaken to capture views of stakeholders for inclusion in the ESMF.***

4.2.12 National Environment (Waste Management) Regulations, 1999

The National Environment (Waste Management) Regulations, 1999 apply to all categories of hazardous and non-hazardous waste and to the storage and disposal of hazardous waste and its movement into and out of Uganda. The regulations promote cleaner production methods and require a facility to minimize waste generation by eliminating use of toxic raw materials; reducing toxic emissions and wastes; and recovering and reuse of waste wherever possible. ***The Regulations oblige the Developer to put in place measures for proper management of waste.***

4.2.13 The National Environment (Wetlands, River Banks and Lakeshores Management) Regulations, 2000

This law, consisting of 4 Parts, describes management policy and directions for important wetlands, riverbank and lakeshore areas that exist in Uganda. Any development projects, within those registered areas need ESIA studies and permission to be granted by NEMA in accordance with Regulation 34 of this law. ***This ESIA provides measures for best practices of implementing the project across wetland areas that are likely to be traversed by the project amongst other requirements.***

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

The National Environment (Noise Standards and Control) Regulations, 2003 Section 7 of these regulations requires that no person shall emit noise in excess of permissible noise levels, unless permitted by a license issued under these Regulations. Section 8 imparts responsibility onto the owner of a facility to use

the best practicable means to ensure that noise do not exceed permissible noise levels. ***The project is obliged to observe these Regulations by instituting measures for minimizing noise in the project such measures include proper maintenance of equipment and providing workers with PPEs.***

4.2.15 The National Environment (Standards for Discharge of Effluent into Water or on Land) Regulations 1999

The National Environment (Standards for Discharge of Effluent into Water or on Land) Regulations 1999, together with National Environment (Waste Management) Regulations of 1999 were put in place to ensure sustainable use of environment and natural resources across the country. Amongst others, under these Regulations, the standards for effluent or waste before it is discharged into water or on land shall be as prescribed in the Schedule of the Regulations.

4.2.16 EAC Protocol on Environment and Natural Resources Management, 1999

This Protocol governs the Partner States in their cooperation in the management of environment and natural resources over areas within their jurisdiction including transboundary environment and natural resources. This Protocol is a protocol of general application and applies to all activities, matters and areas of management of the environment and natural resources of the Partner States, including amongst others, sustainable environment and natural resources management, management of chemicals, management of wastes and hazardous wastes, pollution control and management, management of transboundary resources and environmental impact assessment and environmental audits. It enjoins the Partner States to manage the environment and natural resources in the Community in accordance with the principles set out in articles 5, 6, 7, and 8 of the Treaty.

4.3 International Environmental instruments/obligations for Uganda

Uganda is a signatory to several international instruments on environmental management. These are summarized in Table 9 below.

Table 9:International environment instruments / obligations applicable to Uganda

Convention	Objective	Conventions Applicability to RPRLP
The African Convention on the Conservation of Nature (1968)	To encourage individual and joint action for the conservation, utilization and development of soil, water, flora and fauna for the present and future welfare of mankind, from an economic, nutritional, scientific, educational, cultural and aesthetic point of view.	Measures to conserve nature are enshrined in the Project Documents for ERT III as well as its ESMF.

Convention	Objective	Conventions Applicability to RPRLP
Stockholm Convention on Persistent Organic Pollutants	The Convention is aimed at protecting human health and environment from Persistent Organic Pollutants that remain intact in the environment for long periods and can become widely distributed geographically and accumulate in the fatty tissue of humans and wildlife. Exposure to Persistent Organic Pollutants (POPs) can lead to serious health effects including certain cancers, birth defects, and dysfunctional immune and reproductive systems, greater susceptibility to disease and even diminished intelligence.	Under ERT III project, contractors will not be engaged to dispose waste by burning as such a practice releases POPs to the atmosphere. Measures in which waste material will be recycled or recovered are very much encouraged in ERT III. Emphasis is focused on safe transportation, storage and handling of any chemicals and/or article containing chemicals to be used in the project, as well as procurement of project equipment that do have Persistent Organic Pollutants
The Ramsar Convention (1971) on wetlands of International Importance	To stop the progressive encroachment on and loss of wetland now and in the future, recognizing the fundamental ecological functions of wetlands and their economic, cultural, scientific and recreational values.	ERT III recognizes the importance of wetlands in the lives of communities and such where its activities cross wetland areas; measures have been proposed to reduce ecosystem degradation and protection of biodiversity.
The Protection of World and Cultural Heritage convention (1972)	To establish an effective system of collective protection of the cultural and natural heritage of outstanding universal values	ESMF has provided Chance Finds Procedures for management of unknown Cultural resources in the project and management of known PCRs including avoiding such sites, relocation or translocation and where extremely unavoidable, compensation.
Strategic Approach to International Chemicals Management (SAICM)	SAICM is a policy framework to foster sound management of chemicals and to ensure that, by the year 2020, chemicals are produced and used in ways that minimize significant adverse impacts on the environment and human health.	The ESMF puts across measures to ensure that; the procurement, handling, transportation and storage of chemicals are undertaken in environmental and socially acceptable manner to ensure health and safety of the workers and environment.

Convention	Objective	Conventions Applicability to RPRLP
The Convention on the International Trade in Endangered Species of Wild Flora and Fauna (CITES, 1973)	to protect certain endangered species from over-exploitation by means of a system of import/export permits	ERTIII will integrate sensitization of contractors and communities covering aspects of CITES especially where cross protected areas.
Convention on Biological Diversity-(CBD 1992)	to promote diversity and sustainable use and encourage equitable sharing of benefits arising out of the utilization of genetic resources	ESMF is prepared to ensure protection of biodiversity amongst others. These include mitigation of vegetation loss amongst others especially useful trees.

4.4 World Bank Safeguard Policies and EHS Guidelines

4.4.1 World Bank Policies

A Summary of how the project triggers World Bank safeguard policies is given in the Table below as follows:

Table 10: Summary of World Bank Safeguards in relation to ERT III

OP N°.	Summary of Safeguard Policy	Safeguard Policy Triggered/Not Triggered	ERT III Project Implications on the Safeguards	Remarks
OP 4.01	**Environmental Assessment:** 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. Projects are screened to determine the appropriate extent and type of EA. The Bank classifies the proposed project into one of four categories, depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts.	√	Extension of power distribution grids will involve loss of vegetation and some uptake of land and these activities will trigger this safeguard.	Because details of activities of the sub-components activities are not known, a framework for conducting Environment Assessments on such activities have been provided in this ESMF. The project is under Environmental Assessment Category B because the likely impacts are readily identified, mitigated and managed. Site specific ESIAs shall be prepared, consulted upon and disclosed both in-country and at WB's infoshop before start of any construction activity during project implementation. ESMPs shall be prepared where necessary. .
OP 4.04	**Natural Habitat:** The Bank supports the protection, maintenance, and rehabilitation of natural habitats and their functions. The conservation of natural habitats is essential for long term sustainable development.	√	Some sections of the ROWs will involve uptake of sections of natural habitats such as wetlands and wildlife/forest reserves especially in when extending the grid to Semliki Safari Lodge.	ERT III project infrastructure will traverse natural habitats such as wetlands, central forest reserves and grasslands. Impacts of the project on such habitats will be mitigated through measures outlined in this ESMF. Subsequent projects will prepare separate ESIAs, Project Briefs and ESMPs.
OP 4.10	**Indigenous peoples:** These are defined to be a distinct, vulnerable, social and cultural group possessing a number of characteristics including collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and	**X**	It is envisaged that, areas of indigenous people (Batwa, Kween and Kaabong) will not be impacted by the project.	The list of ERT III areas does not include districts of Kween, Kaboong and Kisoro which have indigenous groups of people; hence, this safeguard policy is not triggered in this project.

OP N°.	Summary of Safeguard Policy	Safeguard Policy Triggered/Not Triggered	ERT III Project Implications on the Safeguards	Remarks
	territories.			
OP 4.11	**OP 4.11 Physical Cultural Properties:** This policy addresses physical cultural resources, which are defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. The Bank supports the preservation of cultural properties which includes sites with archaeological, paleontological, historical, religious or unique natural values. It seeks to avoid impacts on such sites.	√	There will be general excavation works as well as grid extensions works and for this reason this safeguard policy is triggered.	Though the level of impacts on PCRs cannot be ascertained with certainty at this stage, is expected that, excavation works may affect unknown PCRs. A Chance Finds Procedure has been outlined in the Annex 7 of this ESMF for management of unknown Cultural resources in the project and management of known PCRs including avoiding such sites, relocation or translocation and where unavoidable, compensation. Some of the PCRs in the project areas will be outside the infrastructure alignments.
OP 4.12	**Involuntary Resettlement:** This policy includes safeguards to address and mitigate these risks and recommends involuntary resettlement instruments which include a resettlement plan, a resettlement policy framework and a resettlement process framework.	√	Resettlement and compensation issues are anticipated to arise during grid extension and intensification works through private lands and sections of protected areas.	A Resettlement Policy Framework has been prepared for ERT III which defines measures and modalities of handling resettlement challenges in the project. In addition, ERT III project budget has provided for compensation costs.
OP 4.36	**Forests:** The objective of this policy is to assist borrowers to harness the potential of forests to reduce poverty in a sustainable manner, integrate forests effectively into sustainable economic development, and protect the vital local and global environmental services and values of forests.	√	Grid extension and intensification works are likely to take up sections of roadside forest areas.	Management of any likely impacts on forests shall be addressed through guidance provided in the ESMF, specific ESIAs and ESMPs.
OP 4.37	**Safety of Dams:** The Bank distinguishes between small and large dams where large	**X**	ERT III is not expected to finance construction of	This Policy is NOT Triggered because the project will not involve

OP N°.	Summary of Safeguard Policy	Safeguard Policy Triggered/Not Triggered	ERT III Project Implications on the Safeguards	Remarks
	dams are 15 m or more in height. Dams that are between 10 and 15 m in height are treated as large dams if they present special design complexities. Dams less than 10 m in height are treated as large dams if they are expected to become large dams during the operation of the facility. Such large dams require amongst others, that preparation and implementation of detailed plans ensure safety aspects. The ESIA is one of the tools that can therefore formulate some of the safety aspects in large dams.		projects involving mini-hydropower projects, but will support studies (feasibility, , ESIA) of mini and SHPP.	construction of a dam or involve interaction with a dam under construction. It will only support studies (TA) for development of mini- and small hydropower sub-projects that may involve use of small dams of less than 15meters height. However, Component 2 includes inter alia: the development of three pico hydros (5 kW each) and three micros (16 kW, 20 kW and 45 kW) hydropower plants and will require construction of weirs. The Environmental, Health and Safety impacts of Pico and Micro HPPs are minimal and do not raise dam safety issues that would warrant the triggering of this policy. The Pico & Micro HPPs shall be screened and if necessary, the ESMP developed to guide their implementation.
OP 7.50	**Projects on International Waterways:** This policy applies to the following types of international waterways: (a) any river, canal, lake, or similar body of water that forms a boundary between, or any river or body of surface water that flows through, two or more states, whether Bank members or not; and (b) Any tributary or other body of surface water that is a component of any waterway described in (a) above.	√	Studies to be undertaken for Mini-HPP (3 picos – 25kW and 3 micros – 1,500kW) and SHPP (0.5 MW – 20 MW).	This policy is triggered because ERT-III will support studies for development of SHPPs that may affect international waterways or rivers and/or their tributaries that flow out of Uganda into other countries. Also, as the project will finance only Feasibility Studies, approval will be sought for an

OP N°.	Summary of Safeguard Policy	Safeguard Policy Triggered/Not Triggered	ERT III Project Implications on the Safeguards	Remarks
				exception to the riparian notification requirement in OP 7.50.
OP 7.60	**Projects in Disputed Areas**: Projects in disputed areas may raise a number of delicate problems affecting relations not only between the Bank and its member countries.	**X**	ERT III project activities will not be undertaken in disputed areas.	This policy is not triggered because the project will not support any activity in a disputed area.

4.4.2 World Bank Group Environment, Health and Safety Guidelines

The Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry specific examples of Good International Industry Practice (GIIP). These industry sector EHS guidelines are designed to be used together with the General EHS Guidelines document, which provides guidance to users on common EHS issues potentially applicable to all industry sectors. These guidelines are considered for implementation of ERT-III, and with specific application to construction of power distribution lines, installation of solar PV systems and later when undertaken, ESIA for small hydropower projects and geothermal power plants.

The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Application of the EHS Guidelines to existing facilities may involve the establishment of site-specific targets, with an appropriate timetable for achieving them.

The applicability of the EHS Guidelines should be tailored to the hazards and risks established for each project on the basis of the results of an environmental assessment in which site specific variables, such as project area context, assimilative capacity of the environment, and other project factors, are taken into account. The applicability of specific technical recommendations should be based on the professional opinion of qualified and experienced persons.

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 Environmental, Health, and Safety Guidelines for Geothermal Power Generation apply to Geothermal Power Generation.

Where Ugandan regulations differ from the levels and measures presented in the EHS Guidelines, the ERT III project will be expected to achieve whichever is more stringent, and for this case, the EHS guidelines. If less stringent levels or measures than those provided in these EHS Guidelines are appropriate, in view of specific ERT III project circumstances, a full and detailed justification for any proposed alternatives will be needed as part of the site-specific environmental and social assessment. This justification should demonstrate that the choice for any alternate performance levels is protective of human health and the environment. In short, the EHS guidelines shall be used in conjunction with applicable Ugandan laws such as the Occupational Health and Safety Act, Waste Management Regulations, etc.

5 STAKEHOLDER CONSULTATIONS AND DISCLOSURE

5.1 Overview

The World Bank's Environmental Assessment Policy OP 4.01 provides that project-affected groups and stakeholders should be consulted about the project's potential environmental and social impacts during the ESA process. This purpose is to consider local views when designing the environmental and social assessments and management plans as well as to provide input into the project design. The consultation process therefore gives stakeholders an opportunity to learn about the project, raise concerns, understand the potential effects, and comment on the project design as well as on the reports that are produced during each phase.

5.2 Goals of Consultations

The primary goals of the consultation process are to:

- Ensure transparency and involvement of stakeholders in assessing and managing the potential environmental and socioeconomic impacts of the NHRP;
- Help manage risks, concerns and public expectations through ongoing dialogue with stakeholders;
- Improve decision-making, and build understanding by actively involving key project stakeholders in two-way communication. Through this process, the implementing agencies will better understand the concerns and expectations of stakeholders, and the opportunities to increase project value to the local community

5.3 Objectives of stakeholder consultations

The objectives of consultation and disclosure are to ensure that all stakeholders and interested parties, are fully informed of the proposed project, have the opportunity to voice their concerns and that any issues resulting from this process are addressed in the ESA and incorporated into the design and implementation of the project. The consultations with these stakeholders were carried out to specifically achieve the following objectives:

i. To provide information about the project and to tap stakeholder information on key environmental and social baseline information in the project area;
ii. To provide opportunities to stakeholders to discuss their opinions and concerns;
iii. To solicit the stakeholders' views on the project and discuss their involvement in the various project activities;
iv. To discern the attitudes of the community and their leaders towards the project so that their views and proposals are taken into consideration in the formulation of mitigation and benefit enhancement measures;
v. To identify specific interests of and to enhance the participation of the poor and vulnerable groups; and
vi. To inform the process of developing appropriate management measures as well as institutional arrangements for effective implementation of the ERT III.

5.4 Some of the Preliminary Key Stakeholder Concerns and views

Consistent with best practice in developing ESMFs, consultations were held with relevant stakeholders; key project stakeholders were identified for consultations. The stakeholders and beneficiaries of the project were identified after undertaking literature review and preliminary consultations. The stakeholders consulted included District Local Government Officials (District Environment Officers, District Production Officers, District Engineers, Chief Administrative Officers, District Planners and District Engineers) officials from MEMD, MWE, NEMA, MoES, MoH, UNRA, UCC, NFA and UWA and local communities among others. The stakeholders raised some concerns which are reflected in the minutes attached to this report as Annex 11. In general, they were in agreement with the project and looked forward to its implementation. Some of the key issues raised during the consultations include:

ISSUE RAISED	**CONSULTANT'S REMARKS/PROPOSED MEASURES**
Mr. Nyende Muzamil (Area Councilor Namutumba) • A number of key institutions have not been included on the proposed ERT III routes yet they needed the power. What criteria were used in selecting the routes? Was it done on the desk? Who did REA consult in identifying the routes? Is there another phase during which those institutions can be included in supply of power?	• The focus of the ERT III is to develop the rural electrification infrastructure and accelerate consumer connections. REA gathers information on regional demand profiles and the costs on-grid, isolated grid and stand-alone projects. Then, it establishes priorities for public and private investments in underserved rural areas, including for "regional equity projects".
Kamuhanda Herbert (DEO – Ntoroko) • Worries over affordability of tariffs by the local communities;	• Section 4(1) of the Electricity Act (1999) empowers ERA to establish a tariff structure and investigate charges, whether or not a specific complaint has been made for a tariff adjustment; approve the rates of charges and terms and conditions of electricity services provided by transmission and distribution companies, and develop and enforce performance standards for the generation, transmission and distribution of electricity, among others. Therefore, the price of electricity under the ERT III is an issue to be addressed by ERA.
Seeta- Nazigo and Kirwanyi Communities • They requested that the extension of the 33KV lines should be done in parallel with power extension to their premises;	• Issue brought to REA's attention and to be considered by management as detailed project implementation plans are still under preparation and the request can be considered.
Mr. Baluzarile District Forestry Officer – Jinja • The total economic value of an affected forest should be calculated and compensated for, and not only the timber value of the felled trees;	• Valuation and compensation issues are addressed and elaborated by the standalone Resettlement Policy Framework prepared alongside this ESMF.
Seeta- Nazigo and Kirwanyi Communities • The valuation criterion for the destroyed property was not fair to most PAPs. People	• Valuation and compensation issues are addressed and elaborated by the standalone Resettlement Policy Framework (RPF) prepared alongside this ESMF.

wanted to know the rates to be applied before actual compensation;	
Nakalama Residents, Iganga District • They needed prompt compensation in case the line affected their properties or sources of livelihoods.	• Government of Uganda should allocate a clear budget to cater for compensation and relocation issues before project implementation commences.
Mr. Musiita Apollo – Namutumba District Fisheries officer • There is urgent need for power to run district and sub-county activities in remote sub-counties because everything is now computer based;	• Connection of the districts to the grid was and still remains one of the key motivations of the ERT project.
Mr. Abuya Gawaya – Resident of Nakalama Trading Centre in Iganga District. • Needed to be sure that the local people would get employed on the project;	• Issue brought to the attention of REA and will be considered during project implementation. It will be ensured that the local people are involved in project implementation.
Seeta- Nazigo and Kirwanyi Communities • There are no local grievance redress committees at lower levels (Village level) to handle minor complaints; and	• This ESMF elaborates the grievance redress mechanism to be adopted to deal with grievances that may arise during the project.
Tom Rukundo – National Forestry Authority ESIA Specialist • Other users of the road reserves like the telecommunication companies, water supply, etc. should all be encouraged to undertake EIAs for their projects and their EIAs linked to those conducted by REA because the cumulative impacts of all these developments may be a threat to the ecosystems traversed, (wetland or Forest);	• Critical issue to understand the cumulative impact of the various projects that utilize road reserves. Assessment of cumulative impacts will have to be done as part in the respective sub-project assessments.

5.5 Future Consultations

As mentioned above, during the process of developing this ESMF, consultations were held with stakeholders, including representatives from local government and NGOs, to inform them about the proposed project, and receive their comments and recommendations on social and environmental issues related to it. However, for a project of ERT III's nature, at least 2 more phases of consultations will have to be carried out. The implementing agencies have the responsibility to conduct more consultations for the other planning and implementation phases of the ERT III in that regard. Overall, stakeholder consultations is a continuous activity throughout the life of the project.

ERT III Proposed Consultation Plan				
Elements	Scope			
External/Media/Information Sharing/community outreach	Entire Project			
Project Safeguards	Project Component	Safeguards Instruments	Project cycle phase	Target Group
	Preparation	ESMF RPF	During Preparation	1. Direct stakeholders (those directly affected by the project e.g. different community groups, especially vulnerable groups, women etc.). 2. Indirect Stakeholders (those who have an interest in the project or can influence it. e.g. national and local agencies, NGOs, donors).
	Feasibility	Terms of Reference for ESIA	During preparation	Indirect and direct stakeholders
		ESIA	During implementation	Direct and Indirect stakeholders
		RAP	During implementation	Direct and Indirect stakeholders
	Construction and Operation	ESMP	During implementation	Direct and Indirect stakeholders

5.5.1 Stakeholder Identification

Stakeholders are identified to determine all of the organizations and individuals who may be directly or indirectly affected (positively and negatively) by the project and related activity. It also includes anyone who may be able to contribute to the project due to their expert knowledge of and/or experience in the region. It is an ongoing process requiring regular review and updating. Stakeholders for the ERT III may include the following:

- Authorities, including members of national, regional, and local government entities;

- International, national, and local non-governmental organizations (NGOs) with a direct interest in the project that may have useful data or insight into the project's national and local challenges;
- Other groups including media, academics, institutions, foundations, community, and business groups;
- Residents, landowners, and land users in the areas around the potential sites considered for the project, or that could potentially be impacted by the project;
- Bilateral and multilateral organizations
- Businesses and potential employees

The stakeholders are broadly categorized into primary and secondary groups:

- Primary stakeholders: Individuals or groups who may be directly affected by the project;
- Secondary stakeholders: Individuals or organizations with an influence, interest, or expertise to offer the project, even if the project does not directly involve or affect them.

The respective implement agencies will identify direct and indirect stakeholders and will prioritize stakeholder consultations to inform the design and decision making of the project, and thus improve the effectiveness, relevance and sustainability of all project components.

The groups to be chosen for the consultative meetings have to be selected with great care on the basis of the location of the project so that their views represent the attitudes of the community as well as the officials in which the project is located. The people that can best represent the ideas of the people have to be selected from the project area and its surrounding areas and from the communities residing within various villages as well as administration offices that administer the project areas. The individuals who are randomly selected should ideally include people from different age and sex categories.

5.5.2 Issues for Consultation

The points of discussions have to be formulated to facilitate the discussions towards the desired output. Issues that have to be designed for discussions include:

1. Identifying major positive and adverse impacts of the project
2. Identifying potential benefit enhancement and mitigation measures, and
3. Any other relevant issues

The project, its intended objectives, the location, its ownership as well as the need of public consultation have to be briefly discussed to the participants as well so that they can forward their views on these bases. **The agencies responsible for consultations will have to refine and clearly indicate the issues that have to be pointed out and discussed during consultations.**

5.5.3 Consultations on ToRs for ESIA and RAPs

The intent of public consultation during scoping is to ensure that the ESIA takes full account of the priority concerns of project-affected people and other relevant stakeholders and identifies the full range of potential impacts. Once the ToRs for the ESIAs and RAPs are available in draft form and before they are finalized, the respective implementing agency will have to obtain stakeholders' inputs on the ToRs and particularly to check that no issue of concern to stakeholders has been omitted in the scopes of assessments in the final ToRs.

The Consultant will assemble appropriate materials, (maps, graphs, drawings, simulations, models, key environmental figures) disclose them in a manner acceptable to Bank policies (timely prior to consultation, in a form and language that are understandable, in locations accessible with reasonable effort to the groups being consulted) and organize venues which will enable the affected population to participate without excessive undue efforts. Suggested venues would be near the project sites ensuring accessibility to all affected people.

After finalization of the ToRs, the respective implementing agencies will meet with representatives of the key stakeholders to review the final draft ToRs and receive feedback on any issues they feel are missing.

Terms of Reference for the follow-on ESIAs and RAPs will be reviewed and adjusted depending on the outcomes of this phase and will be final after this stage.

5.5.4 Consultations on draft ESIA and RAP Reports

The second round of consultations will be held on draft environmental and social assessment documents and management plans to integrate stakeholder concerns into the final versions. Once the drafts of ESIAs are available, and before they are finalized, the Consultant will have to obtain stakeholders' inputs on the reports' conclusions and particularly on the mitigations and management plans. As far as public disclosure is concerned, major initiatives to inform the public and interested parties about the ERT III may include the following:

- Press advertisement describing the project and inviting interested parties to provide comments at a stakeholder workshop;
- Disclosure of the Draft Final ESIA Report, including the Executive Summary, locally and via the World Bank Infoshop.

It is expected that the Draft Final ESIA reports, together with the respective Non-Technical Summaries will be disclosed locally for 30 days at the offices of the implementing agencies and the World Bank Infoshop. In order to make people aware of the disclosure of the Draft Final ESIA Report and RAP, an advertisement will be placed in one of the national newspaper which will also draw readers' attention to the date and venue of the proposed public meeting if any.

The consultation process with affected persons (APs) will include the disclosure of the resettlement policy framework through various meetings and distribution of

informative material aimed at creating awareness among PAPs regarding their potential loss, entitlements and compensation payment procedures and grievances redress mechanisms.

After this stage, the respective reports will be revised accordingly and finalized.

5.5.5 Ongoing Consultations

The World Bank also requires that the consultation process is ongoing during the construction and operation phases of the project. To this effect, the implementing agencies are required to maintain long term and mutually beneficial open dialogue with local authorities and the public through its Social and Environmental Safeguards Specialists and Officers during construction and operation. A key role of this post consultation will be to ensure that local stakeholders have an opportunity to raise questions, comments or concerns and that all issues raised are answered promptly and accurately.

Therefore, disclosure of information will also continue throughout project construction and operation. The primary emphasis here will be to assure stakeholders that the environmental and social mitigation, monitoring and management practices established in the RAP, ESIA and ESMPs are being implemented and the environmental and social standards and guidelines required by Government of Uganda and the World Bank are being met through a comprehensive monitoring and reporting process.

In that regard, the implementing agencies will have to maintain Environment and Social Registers of written records with respect to environmental and social impacts from the ERT III. In addition, an annual report containing information relating to the monitoring program will be prepared by the implementing agencies and submitted to NEMA and the World Bank.

5.5.6 Consultation of Special Groups

When selecting a technique, it is always wise to build on existing communication channels that are familiar with the community or public involved. There is no public participation technique that will work in all circumstances. When people talk about highly successful public participation programs, they are talking about programs where the techniques matched the purpose of the program, reached the interested stakeholders, and resulted in a clear linkage between the public participation process and the decision-making process.

Interest in the ERT III may vary among different vulnerable groups (and individuals) in the community, and they may be affected differently. It is important to keep this in mind during the consultation process, and in some cases it may be more appropriate to consider the needs and priorities of sub-communities rather than those of a whole village.

The inclusion of a gender perspective and the participation of women are essential, as well as the involvement of community members of different ages as appropriate.

Given the social setup of the identified Vulnerable Groups, consultation will definitely require time and an effective system of communication amongst interested parties to ensure that it adequately deal with their needs, priorities, and preference. This can be best achieved through discussions in focus groups specific to each category (female only groups, youth only groups and so on). The consultative and communication strategy has to place a special emphasis to ensure the participation of vulnerable groups in decision making throughout ERT III planning, implementation and evaluation. Where participation of certain group of people in community meetings is difficult, due for example to geographical distance or social segregation, other methods such as door-to-door visits, structured and unstructured interview, separate community meetings or other participatory techniques will be considered. Local languages should usually be used and efforts should be made to include all community members, including women and members of different generations and social groups. The social mobilization practices adopted under the project will also place an emphasis on ensuring the inclusion of all ethnic groups if any, women and other vulnerable groups in the project.

Obtaining Free Prior Informed Consent (FPIC) implies a process of good faith engagement whereby the parties establish a dialogue allowing them to find appropriate solutions in an atmosphere of mutual respect with full and equitable participation. Therefore, the respective agencies will have to undertake a process of free, prior and informed consultation with the affected communities during project preparation to inform them about the project, to fully identify their views, to obtain their broad community support to the project, and to develop project design and safeguard instruments. Therefore, the involvement and facilitation of the respective District Community Development Officers, experienced local community organizations and NGOs is appropriate to carry out the FPIC. The requirements under FPIC are summarized below:

<table>
<tr><th>Free</th><th>Prior</th><th>Informed</th><th>Consent</th></tr>
<tr><td>No manipulation.</td><td rowspan="4">None of the following should be undertaken before consent has been obtained:
• authorization or commencement of activities
• land acquisition
• Finalization of development plans.

Specific time requirements of the consultation/</td><td rowspan="4">Information to be provided should:
• be accurate
• be in an appropriate language
• include information, when available, on social, economic, environmental and cultural impacts and reasons for proposed activities, duration, affected locality, proposed benefits sharing and legal arrangements and people likely to be involved</td><td>Form may vary for different communities: so may be oral or written but will always involve consultation and participation.</td></tr>
<tr><td>No coercion.</td><td>The process should be participatory.</td></tr>
<tr><td>No incentives.</td><td rowspan="2">Decision-making should not exclude or marginalize individuals due to gender, ethnicity or other factors.</td></tr>
<tr><td></td></tr>
</table>

	consensus process should be set.	• be in a form that is understandable and that takes into account traditions of the community	

6 ENVIRONMENTAL AND SOCIAL ASSESSMENT PROCESS FOR ERT III SUB-PROJECTS

6.1 The Environmental and Social Assessment and Management Process

The key regulations for environmental and social assessment in Uganda include the National Environment Act, the EIA Regulations, 1998 and the EIA Guidelines of 1997. The *National Environment (Environmental Impact Assessment) Regulations, 1998* define the role of ESIA as a key tool in environmental management, especially in addressing potential environmental impacts at the pre-project stage. The regulations define the ESIA preparation process, required contents of an ESIA, and the review and approval process including provisions for public review and comment. The regulations are interpreted for developers and practitioners through the *Guidelines for Environmental Impact Assessment in Uganda (1997)*. Although assessments nowadays conducted and submitted to NEMA are now termed "Environmental and Social Impact Assessment", in common with best international practice, this term is not used in the environmental Regulations or Guidelines. The acronyms EIS and EIA are used in reference to environmental impact statement and environmental impact assessment respectively. However, the acronyms ESIS and ESIA are used herein to refer to environmental and social impact statement and environmental impact and social assessment respectively to include the social component in line with best international practice. It is also important to note that at the time of preparing this ESMF, review and update of the EIA Regulations 1998 was ongoing. Therefore the MEMD/PCU, REA and other project implementing agencies will have to acquaint themselves with the requirements of the new regulations when they come in effect.

The sub-projects that will be subjected to EA process shall be those proposed under this project and specifically as described under Components 1, 2 and 3.

6.2 Key Steps

The section below illustrates the steps involved during environmental and social assessment and management process as per Ugandan regulations and World Bank safeguard policies that will lead to the review and approval of subprojects under the ERT III.

6.2.1 Step 1: Screening of Activities and Sites

The respective project implementing agencies will carry out scoping and screening of the projects using the Environmental and Social Screening Form (ESSF) in Annex 1.The ESSF requires information that determines the characteristics of the prevailing local bio-physical and social environment with the aim of assessing the potential project impacts on it. The ESSF should also identify the potential socio-economic impacts that will require mitigation measures and or resettlement and compensation. The screening checklist to be used in each district for each subproject that has questions about the need for land for RoW or to construct switchyards, construction related social impacts like concentration of labor in one place and its effect on transmitted diseases like HIV/AIDs, etc. The above will be

done by the respective PIUs of the implementing agencies and where necessary with support and guidance from the Environmental Specialist at the PCU.

6.2.2 Step 2: Assigning the appropriate Environmental Categories

The respective implementing agencies with support from PCU assign the appropriate environmental category to the subproject based on the information contained in the ESSF and the national criteria for categorization. NEMA categorizes project applications as category I, II or III, where category III is a project likely to have many significant impacts and requiring a full, detailed ESIA; category II is similar to the Bank's Category B and may or may not require an ESIA. Category I can be approved on the basis of the Project Brief. Both Category II and Category III require environmental management plans.

The potential categories, in line with the National Environment Act and EIA Guidelines are:.

a. Activities that require a full Environmental and Social Impact Study (ESIS), either because (i) they meet the general criteria in the Third Schedule of the National Environment Act, NEA (see Annex 3 an extract of the NEA), i.e. are out of character with their surroundings, are of a scale not in keeping with surroundings, or involve major changes in land use; (ii) are types of projects listed in the Third Schedule; (iii) are located in a nature conservation area; or (iv) are identified in other laws or regulations as requiring EIA because of their location. Under the World Bank categorization, projects of such description are likely to fall under Category A. However, this project will only support feasibility studies but will not support any actual construction activities of SHPP and geothermal power generation projects that may fall under EA category A. In-case the client (GoU) decides during project implementation to carry out the ESIA, it will be done in line with Bank safeguard policy and GoU environmental requirements. Though very unlikely, for ERT III sub-projects that fall within the Bank's Category A (corresponding to NEMA's Category III), the implementing agencies shall conduct a comprehensive ESIA to meet the Bank's Safeguards Policies and in conformity with the National environmental management requirements.

b. Activities for which additional information is needed to determine what level of environmental analysis and/or management is appropriate and for which mitigation is easily identifiable. These will likely be Category B under the World Bank categorization. It is useful to note that most of the sub-components under this project will fall under this EA category B. For ERT III sub-project that fall within the Bank's Category B (or NEMA's Category II) an ESMP only may be required.

c. Activities that are determined to have no significant or adverse potential impact on the environment (List A, annex 2 of the 1998 EIA Guidelines, see Annex 4 herein). Projects defined as List A in the EIA Guidelines will not need

any further assessment as they are predicted to have little or no impact. These will likely be Category C projects under World Bank categorization. No assessment is required for Category C subprojects, and this will be confirmed through environmental screening.

The Environmental Specialist will then make a recommendation on the environmental and social assessment to be carried out, based on the category. An ESIA will be required for all Bank Category A projects (or NEMA Category III projects). All Bank Category A and B projects (as well as NEMA Level II and III projects) will require environmental and social assessment and/or development of an ESMP (although the NEMA requirement for an ESMP is not spelled out, it is implied in the description for EAs). In any project involving the involuntary resettlement of people, the ESIA will require a complimentary resettlement action plan. Applying the Bank's screening process, and depending on the sites and impacts identified, most ERT III projects can be classified under the Bank's Category B. The National Environment Act Cap 153 requires that transmission lines (and any other activities supported by the project) undergo ESIA.

Where an ESIA is not required (Category C), the implementing agency's Environmental Specialist or PCU's Safeguards Officer shall review the Environmental Screening Report and the Checklist (if required) and decide whether the results of the screening process reports are acceptable – i.e., whether all environmental and social impacts have been identified and the ESMP contains effective mitigation measures for them.

6.2.3 Step 3: Carrying out Environmental and Social Impact Assessment

The initiation of the ESIA process in Uganda is marked by the submission of the Project Brief to the Executive Director of NEMA. The Project Brief contains essential information on the project inputs and outputs and must provide sufficient information to allow the competent authority (NEMA), in consultation with lead agencies, to *screen* the project, that is, to decide whether the project may have significant environmental and social impacts and the level of environmental and social impact assessment (ESIA) that will be required.

The NEMA screening process first eliminates those projects which are exempt from ESIA (category I), then those that definitely require a full ESIA (category III). For projects deemed to fall into category II, the project may be approved on the Project Brief, if mitigation measures for adverse impacts are adequately prescribed in the Project Brief. If not, then an ESIA will be called for. It is important to note that the Bank may not require an ESIA for a Category B (category II) project but an ESMP is required.

If NEMA deems the Project Brief to be complete, a copy is forwarded key stakeholders for review. However, in case an ESIA needs to be undertaken, the ToRs for the study will be prepared by the implementing agency and reviewed and approved by NEMA. The ESIA report will identify and assess the potential environmental and social impacts for the planned activities, assess the alternative

solutions, and will design the mitigation, management and monitoring measures to be implemented. The social impact assessment component of the ESIA process typically assesses the likely impacts that a project will have on intended beneficiaries and affected stakeholders. It will therefore identify, amongst other things, the different stakeholders and their interest in the project, participation processes and how these will be adapted to different social groups and stakeholders, social diversity including gender, understanding the role of informal and formal institutions at various levels, and the social risks beyond risks associated with social safeguards. The detailed process for conduct of the ESIA in Uganda is presented in Annex 3.

As part of the assessment, the ESIA will also assess the vulnerability of different groups in particular project contexts (in terms of potential exclusion from project benefits, negative project impacts, and the need for specific culturally compatible mechanisms for participation, e.g. for women, the widowed, permanently disabled, elderly etc.), and will incorporate adequate measures to address such vulnerability in the ERT III project design.

Where for particular project components land acquisition (temporary and/or permanent) is unavoidable, a Resettlement Action Plan, in line with the Resettlement Policy Framework (RFP), will be prepared. The RPF sets out a clear framework for the assessment, mitigation and compensation and, where necessary, the settling of disputes arising out of resettlement, land acquisition, loss of assets/access to assets.

The ESIA will be conducted by the consultancy firms registered by NEMA. However, Project Briefs and RAPs maybe prepared by non-NEMA registered persons. A Project Brief doesn't require preparation of ToRs and their approval by NEMA.

According to the National Environment Act, "project brief" means a summary statement of the likely environmental effects of a proposed development referred to in section 19. Unlike the ESIA, a project brief does not require a scoping report and neither submission of terms of reference for approval by NEMA. The ESMP or Project Brief will for each potential impact include: mitigation measures, monitoring indicators, implementing and monitoring agencies, frequency of monitoring, cost of implementation, and necessary capacity-building. It is possible that after completing the Checklist, the Environmental Specialist may recommend that the subproject concerned should be subjected to a full ESIA, and submitted to NEMA for review and decision making.

According to Regulation 5 of the EIA Regulations, 2006, a Project Brief is to contain amongst others, the following:

a. the nature of the project in accordance with the categories identified in the Third Schedule of the Act;
b. the projected area of land, air and water that may be affected;

c. the activities that shall be undertaken during and after the development of the project;
d. the design of the project;
e. the materials that the project shall use, including both construction materials and inputs;
f. the possible products and by-products, including waste generation of the project;
g. the number of people that the project will employ and the economic and social benefits to the local community and the nation in general;
h. the environmental effects of the materials, methods, products and by-products of the project, and how they will be eliminated or mitigated;
i. Any other matter which may be required by the Authority.

In addition to the above, it is currently a practice and requirement by NEMA to include details of stakeholder consultations in Project Briefs.

6.2.4 Step 4: Public Consultations and Disclosure

Wide-ranging consultations help to; (i) ensure that people are made aware of a project and have the opportunity to comment on it (ii) improve responsiveness, accountability and transparency on the part of project management (iii) promote better decision-making and (iv) increase cooperation of community and government partners during project implementation and local ownership after handover. Initial meetings with stakeholders provide a forum not just for dissemination of information about the project and its potential impacts, but also constitute an important opportunity to hear people's concerns and take on board their recommendations to the extent possible in project design. These meetings also will lay the foundations for systematic consultation and participation of the community in all subsequent stages of the project's development.

As a first step stakeholders will be identified. These will fall into two categories: (i) Direct stakeholders who will be directly affected by the project and (ii) Indirect stakeholders who have an interest in the project or who could influence its outcome. The implementing agencies will identify direct and indirect stakeholders and will prioritize stakeholder consultations to inform the design and decision making of the project, and thus improve the effectiveness, relevance and sustainability of all project components. A dynamic participatory approach that seeks to involve the various stakeholders in decision-making about environmental management, livelihood and community development programs will be encouraged throughout the course of the project. This approach will also be used to inform the implementation of an effective grievance redress mechanism, which would be readily accessible in the project areas.

Public consultation will be initiated during the scoping and ESIA preparation stages and views of stakeholders (general public and lead agencies) have to be included in a Project Brief as well. Public consultation will also be an integral part of the process throughout the planning and execution of the project. The implementing agencies will interact closely with PAPs/communities, project personnel, government

departments, NGOs right from the early stages of the project preparation on a regular basis for developing and implementing the respective project ESIAs and RAP where applicable. For this purpose, public contact drives shall be organized by the respective implementing agencies and public awareness shall also be created with NGO's and other social organizations active in the affected areas. During the public awareness drives, it will be ensured that only accurate information is given about the project and its possible environmental and social impacts. All consultations will be documented in writing, and where culturally acceptable, with photographs and/or video of proceedings. These would then be filed in the project files. The opinion/suggestions made by the community/affected groups shall be incorporated in the respective ESIA and Resettlement Action Plans. After clearance, the assessment reports (ESIS, RAPs, PBs, etc.) shall be disclosed both in Uganda through the daily print media by PCU and at WB's Infoshop by IDA.

6.2.5 Step 5: Review and Approval

The ESIA study will be undertaken by a registered ESIA Practitioner in accordance with the ToRs approved by NEMA. Following internal review of the ESIS or PB, by the respective implementing agency and the Bank the ESIS or PB will be forwarded to NEMA for final review and clearance. If the Executive Director is satisfied that the subproject will have no significant impact on the environment, or that the assessment (Project Brief or ESIS) discloses sufficient mitigation measures to cope with the anticipated impacts, he may approve the subproject. The Executive Director of NEMA or his delegated official shall then issue a Certificate of Approval for the project.

It is important to note that this review and approval process is to be carried out in parallel with the review and approval of the technical, economic, financial and other aspects of the subprojects. Implementation of subprojects cannot commence until the environmental and social aspects have been reviewed and appropriate mitigation measures have been adopted. As possibilities of social impacts regarding land acquisition, the implementation of subprojects cannot proceed until the resettlement and/or compensation plans have been prepared and implemented after clearance by the Chief Government Valuer in the Ministry of Lands, Housing and Urban Development (MoLHUD). This is detailed in the RPF for the ERT III project prepared alongside this ESMF.

6.2.6 Step 6: Environmental Monitoring

Monitoring is required to ensure that all the required environmental and social mitigation measures, set out in the Environment and Social Assessments for each project component are implemented satisfactorily.

Environmental and social monitoring aims at checking the effectiveness and relevance of the implementation of the proposed mitigation measures. Monitoring exercises should be undertaken in sequences and frequencies stipulated in the ESIS, PBs, RAPs, or ESMPs. Local Government leaders, District Environment Officers, Community Development Officers as well as NGOs and CBOs will undertake monitoring exercises as required by the National Environmental Act. The District

Environment Officer in conjunction with the District Community Development Officer will monitor the implementation of environmental and social mitigation measures.

The monitoring indicators will be developed by implementing agency's Environmental Specialists based on the mitigation measures and the ESMP or RAPs. Each subproject progress report will include monitoring of the RAP and other social issues covered by the ESMF. At the end of subproject construction phase, a Certification for Compliance integrating Environmental and social issues for the completion of works issued by implementing agency. It is recommended that, an environmental audit be conducted before REA hands over the distribution line facilities to the private operators.
Overall, MEMD/PCU will have the lead role in monitoring to ensure that various project environmental and social obligations are met, and will ensure that the requirement for an environmental and social audit is fulfilled not less than 12 nor more than 36 months after project completion or commencement of operations respectively in line with the National Environment Act and the Audit Regulations of 2006.

NEMA has its own Department of Compliance and Monitoring and a number of designated environmental inspectors, whose task is to monitor project implementation. In addition, the districts have District Environmental Officers (DEOs) who play the role of environmental inspectors. The purpose of NEMA monitoring/ auditing is to ensure compliance with the Certificate (of Approval of ESIA) Conditions.

6.3 Related Environmental and Social Management tools

Some salient environmental and social management tools relevant to ERT III include:

6.3.1 Resettlement Policy Framework

Access to common assets/resources and improved livelihoods of project affected persons, due to potential land acquisition for infrastructure development if any, will be addressed in an inclusive manner. The RPF, which sets out the guidelines for the RAPs to be prepared for any subproject that triggers the Involuntary Resettlement Policy, has been prepared alongside this ESMF. The purpose of the RPF is to establish the resettlement and compensation principles, organizational arrangements, and design criteria to be applied to meet the needs of the people who may be affected by the subprojects to be implemented under the ERT III.

6.3.2 Physical Cultural Resources Management Plan

As the ERT III also triggers the OP 4.11 and it is important that the respective environmental and social assessments also identify the process for addressing impacts on cultural property. The Department of Monuments and Museums in the Ministry of Tourism, Wildlife and Heritage acknowledges that physical cultural heritage in Uganda has not been surveyed adequately and that potential monuments and other cultural resources may exist which are not known, implying that this is an area requiring further consideration in the ERT III subproject screening process to assist in identifying and recognizing potential resources.

The Historical Monuments Act Cap 46 allows a minister to declare any object of archaeological, ethnological, traditional or historical interest to be a preserved or historical object, and to acquire any land necessary for preserving it on behalf of the Uganda Land Commission. It also provides protection of historical sites in development. Measures will need to be integrated into the ESMP to address the following areas:

- Avoidance or mitigation of identified adverse impacts;
- Provisions for Chance Finds Procedure in Annex 5
- Monitoring systems to track implementation of these activities.

Excavation in sites of known archaeological interest should be avoided. Where this is unavoidable, prior discussions must be held with the Directorate of Museums and Monuments in the Ministry of Tourism, Wildlife and Antiquities in order to undertake pre-construction excavation or assign an archaeologist to log discoveries as construction proceeds. Where historical remains, antiquity or any other object of cultural or archaeological importance are unexpectedly discovered during construction in an area not previously known for its archaeological interest, the following procedures should be applied and the Contractor is responsible for familiarizing themselves with the "Chance Finds Procedures" in Annex 5:

- Stop work immediately following the discovery of any materials with possible archeological, historical, paleontological, or other cultural value, announce findings to the MEMD/PCU who will notify the Directorate of Museums and Monuments;
- Protect artifacts as well as possible using plastic covers, and implement measures to stabilize the area, if necessary, to properly protect artifacts
- Prevent any unauthorized access to the artifacts
- Restart construction works only upon the authorization of the Directorate or other authorities.

6.4 Grievance Redress Mechanism

Grievance redress mechanisms provide a way to provide an effective avenue for expressing concerns and achieving remedies for communities, promote a mutually constructive relationship and enhance the achievement of project development objectives. Grievance redress mechanisms are increasingly important for development projects where ongoing risks or adverse impacts are anticipated. They serve as a way to prevent and address community concerns, reduce risk, and assist larger processes that create positive social change. It has been learned from many years of experience that open dialogue and collaborative grievance resolution simply represent good business practice both in managing for social and environmental risk and in furthering project and community development objectives.

6.4.1 Community Expectations When Grievances Arise

When local people present a grievance, they generally expect to receive one or more of the following:

- Acknowledgment of their problem
- An honest response to questions about project activities
- An apology
- Compensation
- Modification of the conduct that caused the grievance
- Some other fair remedy.

In voicing their concerns, they also expect to be heard and taken seriously. Therefore, the respective project implementing agencies shall assure people that they can voice grievances and the project will work to resolve them without bias.

6.4.2 Procedures and Time Frames

There is no ideal model or one-size-fits-all approach to grievance resolution. The best solutions to conflicts are generally achieved through localized mechanisms that take account of the specific issues, cultural context, local customs, and project conditions and scale. In its simplest form, a grievance mechanism can be broken down into the following primary components:

- Receive and record/enter a complaint in a complaints log book or register.
- Screen and validate the complaint.
- Formulate a response.
- Select a resolution approach, based on consultation with affected person/group and the local leaders.
- Implement the approach.
- Settle the issues.
- Track and evaluate results.
- Learn from the experience and communicate back to all parties involved.

6.4.3 Grievance Prevention

There are many ways to proactively solve issues before they even become grievances. Implementers should be aware and accept that grievances do occur, that dealing with them is part of the work, and that they should be considered in a work plan. Implementers should do the following:

• ***Provide sufficient and timely information to communities.*** Many grievances arise because of misunderstandings; lack of information; or delayed, inconsistent, or insufficient information. Accurate and adequate information about a project and its activities, impacts, remedial measures and an approximate implementation schedule, should be communicated to the communities, especially PAPs, regularly. The project will include the grievance redress mechanism as part of its pre-implementation awareness activities to let the potential PAPs to know that they can register complaints. Since the Local Council I Chairperson will be part of the Grievance Redress Committee at the Village level, s/he will be involved in informing

the Communities and any PAPs about the existence and operation of the GRM. This will be enhanced further by means of signage on-site or other appropriate understandable-to-the local population means during project implementation. The respective implementing agencies will have an important role in ensuring that affected communities have a full understanding of the GRM and the procedures to be followed in filing complaints. Appropriate communication channels and means of communication should be used. Information on the steps to be followed by the GRC in handling grievances will be incorporated into the process of mobilizing and creating awareness of the project by the respective CDOs and lower LG structures.

• ***Conduct meaningful community consultations.*** The respective implementing agencies must inform community representatives about the GRM and explain the various ways of accessing it. A range of mitigation measures to reduce potential negative environmental and social impacts of project activities on communities will be discussed and agreed with community representatives as an integral part of project development. These will be included within the project's ESMPs and should reduce the number of potential grievances. The implementing agencies should continue the process of consultation and dialogue throughout the implementation of the project. Sharing information, reporting on project progress, providing community members with an opportunity to express their concerns, clarifying and responding to their issues, eliciting communities' views, and receiving feedback on interventions will benefit the communities and the project management.

• ***Build capacity for project staff, particularly community facilitators and other field-level staff or Contractors (as well as the GRM committees).*** The field-level staff of implementing agencies and Contractors will be provided with adequate information on the project such as project design, activities, implementing schedules, and institutional arrangements as well as enhanced skills in effective communication, understanding community dynamics and processes, negotiation and conflict resolution, and empathizing with communities and their needs. Building trust and maintaining good rapport with the communities by providing relevant information on the project and responding effectively to the needs and concerns of the community members will help solve issues before they even become grievances. It is also important that field-level staff and Contractors provide regular feedback on their interactions with the communities to implementing agencies, and PCU. The Project Management will ensure that copies of the standard grievance registration forms are available to members of the GRC and are kept in sufficient numbers at the respective levels. This should enable local communities to access the forms easily. It is important to note that the capacity building will incorporate gender aspects.

Grievance Redress Mechanism under ERT III

Local grievance redress committees (LGRC) will be initiated at the village and Sub County levels to record grievances and also help in mediation. This committee will comprise the LC I Chairperson, a trusted village elder, a religious representative, an elected PAP representative and specific vulnerable group representatives of relevance to the village i.e. women and the disabled. Disputes will be resolved at

the village level as far as possible. The GRC at the Sub County level will comprise the LC III Chairperson, Sub County Chief, a representative of vulnerable groups (women etc.) and the Councilor of the Parish. At the District Level, the Grievance Redress Committee will be established to deal with any grievances unsettled at the village level. The Grievance Redress Committee at the district will at a minimum comprise the LC3 representative, representatives of vulnerable groups, District Land Officer/Surveyor, District Community Development Officer and a Grievance Officer from the implementing agency who will oversee and coordinate grievance issues at the village level including setting up of LGRCs, provision of Grievance Logbooks and related logistics, training and orientation of LGRCs, and providing advice on grievance resolution as well as compiling records of all ERT III grievances raised and their mediation for the whole district. The grievance mechanism for the implementation process is as follows:

a. The LGRC will interrogate the PAP in the local language and complete a Grievance Form which will be signed by the leader of the LGRC and the PAP/complainant. This will then be lodged in the Grievance Log/Register provided by the Grievance Officer;
b. The PAP should expect a response from the LGRC within seven days of filing the complaint. If the issue is not resolved, the LGRC will forward the complaint to the GRC at the Sub County;
c. The GRC at the Sub County will be given a fourteen day notice to hold a meeting. Two days after the meeting, the Sub County GRC will call the PAP and LGRC for discussions and resolution. The resolution will be presented to the PAP in written form within the same day of the meeting. If there is no resolution to the grievance, the GRC at the Sub County and the PAP shall then refer the matter to the GRC at the District;
d. The GRC at the District will be given a fourteen day notice to hold a meeting. Two days after the meeting, the GRC will call the PAP and LGRC for discussions and resolution. The resolution will be presented to the PAP in written form within the same day of the meeting;
e. If there is no resolution to the grievance, the GRC at the district and the PAP shall then refer the matter to the District Land Tribunal for land-related issues and to REA /Implementing agency 's head office for all other grievances;

Appeal to Court - The Ugandan laws allow any aggrieved person the right to access to Court of law. If the complainant still remains dissatisfied with the District Land Tribunal or MEMD/PCU, REA/implementing agency top management in Kampala, the complainant has the option to pursue appropriate recourse via judicial process in Uganda. Courts of law will be a "last resort" option, in view of the above mechanism.

6.4.4 Monitoring and Reporting

The respective implementing agency staff should include regular updates and analysis of the GRM in their quarterly reports and also provides regular feedback to communities and other relevant stakeholders. All submitted complaints and grievances will be added to a database/project files which will be updated

regularly. Each complaint and grievance should be ranked, analyzed and monitored according to type, accessibility and degree of priority. The status of grievances submitted and grievance redress will be reported through the monthly report.

7 PROJECTACTIVITIES, IMPACTS AND MITIGATIONS MEASURES

7.1 Project Activities

7.1.1 ERT III Grid Extension and Intensification Activities

Under ERT III, activities will be dedicated to general rural energy infrastructure including grid systems expansion and intensification and on-grid connections amongst others. Some of the salient activities under this component will include:

7.1.1.1 Design Stage

The design stage will involve detailed surveys to locate the center lines of the power distribution lines. Route clearing of 10m corridor for the entire route will be carried out. Vegetation along the corridor will be cleared and any other tall trees within the falling distance of the line will also be cut. Pole locations will be staked and the line profile drawings prepared.

7.1.1.2 Materials and Specifications

The 33 kV distribution lines will be constructed using 12m high wooden poles, which are mostly creosote treated, with average spacing of 100m. The foundation for the wooden poles will consist of 0.35 m diameter and 2.0m depth. In wetland areas, the pole foundations will be compacted using gravel material ferried as a backfill. Steel wire (7/4.00) stay sets will be installed at angels, T-off and terminal structures and anchored by a stay block buried 2.0m depth. The stay blocks will consist of a 1m long creosote treated woodblock or 0.3m x 0.3m x 0.3m concrete block. H-type section poles erected 2m from each other will be installed every 1.5km together with four stay sets installed along the line corridor. At heavy angles, the stay wire will be installed at 45^0 angles from the pole.

For the Low Voltage (LV) at selected centers, the pole height will be 9m with average span of 50m. The foundation for the LV pole consists of 0.2m diameter and 1.6 m depth. Steel wire (7/2.64) stay sets will be installed at angles, T-off and terminal structures and anchored by a stay block buried 1.6m depth. The stay block will consist of 1m long creosote treated woodblock or 0.3m x 0.3m x 0.3m concrete block. Some materials such as wooden poles will be obtained locally.

7.1.1.3 Pole hole Digging

Holes to receive wooden poles will be dug to depths between 1.5-2m. Most of the excavation works will be done manually. Pneumatic hammers will only be used where hard rock will be encountered. However, in waterlogged areas and at small river crossings, bucket excavators will be used.

7.1.1.4 Pole Framing, Erection and Installation of Stay wires

Wooden poles will be drilled and hardware installed and the erection of poles will be done manually. The poles will be plumbed using ropes attached to their tops and insulator support steelworks fixed. Steel wire stay sets will be installed at angles, T-off and terminal structures will be anchored by a stay block. Conductor configurations using either line post insulators or suspension insulators will be installed. The distribution system will be energized at 33 kV, and is designed as a three wire, grounded wire system, with earth return. The single-phase distribution system will use single wire earth return (SWER) design and construction, tapping one phase off the main line. The poles will be treated wood, probably imported, and of the eucalyptus variety. The poles usually will be 35 feet tall for tangent structures, with 30 feet above ground and five feet below, and an average of 100 to 120 meters apart on the line segments where "Rabbit" conductor is employed and 100 to 105 meters apart for those line segments where "Dog" conduct is employed. Forty (40) foot poles will be used where slight angles are required in line construction while 45-foot poles will be used at vertical corners. Thirty (30) foot poles will be used for all secondary lift poles. Eight foot galvanized steel cross-arms with cross-arm braces and polymer pin-type insulators will be used on tangent structures.

7.1.1.5 Conductor

The majority of the lines will be built with 100mm^{2}Aluminum Conductor Steel Reinforced (ACSR) conductors, with a rated current carrying capacity of 300 amps. Some smaller lines and minor taps will be with 50mm^2 conductor, with a rated capacity of 200 amps. Stringing will be done using conventional methods and thereafter, between support structures, the wires will be pulled and tensioned on the guyed structures using pull lifts.

7.1.1.6 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.

7.1.1.7 Line hardware

The framing of the structures and the specification of the actual hardware (bolts, insulators, etc.) will follow the REA specifications. These specifications have proven to be not only adequate but the economic use of materials for rural electric systems in all cases in which they have been employed. Moreover, these same structures have been used in rural electric cooperatives in the United States for more than 65 years with remarkable durability and have proven to be safe both for consumers as well as utility personnel assigned to construct and maintain them.

7.1.1.8 Service drops

The residential service drops will be between 15 and 30m in length with a maximum length of 40 meters, and will mostly be of 16mm^2 copper duplex. All kWh meters will be socket-based type to help prevent meter tampering. Service drops to larger,

industrial type customers will use larger conductors, such as 50mm^2 or 25mm^2, as needed, but will always be of covered multiplex type conductors.

7.1.1.9 Post Construction Clean up

Excess and waste material shall be removed from the right of way and disposed off to designated areas. All campsites will be demolished and removed after construction works.

7.1.1.10 Operation and Maintenance

The operation of the 33kV lines will be fully automated. The system will be equipped with several devices such as auto reclosers to turn off power when a fault occurs on the line like in a rainy storm, tree branches falling on the line or whenever a certain pole collapses. The auto reclosers therefore, protect the line from damage and make it safer to the users. The transformers are also equipped with surge arresters and fused isolators to protect them from voltage surges that can occur during lightning of switching in the system.

Maintenance of the line will be done routinely every year or as deemed necessary by the system operator. The activities will include line clearance along the Right of Way; repair damaged structures, conductors and cracked or broken insulators. The maintenance will also include selective tree trimming depending on their growth rate and weeding around poles for a radius of 1 meter to protect them from bush fires. Emergency maintenance will also be carried out including technical breakdown done whenever there is a fault on the line or after severe wind/lighting storm. This will be done to replace damaged poles and to determine if conductors, insulators or poles have been damaged.

7.1.1.11 Decommissioning

It is anticipated that the distribution line facilities will be continuously maintained and repaired, and will be operated for a number of years. Because of their long useable life the circumstances under which, they might be decommissioned are not likely to be foreseen at this stage as such, a general decommissioning approach is considered in this ESMF.

The process of decommissioning will involve the deconstruction of distribution lines in a reverse order from their construction, using similar equipment and techniques. The conductors and shield wires will then be lowered to the ground, and all cables would be spooled and removed from the right-of-way for salvage. The poles will then be dismantled and removed from the right-of-way for salvage. It is further proposed that, the contractor undertakes to decommission the site by:

a. Relocating all un-used equipment to their central stores outside the site preferably to other sites where the contractor could be doing similar projects;
b. Any equipment that has gone into waste should be treated as waste and disposed of in appropriate through best acceptable international practices;
c. Demolishing any additional structures that could have been constructed/installed by the contractor. The site should be leveled and any

additional structures may be left onsite after securing a written request to do so from the landlord;

d. Dispose of all the generated waste in accordance with the waste management plan and waste management regulations;
e. Clean up the site; and

Handover the site to the Landlord and demobilize/withdraw all personnel that had been posted to the yard including the security personnel. Handover acknowledgement should be written/ documented.

7.1.2 Off-Grid Investments

The ERT III will fund the installations of fixed Solar Home Systems (SHS) and Mobile Solar Systems i.e. lanterns. The units will comprise solar panels and batteries for power storage and domestic lighting lamps, and switch board panels. The Off-grid delivery mechanism will be delivered through PVTMA strategy and is to serve education and health centers. Some of the key components of the SHS include:

7.1.2.1 Solar Panel

The photovoltaic modules will be connected to single or poly-crystalline silicon solar cells. Cells would be laminated between high transmissivity low iron tempered glass and weather resistant back-sheet to protect moisture penetration. The peak power output for thin film modules would be the value after light soaking.

7.1.2.2 Battery and lamps

The battery will be sealed valve regulated lead acid (VRLA) while the lamps will be DC energy saving compact fluorescent lamps (CFL) of E 27 types with varied bases. Each lamp should be provided with a reflector and a holder that can be installed from the ceiling or attached to the wall. One concern regarding these accessories relates to their disposal since they are hazardous. Under the project, two options are provided: (i) the suppliers of these accessories shall be required to take them back after their useful life as a contractual obligation. Alternatively, (ii) the project (thru the implementing agencies) will contract NEMA licensed waste handlers to collect, transport and hand them over to recycling facilities for batteries or to approved disposal facilities for hazardous wastes, at the cost of respective host Ministry. Therefore, MoES, MoH and MWE shall undertake to budget for operational and maintenance costs of all the solar PV installations.

7.2 Potential Project Impacts and their Mitigations Measures

These have been described as follows:

7.2.1 Positive impacts

7.2.1.1 Possible full time operation of public utilities

The prospective areas for ERT III have public utilities whose fulltime operation is not possible due to limitation of electricity supply. For instance, in Arua District, the operations of Arua Airfield are limited to daytime as a result of erratic power supply (amongst other constraints). Most times the Airfield is sometimes closed at night and

this has had implications on international transit flights in the region to Juba and the Democratic Republic of Congo (DRC).

7.2.1.2 Support to Telecommunications infrastructure operations

Telecommunication booster stations in a number of ERT III areas are largely operated through diesel generators on 24-hour basis which makes the services they support to be expensive (community radios, internet cafes as well as phone charging) in this fast growing sector and they also contribute to increased GHG emissions.

7.2.1.3 Incentive to investment climate in the Region

The project will be an incentive to enhanced investment climate in the ERT III project areas. At the moment, most investments such as in hospitality industry (hotels etc.), and a host of others, are operated through electricity from generators to run their operations which in the end translates to higher costs of the services and goods they provide.

7.2.1.4 Reduced noise pollution

In addition, the project will lead to reduced high noise pollution from a number of power generators operated to run businesses in urban areas and their environs. Due to absence of power supply, most electricity operated businesses in the West Nile Region are run by power from generators of varying sizes and capacities, which lead to pollution due to release of GHG emissions to the environment.

7.2.1.5 Improved Security

Improvement and extension of the electricity will lead to improved security through better street lighting in the urban areas and their environs which will contribute to security of residents and investments.

7.2.1.6 A boost to the recreational and social leisure

In a number of rural settings and upcoming trading centers in the proposed ERT III areas, choices of recreational options are limited and operate to 8:30pm largely due to lack of electricity. The availability of electricity improves the choices for recreation and extends the time for recreation thereby enabling recreation. In addition, in the urban centers the youth expressed the need for electricity for safe operations of their television sets and fridges which is currently a problem due to lack of stable and reliable power supply.

7.2.1.7 Improved delivery of social services

The extension of electricity will bring about improved delivery of services by sectors such as health especially vaccination, deliveries and surgical operations, education and general facilitation of trade activities.

7.2.1.8 A stimulus to utility providers

It envisaged that, improvement and extension of the electricity distribution grid under ERT IIII can be a stimulus to improve operations of other utility providers especially water supply. Currently most of the towns in the regions do not have

piped water systems and it is therefore hoped that, better power supply can be a stimulus towards improvement of water supply system.

7.2.1.9 Employment Generation

On a short-term, ERT III project will bring about creation of jobs during the construction phase (people in the areas will likely provide labor force etc.). This impact is positive and will affect the local retail business owners who would mainly benefit from secondary effects of increased incomes and spending power of construction workers. The project therefore, presents a very large positive impact which should be enhanced.

7.2.1.10 Improved livelihoods

Lack of reliable electricity is a disincentive towards acquiring household items such as fridges and television sets. During consultations, women welcomed the project emphasizing that, it will enable families acquire fridges which will help planning and running of their homes.

7.2.1.11 Incentives for small-scale enterprises

There are a number of women and youth amongst vulnerable groups operating some income generating activities such as hair and beauty salons, restaurants, ice cream selling as well as tailoring enterprises. However, due to lack of electricity, their operations are hampered and very costly and some have even abandoned the businesses due to lack of electricity for their operations.

7.2.1.12 Reduction of Carbon Emissions

A relevant aspect of the project could be the reduction of carbon emissions as there is likely to be reductions in the use of diesel run generators to run mills, use of paraffin and fuel wood as a source of energy for lighting and cooking. However, the magnitude of this impact will depend on level of affordability of the electricity by the locals.

7.2.2 Potential Negative Impacts of Grid Extensions and PV Solar Systems

7.2.2.1 Health Risks from PV installations

Potential human health risks could occur from the leaching of materials from broken photovoltaic modules. Leaching from cracked or broken modules may occur while the modules are still in service or after they have been disposed of. The primary chemicals of concern from the leaching of photovoltaic modules are heavy metals such as cadmium and selenium.

Accidental fires on rooftops or combustion of spent modules in a municipal solid waste incinerator could theoretically release fumes or vapors into the atmosphere. The inhalation of these fumes or vapors by nearby populations could affect human health. The nearby populations are of primary concern because the concentrations of chemicals in the air decline rapidly as distance from the source increases (Moskowitz, 1995). Disposal of large quantities of modules in a single landfill could lead to increased potential risks to humans and biota. The leaching of chemicals

from these landfilled modules has the potential to contaminate local ground and surface water.

7.2.2.2 **Health Risks from PV battery accessories**

The other health risks associated with PV installations relate to the batteries which have a high Lead (Pb) content. Serious personal health concerns will arise if Lead from the batteries come in contact with humans, especially children. Therefore, how the batteries are stored, transported, handled during use domestically, and then disposed at the end of the life cycle is crucially important. Experience with similar systems in other developing countries requires that serious measures be taken to avoid exposing people to the Lead in the batteries. Therefore, the specifications for the batteries should be clearly provided in the procurement documents. With regard to their disposal, the recommendation is for the supplier of the batteries to be required to collect all disused batteries and he/she should be responsible for their storage, recycling and otherwise disposal. It is further suggested that, the bidding documents for the procurement for PV accessories such as batteries should include amongst others:

a. The potential suppliers to submit Battery Disposal Management Plan (BDMP) alongside their bids which will be reviewed by REA and the respective implementing agencies;
b. The bid documents should include in its evaluation criteria, an assessment of a BDMP;
c. The suppliers will also be required to provide training material in the form of easily readable leaflets in local languages on the risks and safe use, storage and handling of the PV materials; and
d. There should be a comprehensive monitoring of implementation of these plans by the implementing agencies and REA so that the Supplier is held accountable to non-conformity of their items/supplies should it arise.

7.2.2.3 Concerns regarding creosote on Wooden Distribution Poles

The distribution lines sub-component involves handling, storage and use of creosote-treated poles. Creosote is used as a fungicide, insecticide, miticide, and sporicide to treat distribution poles. Exposure to creosote vapors can irritate the lungs. Exposure to small amounts of creosote over time by direct skin contact or by contact with creosote vapors can cause: blistering, peeling, or reddening of the skin, damage to the eyes and increased sensitivity to sunlight amongst others. Since Creosote is listed on the UN List of Dangerous Goods, this will dictate the level of vigilance necessary for the safe handling of the poles. The main objectives of ensuring proper handling and use of creosote treated poles are to ensure the protection of the workforce and the prevention and control of releases and accidents. These objectives shall be addressed by integrating prevention and control measures, management actions, and procedures into day-to-day business activities in accordance with the World Bank General EHS guidelines. Precautions when working with creosote treated poles include:

a. The Contractor should only procure poles that have been well seasoned and dried (not having dripping creosote);
b. Contractors shall be required to develop and implement Standard Handling Procedures (SOPs) for creosote treated poles, specifically focusing on use of protective gear, storage, transportation, the removal of any accumulated fluid, such as rainfall, to ensure application and use of standard health and safety practices;
c. Workers should be provided with appropriate personal protective equipment (PPEs) such as wear long-sleeve shirts and long pants and use gloves impervious to the chemicals;
d. Workers to minimize unnecessary contact with poles treated with creosote materials;
e. The poles should not be placed in water-logged areas and should not come in contact with public drinking water;
f. Disposal of off-cuts of poles should not be by burning but be collected and handed to a licensed hazardous waste management agent alongside other hazardous wastes such as PV materials in the project; and
g. Wash work clothes separately from other household clothing.
h. The workers should regularly be taken through safety drills and emergency preparedness training allowing for quick and efficient responses to accidents that could result in human injury or damage to the environment.

7.2.2.4 Loss of roadside vegetation

Impacts relating to loss of vegetation through site clearance of the RoW will likely affect woodlots, crops and sections of CFRs as well as some useful roadside vegetation resources including mature fruit trees. This is one of the serious community concerns especially where fruit trees are cut due to the need to keep the RoW within the existing road reserves to reduce aspects of compensation. It is proposed that, the designs of the grid lines should endeavour to ensure that clearance of roadside vegetation is minimised to the extent possible and where loses of vegetation are inevitable, compensation measures be instituted as per approved Government rates and as outlined in the RPF for ERT III.

7.2.2.5 Potential Disruption of roadside Businesses

Possible interference with roadside businesses during construction especially in urban areas as some kiosks and petty traders at the road edges will likely be affected and asked to shortly relocate (say for 1 - 2 days only). This is to be mitigated through adequate notification to enable affected persons to adjust their work with minimum interference.

7.2.2.6 Impacts on traffic flow

The works along the road will likely affect traffic flow during its implementation. This will be mitigated through employing traffic guides (flagmen) to control traffic at both approaches and use of safety signage with labels such as "Men at Work" or "Work in Progress."

7.2.2.7 Soil Erosion Concerns

Soil erosion concerns arising from erection of the poles for the distribution lines will involve digging and later back filling and if poorly compacted, loose soils may be eroded leading siltation of drainage channels. This will be mitigated through proper compaction of the pole holes.

7.2.2.8 Temporary Campsite/Equipment Storage Yards Issues

Due to the nature of project activities, it is likely that, the contractors may set up temporary campsites as bases for the administrative operations and equipment storage. However, given ERT-2 experience, no workers' campsites have been used. The operations of the campsites can present a number of concerns ranging from, security risks, fires, waste management, noise and a host of issues which can be causes of conflicts and other social ills. It is recommended that:

a. Land take related to the camp sites will be fully compensated for in accordance with the guidance provided in the RPF;
b. To address security concerns, the camp site shall be fenced to regulate access, have a check point at its gate to register entry and exit of traffic, register visitors entering the premises and issuing visitors' cards to be worn by the visitors;
c. Proper sanitation facilities will be put in place at the campsites;
d. Provide waste segregation bins and send recyclables such as water bottles and metal scrap to recycling facilities. The other types of wastes should be managed in accordance with the National Environment(Waste Management) Regulations;
e. To avoid issues relating to operations of vehicle repair workshops, contractors shall be required to retain services of established garages in urban areas to manage servicing their fleets which eliminates risks of hazardous waste build up with their associated disposal challenges; and
f. Establishment of the contractor's campsites will have other impacts such as vegetation clearance; Noise impacts, and traffic related. However the roads in the project areas have less traffic i.e. construction traffic will be of minimal magnitude in the environment. Trees and any vegetation cleared from the camp site shall be compensated for by the contractor.

7.2.2.9 Occupational Safety and Health (OSH) for the workers and the Public

Most occupational health and safety issues during the construction, operation, maintenance, and decommissioning of electric power distribution projects are common to those of large industrial facilities, and their prevention and control is discussed in the General EHS Guidelines. These impacts include, among others, exposure to physical hazards from use of heavy equipment and cranes; trip and fall hazards; exposure to dust and noise; falling objects; work in confined spaces; exposure to hazardous materials; and exposure to electrical hazards from the use of tools and machinery. Occupational health and safety hazards specific to electric power transmission and distribution projects primarily include:

· Live power lines
· Working at height

· Electric and magnetic fields
· Exposure to chemicals

Community health and safety impacts during the construction and decommissioning of transmission and distribution power lines are common to those of most large industrial facilities, and are discussed in the General EHS Guidelines. These impacts include, among others, dust, noise, and vibration from construction vehicle transit, and communicable diseases associated with the influx of temporary construction labor. In addition to general health and safety standards outlined in the General EHS Guidelines, the operation of live power distribution lines and substations may generate the following industry-specific impacts:
· Electrocution
· Electromagnetic interference
· Visual amenity
· Noise and Ozone
· Aircraft Navigation Safety

There is likely to be 30-50 workers for each line during its establishment, in which case a number of health and safety concerns relating to the distribution line construction, including injuries to workers and possible deaths of workers can arise. This is to be mitigated through provision of PPEs (gloves, safety boots, coveralls and goggles) and First Aid Kits on site for the safety of the workers as well as continuous awareness on the need for use of PPEs. Since the voltage of the distribution lines is 33 kV, the Minimum Working and Clear Hot Stick Distance should be 0.71 meters according to the World Bank EHS for Electric Power Transmission and Distribution. Exposure of the public to electro magnetic fields shall be avoided, minimized by considering siting new facilities. Installation of transmission lines or other high voltage equipment above or adjacent to residential properties or other locations intended for highly frequent human occupancy, (e.g. schools or offices), should be avoided.

All in all, site specific health and safety measures shall be developed during implementation and included in the respective ESMPs. The development of these measures shall be guided by the World Bank General EHS Guidelines and Environmental, Health, and Safety Guidelines Electric Power Transmission and Distribution. Monitoring should be designed and implemented in consultation with Department of Occupational Health and Safety as part of an occupational health and safety monitoring program. Facilities should also maintain a record of occupational accidents and diseases and dangerous occurrences and accidents.

As a result of the operation of equipment and machinery during construction, there is a likelihood of accidents occurring especially to the workers.

Mitigation Measures

- All workers need to be provided with the recognized and appropriate Personal Protective Equipment while at the construction site including hardhats, gloves, and safety belts for climbing up the poles, boots, and overalls. Use of PPE will have to be strictly enforced.

- ONLY competent workers and staff should be allowed to operate any machinery and equipment to reduce the incidents of accidents.
- During the construction, the project site should be completely sealed off and warning signs erected informing the general public to keep off the construction site when construction is in progress.
- The Contractor should continuously train his staff or conduct refresher training to ensure that the staff is up-to-date with knowledge of new or latest equipment.

7.2.2.10 HIV/AIDS Concerns

The national prevalence rate is about 7.3% per the National HIV/AIDS Status Report of 2007. The interactions between workers and the local communities may bring about new aids infections on either side. It is therefore proposed that, the contractor designates one of its staffs as HIV/AIDS Focal person who will work with existing HIV/AIDS institutions to provide condoms and related HIV/AIDS services to the workers such as sensitization and counselling.

7.2.2.11 Vandalism of infrastructure

Vandalism and theft of installations after construction leading to electrocution which continues to be a major problem in a number of places in the country where vandals tend to steal transformer oils as well as some of the distribution related equipment. This impact is expected to be a small negative impact and is to be mitigated through:

a. The Project Implementation Team will sensitise the communities on the negative effects of stealing and vandalising electrical installation through radio Projects and messages through churches and mosques;
b. During construction, the contractors should hire those workers who have been vetted by their local area leadership and with letters of introduction;
c. Project equipment should be guarded during construction and all workers will be provided with identification tags to reduce intruders to working areas;
d. Identification tags to be provided to all the workers on the project sites and such identifications will remain a property of the contractor once an employee leaves employment;
e. Registered Security Guards should be recruited to specifically guard project property; and
f. Contractors to work closely with area local leaderships to help address security and safety at the sites and the campsite.

7.2.2.12 Concerns over Transformer Oil Spillages

There is potential for accidental spillages from transformer oil at any stage of project cycle that can be a source of concern in the equipment storage yard. However, transformer oil is not normally always stored onsite as such; it is transported to the sites for purposes of filling transformers that may have leaked their oil during transportation, storage, or installation. It is suggested that, all transformers in the equipment storage yard should be placed on wooden platforms laid in high-density

polythene bags spread with sawdust to soak away and contain oil leakage. The Contractors shall also be required to develop and implement Standard Handling Procedures for Transformers to take care of any oil spillage during transportation, storage and installation.

7.2.2.13 Loss of habitats

There may be potentially small-scale and localized loss of habitats due to the construction works especially while working in sections of the forested areas. However, the project is not expected to cause significant damage to the habitat given that only a width of 10m of the forest reserve will be taken up by the project in case a project passes through a forested area.

Mitigation

a. Restrict the distribution lines within the road reserve areas;
b. Avoid routes that fragment the woodlots and forests;
c. Adjust pole placement to be within edges of the road to minimize vegetation loss;
d. The Project of trimming of vegetation in RoW should focus on trees that exceed 5m high in areas along forest edges and in Wildlife Reserves and Protected areas; and
e. A restoration tree planting Project is recommended in consultation with either NFA or the respective District Local Governments/Authorities.

7.2.2.14 Possible Impacts on PCRs

There are graves scattered in a number of areas along areas where ERT III facilities will be implemented. The subsequent environmental and social assessments should take into account specific measures to address mitigations for such resources during project implementation. As for this ESMF, it is proposed that, the design stages should propose alignments that avoid graveyards. In addition, measures outlined in the Chance Finds Procedures should be operationalized as well.

7.2.2.15 Noise from Construction Crew and Traffic

The noise levels in most parts of the proposed project areas are very low, typical of a village setting. In addition, the traffic volumes on the roads in the project areas are also low. Construction crew may not be that many and may not introduce many vehicles in the project area. The noise levels are unlikely to increase substantially. This impact will as well be temporal and low. Most of the construction activities will be carried out by manual labor with few trucks delivering labor and materials to the sites. The works will be implemented during daytime to minimize impacting on peoples' sleep.

7.2.2.16 Potential Bird kills from Grid lines

Distribution networks are known to be a potential source of bird strikes that get entangled to the lines causing their injury or even instant death. This is especially more significant when large flocks of birds migrate from one point to another and usually get struck by the power distribution lines. To mitigate this risk especially across sections of wetlands and protected areas, it is suggested that, H-pole arrangement

of distribution lines is adopted in which case, the power lines will run horizontal not in vertical perspective as that will reduce potential collision with the birds.

7.2.2.17 Preparation of Hazardous Waste Management Plan

As part of the implementation of the project, and in line with the WB General EHS Guidelines, a comprehensive Hazardous Waste Management Plan will be put in place to cater for waste from PV and grid extension and intensification activities. The overall goal of the waste management plan is to reduce and safely dispose of waste generated in all aspects of project implementation.

- Operate in a manner consistent with the principles of sustainable development recognizing that a key element of this is to inhibit the flow of wastes to the natural environment; and
- Identify, track and dispose in an environmentally responsible manner all potentially hazardous waste streams generated by project implementation, including oils, scrap metals, plastics, packaging.

7.2.3 Potential Negative Impacts of Geothermal Projects

ERT-III project may support feasibility studies for geothermal projects. . ***For clarity, the project will not finance development of geothermal projects, but will feasibility support studies ONLY. Since the feasibility studies may entail environmental scoping, a snapshot of generic environmental and social impacts of geothermal projects is presented in this sub-section for information purpose only.*** Although the impacts of geothermal development projects are often positive, different types of geothermal fields and geothermal development have varying impacts. Geothermal utilization can cause surface disturbances, physical effects due to fluid withdrawal, noise, thermal effects and emission of chemicals as well as affect the communities concerned socially and economically. Environmental impacts of geothermal development may include: impacts on groundwater systems, decline of water level, depletion of groundwater, land subsidence, thermal pollution, chemical contamination, gas emission, visual impact, noise, and corrosion. Negative impacts are minimal and temporary, and can be mitigated by effective methods. Therefore, it is desirable to attain sustainable development of the geothermal resources in Uganda with the aid of a full ESIA.

For communities exposed to physical hazards associated with the wells and related pipeline networks, the mitigating measures include:-

- ✓ Placement of access deterrents, such as fences and warning signs.
- ✓ Minimizing length of unnecessary pipeline systems.
- ✓ Consideration of the feasibility of subsurface pipelines or heat shields to prevent public contact with hot geothermal pipelines.
- ✓ Managing closure of infrastructure such as pipelines and access roads, including cleaning disassembly and removal of equipment, analysis of soil quality with cleanup where warranted, re-vegetation of site and blockade and reclamation of access roads, where necessary.

- ✓ Managing closure of well heads, including sealing well with cement, removing the well heads and backfilling depression around the well heads, as necessary.

7.2.4 Potential Negative of Mini-Hydro Projects

Just like the geothermal power projects, Component 3 of ERT through MEMD will support feasibility studies for small hydropower projects. Again since the feasibility studies may involve environmental scoping, a snapshot of generic environmental aspects is given here for information purposes and future guidance when ESIA is considered. Presence of endangered fauna or flora species or any significant natural habitat concerns in such areas can be critical. In addition, water quality impacts especially contamination by sediment during the construction phase can affect communities downstream who depend on the rivers for water and other livelihood activities including agriculture, fishing and recreation.

However, the impacts of the mini-hydro will depend on the design and capacity. For example, small, run-of-the-river projects are free from many of the environmental problems associated with their large-scale relatives because they use the natural flow of the river, and thus produce relatively little change in the stream channel and flow. The dams built for some run-of-the-river projects are very small and impound little water—and many projects do not require a dam at all. Thus, effects such as oxygen depletion, decreased flow, and rejection of upstream migration aids like fish ladders are not problems for many run-of-the-river projects.

Therefore, the severity of the potential impacts of the mini-hydro projects both in terms of their intensity and scale will be evaluated as part of the feasibility studies of these mini-and small hydro projects in an ESIA. The potential impacts of displacement are very unlikely but if encountered will be mitigated through compensation and resettlement as provided for in the ERT III RPF.

8 ESMF IMPLEMENTATION FRAMEWORK

8.1 Overall Responsibility of Environmental and Social Safeguards Staff

The responsibilities of the respective Environmental and Social Safeguards of the different implementing agencies will include the following:

- ➢ Ensuring that communities and local government departments have up-to-date information on project activities.
- ➢ Facilitating environmental and social impact assessments including developing relevant TOR for consultants etc.
- ➢ Coordinating environmental and social commitments and initiatives with relevant government agencies.
- ➢ Supervising and monitoring ESMP implementation and producing periodic reports.

- Training local governments, contractors, and communities on environmental and social safeguards issues and implementation of ESMPs.
- Facilitating land acquisition and resettlement processes as required.
- Coordinating with, and receiving feedback from, the Independent Third Party Monitoring Agencies.

8.2 ERT III Institutional Implementation Arrangements

The institutional framework under which the planned project will be implemented will involve the following agencies:

8.2.1 Ministry of Energy and Mineral Development (MEMD)

Mandate and Responsibility - The MEMD is the lead agency for all energy projects in Uganda and therefore will be the PCU. The ERT III project will be housed in MEMD which will be overall Project Coordination Unit (PCU). It will be responsible for planning, coordination, monitoring and evaluation, and the implementation of all activities of ERT III Project in consultation with the other implementing agencies while closely relating with the Bank. MEMD will take overall coordination of implementation of ERT-3 project, including coordination and management of environmental and social aspects. In addition, MEMD will specifically take charge of Component 3 – Renewable Energy Development which will finance feasibility studies of other renewable energy resources such as geothermal energy, studies for small hydropower development etc. In addition to its oversight role, MEMD will implement the following activities: (i) enabling the development of potential small hydropower sites, and (ii) Exploring additional generation from geothermal sources, (iii) Market and street lighting, and (iv) consumer awareness on energy efficiency. Technical Assistance provided under this component will finance the necessary consultancy services, capacity building, and impact monitoring and operations costs as agreed. It is proposed that the MEMD may collaborate with the Ministry of Local Government to promote the project activities and ensure ownership of investments at local government levels.

The PCU shall be responsible for oversight role and the implementation of mitigation measures and general compliance of the project with any permits, licenses and Approval Conditions and related regulations and standards on environment. The Unit will be responsible for ensuring that, the project facilities comply with the environmental and social requirements as shall be detailed in the contract documents as well as with other guiding contractual provisions and documentations.

Safeguards Capacity - MEMD does have in-house capacity in terms of qualified staff to implement this ESMF. MEMD has a dedicated and qualified Environmental Officer. However, MEMD is in the process of recruiting a Safeguards Officer under the IDA financed Electricity Support Development Project (ESDP). This officer shall be required to handle ERT-III in addition to ESDP and ensure proper coordination and management of environmental and social aspects during implementation of both projects.

8.2.2 Rural Electrification Agency

Mandate and Responsibility - The Executive Director of REA will be responsible for the implementation of ***Component 1: Rural Energy Infrastructure:*** On-grid investments which will finance all on-grid activities and also participate in implementation of ***Component 2: Energy Development, Cross Sectoral Links and Impacts Monitoring:*** which will finance installation of solar PV systems for institutions such as schools, health centers and water pumping stations – as was done for the ERT II; implemented by the respective line ministries (i.e., MoH, MoES and MWE) but in collaboration with MEMD/PCU and REA to synchronize plans.

Implementing Agencies will have to ensure that vulnerable groups are consulted and that they fully benefit from the ERT III in culturally appropriate ways. Implementing Agencies will have to ensure avoidance of adverse impacts on vulnerable communities, or where this is not possible, with the participation of affected communities measures to mitigate and compensate for such impacts will be developed. REA is also responsible on project progress and any unexpected and unintended events affecting vulnerable groups.
Furthermore, the Unit will report on matters of resolving complaints and grievances regarding the ERTIII activities by stakeholders. At the end of the project, REA will release the Completion Certificate as evidence of satisfactory implementation of the mitigation measures by the Contractor.

Capacity of REA to Implement the ESMF - REA has an Environmental Unit headed by an Environmental Specialist who has sufficient training and experience in environmental and social issues and can effectively coordinate and provide expert advice to contractors on how to effectively implement the required safeguards under the ERT III. Therefore, in terms of expertise, there are no gaps. However it is strongly recommended that there should be a clear working budget and logistics for the Environmental Unit under ERT III to enable it to effectively monitor project implementation on ground. In addition, there is need to build the capacity of the Environmental and Wayleaves Units to be able to guide capture of environmental and social issues during demarcation of RoWs to ensure such issues are well documented and valued for compensation.

REA expects to recruit a Social Development Specialist in the next financial year (2014/15) to fully address all social issues including compensation and resettlement including vulnerability issues projects including ERT III. The Social Development Specialist will train and guide the CDOs at the district level on all social issues including issues of vulnerable groups.

8.2.3 Ministry of Finance, Planning and Economic Development (MoFPED)

Mandate and Responsibility - the Ministry plays a pivotal role in the co-ordination of development planning; mobilization of public resources; and ensuring effective accountability for the use of such resources for the benefit of all Ugandans. The

overarching role of impact monitoring for the ERT III will be implemented by the MOFPED.

Safeguards Capacity – No capacity to implement this ESMF but it is important to note that MoFPED will not be directly involved in implementing the project on ground hence no need for environmental and social safeguards capacity for the ERT III.

8.2.4 Ministry of Health

Mandate and Responsibility - The Ministry of Health is a government body set up with the mandate of policy formulation and policy dialogue with Health Development Partners, resource mobilization and budgeting, strategic planning, regulation, advising other ministries on health matters, setting standards and quality assurance, capacity development and technical support, provision of nationally coordinated services such as epidemic control, coordination of health research and monitoring and evaluation of the overall sector performance. Under the ERT III, MoH will implement solar PV systems for health centers in collaboration with MEMD/PCU.

Safeguards Capacity–The MoH has the Environmental Health Division which could be engaged for purposes of implementing the ESMF requirements. However, it has been recommended that the supplier will have to cater for end-of-life issues. Key personnel from MoH will be required to attend training workshops on ESMF implementation to be organized by MEMD/PCU. In addition, they will have to seek advice from PCU's Safeguards Officer on all environmental and social issues of the ERT III that may arise.

8.2.5 Ministry of Education and Sports

Mandate and Responsibility - The mandate of the Ministry of Education and Sports (MoES) is to provide quality Education and sports services in the country, which are constitutional obligations for the Government of Uganda. The Education and Sports sector therefore is one of the country's key social service delivery sectors because it delivers critical government Projects such as Universal Primary Education (UPE), Universal Post Primary Education and Training (UPPET) as well as sports for enhancing citizens; wellness/health, productivity and the country's image. In terms of providing PV systems to schools, the Ministry of Education and Sports (MoES) has demonstrated satisfactory implementation capacity and will carry out these installations. As such, implementation of PV systems for schools by the Ministry of Local Government (MoLG) to be handled by MoES.

Capacity – MoES does not have an Environmental Unit neither the necessary expertize to ensure safe handling and disposal of waste associated with solar PV materials. However, it has been recommended that the supplier will have to cater for end-of-life issues. Key personnel from MoES will be required to attend training workshops on ESMF implementation to be organized by MEMD/PCU. In addition, they will have to seek advice from PCU's Safeguards Officer on all environmental and social issues of the ERT III that may arise.

8.2.6 Ministry of Water and Environment

Mandate and Responsibility - 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 Projects to keep track of their performance, efficiency and effectiveness in service delivery. Under the ERT III, MoWE will implement solar PV systems as well as grid extensions for water pumping stations in collaboration with MEMD/PCU.

Safeguards Capacity – MoWE does have in-house capacity in terms of qualified staff to implement this ESMF.

8.2.7 The Electricity Regulatory Authority (ERA)

Mandate - The primary duties of ERA include licensing, tariff setting, development and enforcement of performance and safety standards. ERA will ensure that, the operations and costing of energy from the planned project will be in accordance with its set standards and tariffs.

Safeguards Capacity – ERA has an Environmental Specialist to coordinate this ESMF including reviewing of monitoring reports.

8.2.8 National Forestry Authority-NFA

Responsibility – Some of the distribution may traverse or pass along forested areas under the NFA. Mandated to manage Central Forest Reserves, the NFA will be a key stakeholder where sections of CFRs will be impacted by the ERT III activities and therefore be monitoring the integrity of affected ecosystems during and after the project activities.

Capacity – NFA has a number of regional NFA offices that have Forest Rangers to inspect and report any impacts on the forests.

8.2.9 Uganda National Roads Authority

The mandate of UNRA is to develop and maintain the national roads network, advise Government on general roads policy and contribute to addressing of transport concerns, among others. Some of UNRA responsibilities include: management of the National Roads network; maintenance and development of the national roads network; and establishing and maintaining road reserves among others. UNRA is a key stakeholder under the ERT III because the distribution lines components largely fall under road reserves.

Capacity – UNRA has a dedicated Environment Unit headed by a well-qualified and experienced Environment Specialist who should be in position to provide guidance to PCU and REA on the various considerations required to implement projects especially distribution lines within the road reserves.

8.2.10 The Uganda Energy Credit Capitalization Company

UECCC's mandate is to provide a reliable framework for pooling resources from Government, Investors and Development Partners and to channel the same to viable renewable energy projects. The Company's main objective is to provide financial, technical and other support for renewable energy infrastructure development in Uganda, with particular focus to enabling private sector participation. In this regard, UECCC provides Technical Assistance and new financing options to facilitate private sector led energy projects. The UECCC will utilize their portion of funds to facilitate local commercial finance by providing credit enhancement products such as partial risk guarantees, and other refinance facilities.

8.2.11 Rural Electrification Fund and the Board

Prior to the formulation of the Energy Policy, the Government of Uganda, by, Statutory Instrument No. 75 of 2001 (establishment and management of the Rural Electrification Fund), had established three inter-related mechanisms for management of Uganda's Rural Electrification program namely, the Rural Electrification Fund (REF), the Rural Electrification Board (REB), and the Rural Electrification Agency (REA) all supervised by the Minister responsible for Energy. REA serves as the Secretariat to the Board whose principal responsibility is to ensure management of the Fund for equitable promotion of electricity access and connectivity. These agencies will review compliance reports to be prepared by REA.

8.2.12 Private Sector Foundation Uganda-PSFU

Mandate and Responsibility - PSFU has been Government's implementation partner for several projects and Projects aimed at strengthening the private sector as an engine of economic growth. Such Projects include; the implementation of the Business Uganda Development Scheme (BUDS), the BUDS-Energy for Rural Transformation (ERT) Project and advising government on positive policy reforms. Under ERT III, the PSFU will continue with their successful investment components such as Power Factor Correction Equipment, Solar Water Heaters and Private Sector Small Hydropower Development and Productive use of energy that they piloted under ERT I. It could also include supporting the Efficient Cooking Stove initiative that is currently under discussion and funded by a Russian Trust Fund.

Safeguards Capacity - PSFU does not have an Environmental Unit or the necessary expertize to implement this ESMF. Key personnel from PSFU will be required to attend training workshops on ESMF implementation to be organized by MEMD/PCU. In addition, they will have to seek advice from PCU's Safeguards Officer on all environmental and social issues of the ERT III that may arise.

8.2.13 The National Environment Management Authority (NEMA)

Mandate and Responsibility - NEMA is specifically mandated by the National Environment Act (NEA) Cap. 153 as the principal agency in Uganda charged with the responsibility of coordinating, monitoring, supervising, and regulating all environmental management matters in the country. One of the key institutional mandates of NEMA include among others ensuring the observance of proper

safeguards in the planning and execution of all development projects including those already in existence that have or are likely to have significant impact on the environment. The role of NEMA will be to review and approve environmental impact assessments and Project Briefs as well as monitoring project implementation in accordance with the National Environment Act and the respective regulations.

Safeguards Capacity – NEMA has adequate technical capacity to monitor the ERT III through its Department of Environment Compliance and Monitoring in addition to the District Environment Officers in the respective project areas that will be able to report any cases of noncompliance. NEMA Environmental Inspectors do capture social issues/complaints during their inspections where feasible. However, NEMA is constrained by the small number of staff it has and in most cases does not monitor projects they deem of low-moderate environmental and social impacts. In addition, they are also resource constrained since they do not have enough funds to take care of projects monitoring and compliance follow up. Overall, NEMA captures both environmental and social issues either through the mandatory annual compliance audits or through monitoring reports by the respective District Environment Officers who are gazetted Environment Inspectors. Therefore, there is need for close coordination between the DEOs and CDOs in order to fully integrate social issues into the monitoring reports prepared by the DEOs.

8.2.14 Local Government Administration Structures

Mandate and Responsibility - District and Local Council Administration in ERT III Districts will be vital in implementation of the project by mobilizing political goodwill and sensitizing communities on the project as well as their District Environment and Community Development Officers taking care of environmental and social aspects of the project at their levels. The DEOs and CDOs in the respective areas of project implementation will have to monitor the projects to ensure that mitigation measures are adequate and are well integrated in the subproject proposals. DEOs and CDOs will also have to review all ERT III environmental and social assessment reports and provide comments during their review to NEMA before issuance of Approvals. The Role of the DEOs and CDOs will also be to ensure that ERT III subprojects are implemented in accordance with NEMA conditions of approval. They will also attend the monthly site inspection meetings for the project and be able to point out issues of concerns. Specifically the CDOs will oversee implementation of compensation aspects and other social issues such as complaints.

Safeguards Capacity–Every district has a designated District Environment Officer whose responsibility is to monitor all environmental affairs of the district including compliance of activities with their jurisdiction. In addition, every district has a Community Development Officer who is responsible for mobilizing communities to participate in projects as well as coordinating and reporting on the impact of projects (positive and negative) on the communities. District Land Tribunals are also in place for some of the project districts to handle land related issues of the ERT III. However, the districts (specifically the DEOS and CDOs) will require facilitation by PCU to monitor and report project implementation as provided for in the ESMF budget.

Involvement of NGOs in the project areas to deliver capacity building services is important to ensure participation of vulnerable groups. Capacity building at the community level will involve helping communities to conduct participatory needs assessments to identify, prioritize and plan projects and to choose members to represent them as part of the community level project coordination. NGOs could also perform an ombudsman role or serve as a steward of the 'rules of the game'. If a particular group feels that it was not being treated fairly or the project components have not been implemented, it could contact an appointed NGO to share its grievance. The NGO will, in turn, make sure that the ERT III operating norms are being respected.

Public consultation and information dissemination, for them to be effective and meaningful, in turn requires adequate community mobilization to ensure all stakeholders are well informed and have their voices heard. Vulnerable groups have to be mobilized to encourage their active participation in consultation and information dissemination processes. Where such groups lack capacity, local NGOs will be engaged to help mobilize them to carry out consultation and information dissemination.

8.2.15 The Role of the Contractors

The Role of the Contractor, which will be as per the contract will be accountable for the overall implementation of the mitigation measures and this will be monitored and supervised by the PCU's Safeguards Officer. As such, an ESMP will be prepared for each sub-project. In the schedule of works, the Contractor will include all proposed mitigation measures, and the Supervising Engineers will also ensure that, the schedules and monitoring plans are complied with. This will lend a sense of ownership to the Contractor. The Contractor on his part will also be responsible for planning, implementing and reporting on mitigation measures during the execution of the project works. The Contractor will also be required to apply standard quality assurance procedures in full compliance with the NEMA's Approvals.

Capacity – The Contractors are unknown at this point. However, the selection criteria will include past environmental performance as well as adequacy of contractor's staff to effectively put mitigations in place.

8.2.16 Role of Supervising Consultant

The Supervising Consultant should have in his team an Environment Specialist who will have overall responsibility of ensuring that, project implementation process complies with NEMA Approval conditions as well as contract provisions. The Environmental Specialist shall work closely with PCU's Safeguards Officer in supervising the contractor. In addition, he/she will conduct scheduled site supervision to monitor state of environmental compliance as documented or executed by the Contractor's Environmentalist. The Safeguards Officer will also be attending site meetings and providing in-put to the Project Monthly Progress Reports.

8.2.17 Role of Office of Chief Government Valuer

The application of the valuation exercise on ground will be done in the presence of at least two local council leaders with the participation of the affected persons. Values assigned to assets must be based on the market rates approved by the respective districts. Where this is not possible, the Chief Government Valuer (CGV) will be engaged to do this. In the event that a Government Valuer handles this process, the depreciation cost will not be imputed and the consent of the affected person on the outcome of the process must be sought in order to arrive at agreements on the total profile of losses and compensation.

8.2.18 World Bank

The World Bank will be responsible for review and clearance of ESIAs/Project Briefs as well as independently monitoring the project's environmental and social performance in relation to the respective safeguards through implementation support supervision missions. World Bank will also be responsible for reviewing regular monitoring reports and officially disclosing the ESIAs on its website. Technical guidance may also be provided by World Bank to MEMD/PCU and implementing Agencies as needed from time to time.

8.3 Capacity Building

8.3.1 Capacity Assessment Needs

The Project will involve funding of subprojects which will have various levels of impacts on the social and general environment set up. This implies that in order to effectively operationalize the ESMF, the line agencies need to have basic skills and understanding of general environmental and social dimensions and with specific reference to the ERT III aspects. The overall objective will be to build and strengthen the institutional capacity of the implementing agencies to better support the development and integration of social and environmental measures into the project. The institutional capacity building strategy will seek to:

- Develop organizational mechanisms to ensure that environmental and social requirements of the World Bank and Uganda are followed throughout the ERT III project.
- Assist MEMD/PCU and the respective project implementing agencies in strengthening their capacity to deal with social and environmental issues and develop socially and environmentally sound projects.
- Ensure effective coordination between the respective implementing agencies
- Identify and assess overall needs for environmental education, information, awareness building and training.

8.3.2 Strategy

The capacity building strategy is expected to ensure that (i) all staff of the respective implementing agencies is familiar with the requirements of the ERT III ESMF (ii) the respective staff are given timely training on the provisions and implementation requirements of the ESMF as well. A preliminary capacity assessment was carried out during preparation of this ESMF to identify training and

other capacity building needs of the different implementing agencies on environment and social issues. A programme for training delivery will be developed by PCU's Safeguards Officer as a follow action. PCU's Safeguards Officer will work closely with the other implementing agencies to coordinate in the implementation of the environmental laws, policies and regulations as well as the World Bank safeguards policies.

PCU's Safeguards Officer will work through the CDOs and DEOs and other relevant forums to organize practical training to build the knowledge and awareness of local government officials and local communities, on social and environmental issues related to proposed ERT III activities. Training will also seek to build the skills of local people to participate actively in identifying appropriate mitigation measures to avoid or reduce potential negative impacts of project activities.

The Capacity building will be required to implement the recommendations outlined in the ESMF. The key areas of capacity building Project to include:

a. World Bank Safeguards
b. Understanding of the Environmental and Social Management Process in Uganda,
c. Supervision of works
d. How to monitor mitigation measures and reporting
e. Waste Management and Disposal especially for electronic waste

8.3.3 Training Modules

The training modules below are proposed to form part of the training program to ensure awareness of how to effectively implement the ESMF:

8.3.3.1 Module 1

- Introduction to basic concepts on environment and social issues
- ERT III ESMF - what it is and why it was prepared?
- Stakeholder relevance and significance in project implementation
- Overview of national and World Bank Environment and social requirements

8.3.3.2 Module 2

- Environmental and social assessment in Uganda
- Environmental and social issues in typical ERT III projects.
- Good environmental and social practices in electrification projects

8.3.3.3 Module 3

- Electronic waste – Management and Disposal
- Health and Safety Issues in electrification projects
- HIV issues and their management
- Monitoring and supervision of civil works
- Environmental and social indicators
- Reporting
- Project management

8.4 Monitoring and Evaluation

Implementation of the ESMF includes both internal monitoring and reporting and external monitoring and evaluation.

8.4.1 Internal Monitoring and Reporting

At local level, the respective project management teams in the different agencies, local government and local communities will be responsible for monitoring to ensure that all required environmental and social mitigation measures for each project component are being implemented satisfactorily. Information collected from various stakeholders together with observations of project activities will be reported quarterly to MEMD/PCU. Monthly monitoring reports will include:

- List of consultations held, including locations and dates, name of participants and occupations
- Main points arising from consultations including any agreements reached
- A record of grievance applications and/or grievances redress dealt with
- Monitoring data on environmental and safety parameters
- Trainings conducted

For those project components where a Resettlement Action Plan (LARAP) has been developed and approved, monthly monitoring reports will also include a brief update on specific RAP requirements: (i) the timely provision of compensation to individual PAPs and (ii) the timely provision of resettlement assistance (relocation and income restoration assistance) to individual PAPs and (iii) information on how the GRM is functioning including types and quantities of complaints and their redress.

Monitoring indicators will include gender and vulnerability specific indicators, and monitoring reports will present data disaggregated by gender and vulnerability. To effectively monitor project impacts on the vulnerable, the socio-economic baseline established for the project will include data on representative vulnerable households. The socioeconomic baseline indicators will be used for measuring the outcomes and impacts on vulnerable communities. The monitoring and evaluation mechanisms adopted for the project will ensure that in addition to process and outcome indicators, appropriate impact indicators are defined related to specifically to impacts on vulnerable groups and their livelihoods. Indicators that can be monitored for this purpose include how many vulnerable people participated actively in project activities, benefited from target assistance to enhance livelihoods, documentation of their opinions on project impacts and if any of their specific concerns were addressed during implementation. Key indicators for both benefits and participation of vulnerable groups will include:

- Number of consultations with vulnerable groups at all stages of the ERT III;
- Number of vulnerable groups and individual employed by the project;
- Number of vulnerable households connected to the grid under the ERT III.

Indicators for negative impacts on IPs will include:

- Number of vulnerable households and individuals physically or economically displaced by the project;

Gender analysis will also be an integral part monitoring and evaluation of ERT III activities. It is recommended that an impact evaluation be undertaken about 6 months before project completion to assess the changes in the overall living standards compared to the former living status of living for these vulnerable groups.

At national level, MEMD/PCU will take overall responsibility for overseeing progress in implementing the ESMF and assessing the effectiveness of mitigation measures against agreed indicators and parameters. MEMD/PCU will consolidate and review monthly reports submitted by the different agencies. At the district level, the DEO and CDO will monitor environmental and social issues respectively.

8.4.2 External Monitoring and Evaluation

External assessment of compliance with mitigation measures will also be carried out on a regular basis by an external agency/independent party to be appointed by MEMD/PCU and agreed to the World Bank with the results communicated to REA and the World Bank.

The Independent Third Party Monitoring Agency will be responsible for the preparation of the semi-annual compliance report on RAPs and ESIA/ESMPs which will (i) update the status of PAPs against the socio-economic baseline of the RAPs, (ii) review how compensation and related resettlement assistance in cash or kind are being delivered to affected households and (iii) ensure ESIA/ESMP measures and commitments are adequately implemented.

The Independent Third Party Monitoring Agency will use the compliance report specifically to assess the status of project- affected vulnerable groups such as female-headed households, landless, disabled/elderly and poor families. The Independent Third Party Monitoring Agency's report will be a valuable tool to ensure that PAPs receive the compensation due to them under the RPF and that mitigation measures including offsets and other compensation program under the ESIA/ESMP are implemented with acceptable results/parameters. The report and any recommendations will be made available to the public. The cost of external Monitoring and Evaluation will be borne by the ERT III.

9 BUDGET AND DISCLOSURE OF ESMF

9.1 Budget

Most cost of ESMF are to be integrated as part of ERT III budget covering aspects such as provision of transport (vehicles), computers and as well as operation costs. However, some of the items the Project costs that relate to ESMF with their costs include:

Item	**Cost in USD**				
	Year 1	Year 2	Year 3	Year 4	Year 5
Mobilization and training in ESMF Safeguards requirement and general project management including GRM issues coordination (targeted include implementing agencies and LGs)	150,000	100,000	100,000	100,000	100,000
Update/Development of Environment and Social Compliance Tracking System	25,000	-	-	-	-
Mobilization and involvement of , CSOs and vulnerable groups	80,000	80,000	80,000	80,000	80,000
Facilitation of CSOs to implement and monitor the vulnerable groups	40,000	40,000	40,000	40,000	40,000
Projects supervision (civil works, health and safety, HIV issues etc.)	100,000	100,000	100,000	100,000	100,000
Environmental Audits	65,000	65,000	65,000	65,000	65,000
Annual Total	**460,000**	**385,000**	**385,000**	**385,000**	**385,000**
Total Budget Estimate for ESMF Implementation	**$2,000,000**				

9.2 ESMF Disclosure

This ESMF will be disclosed both in-country in one or two of the local dailies, in MEMD's website and at the World Bank's infoshop in compliance with relevant Ugandan regulations and the World Bank Operational Policies. MEMD and

implementing agencies will provide copies of the respective ESIAs and RAPs or disclosure at the World Bank Infoshop for public access.

10 CONCLUSION AND RECOMMENDATION

10.1 Summary and Conclusions

For Uganda to shift from a peasantry to an industrialized and largely urban society which is consistent with the country's overarching Vision 2040, electricity as a form of modern energy has to be its engine to propel it forward. The ERT III project will support interventions designed to increase access to modern energy, information and communication technologies in Uganda. The project is expected to have positive overall environmental impact through promoting renewable energy generation and energy efficiency. Based on the preliminary assessments as the specific locations of the subprojects are unknown at this point, overall, the impacts of the ERT III will be of small scale, localized and of short-term nature which can be effectively mitigated through the mitigation measures proposed and by strictly following the requirements and guidance in this ESMF. Access to common assets/resources and improved livelihoods of project affected persons, due to potential land acquisition for infrastructure development if any, will be addressed in an inclusive manner.

This ESMF provides a step-by-step guidance on how to identify potential adverse environmental and social impacts from project activities, and how to plan, implement and monitor measures to mitigate them. A Resettlement Policy Framework (RPF), which sets out the guidelines for the resettlement action plans (RAPs) to be prepared for any subproject that triggers the Involuntary Resettlement Policy has been prepared alongside this ESMF.

MEMD/PCU, REA, and MWE, have Environmental Units headed by an Environmental Specialist or dedicated Environmental Officers who have sufficient training and experience in environmental and social issues and can effectively coordinate and provide expert advice to contractors on how to effectively implement the required safeguards under the ERT III. However, other agencies (MoES, etc.) lack capacity to effectively implement the provisions of this ESMF. The key personnel from these agencies will be required to attend training workshops on ESMF implementation to be organized by the PCU. In addition, they will have to seek advice from PCU's Safeguards Officer on all environmental and social issues of the ERT III that may arise. Overall, the implementing agencies have inadequate capacity to effectively handle social issues and challenges of the ERT III. REA will recruit a Social Development Specialist in the next financial year (2014/2015) to build in-house capacity.

10.2 Key Issues and Recommendations

e. There is a lot of misinformation in the communities on the proposed project which is mixed with far-fetched expectations on compensation, provision of free electricity to the communities and associated benefits. This state of information can be a potential risk to the smooth implementation of the project. To counter this, there should be a robust sensitization and awareness

Project on ERT III to prepare the target communities on the project before its implementation;

f. During the public consultations, stakeholders observed the need for Government to ensure that, the grid extension and intensification lines should to the extent possible, be restricted to the road reserve to avoid anxiety and undue expectations from the local population with regards to compensation. However, where distribution lines cross sections of wood lots especially at road sides, under such instances, the concerned landlords or institutions should be compensated for the loss and damage to the sections of the woodlots affected by the project;

g. Furthermore, grid extension and intensification works will involve erection of distribution lines across wetlands and protected areas. Such ecosystems are habitats of birds and associated biodiversity. Instances of bird collision with such power lines are reportedly common across such ecosystems. This ESMF provides for horizontal alignment of conductors in wetland areas to reduce bird electrocution;

h. More often than not, attention on environmental aspects of ERT projects has tended to focus on environmental and social aspects of grid extension and intensification components without corresponding attention given to PV components yet these equally have a potential to cause serious environmental and social impacts. It is suggested that, right from the procurement of PV equipment, environmental and social compliance measures should be integrated especially their waste management and disposal.

10.3 Recommendations for Inclusion of Gender Aspects

In analysis and consultation:

i) During the preparation of ESIA and RAP, special attention be given to identifying potential gender-specific issues, and where applicable that the gender issues are properly addressed. ii) Consultation would include a balance of men and women for both voices to be heard;
ii) Ensure that the process of electrification of social and community buildings (health, education, etc.) as well as expanding access to electricity for the promotion of economic activities in rural areas includes a balance of men women during consultations and outreach;
iii) Explore the possibility to expand the distribution of solar lamps and all off-grid component to organizations dedicated to social and economic empowerment of women and women championed households/families;
iv) Awareness: integrate a gender dimension and promotion of economic and poverty alleviation importance into consumer awareness and promotion campaigns; and
v) At Project implementation and in capacity-building: Include gender issue sensitization into capacity building for rural energy actors

vi) For **M&E:** Based on the gender specific activities/actions – indicators can be developed on # of men/women engaged, consulted, accessed, etc. in the ESMF and specific components to be incorporated in the overall reporting framework

Overall: Since the above are a few areas that modify to integrate gender and poverty mainstreaming, the ESMF recommends a study to assess gender and poverty alleviation issues during the first year and a detailed integration during the first year. Tors will be prepared by the implementing agencies in consultation with the Bank.

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12 ANNEXES

Annex 1: Environmental and Social Screening Form

Please type or print clearly, completing this form in its entirety. You may provide additional information on a separate sheet of paper if necessary. Kindly note that the information you are to provide is required by Section 22 of the National Environment Act Cap 153.

Component under ERT III	
Name of Subproject	
Project Objective	
Expected Commencement Date	
Proposed Main Project Activities	
Location (District, Parish, Village)	
Name of Evaluator	

BRIEF DESCRIPTION OF THE PROPOSED PROJECT

EMPLOYEES AND LABOURERS

Number of people to be employed: Employees and Labourers	During Construction	During Routine Operation
FULL-TIME		
PART-TIME		

DESCRIPTION OF PROCESS THAT COULD BE IMPLEMENTED

Briefly describe the type and nature or type of the project at the site.

List the type and quantity of raw materials to be used in the project and highlight their sources

Material	**Quantity**	**Source**

POTENTIAL ENVIRONMENTAL IMPACTS

Please indicate environmental impacts that may occur as a result of the proposed project.

A. The Biological Environment

The Natural Environment

Describe the habitats and flora and fauna in the project area and in the entire area expected to be affected by the sub-project (e.g., downstream areas, access roads):

_____

Will the project directly or indirectly affect:

Natural forest types?

Swamps?

Wetlands (i.e., lakes, rivers, swamps, seasonally inundated areas)?

Natural critical habitats (parks, protected areas)?

Other habitats of threatened species that require protection under Ugandan laws and/or international agreements?
YES _____ NO _____

Are there according to background research/observations any threatened/ endemic species in the project area that could be affected by the project?
YES _____ NO _____

Will vegetation be cleared? If yes, please state the distance/length of affected area
YES _____ NO _____

Will there be any potential risk of habitat fragmentation due to the clearing activities?
YES _____ NO _____

Will the project lead to a change in access, leading to an increase in the risk of depleting biodiversity resources?
YES _____ NO _____

Provide an additional description for "yes" answers:

_____

Protected Areas

Does the subproject area or do subproject activities:

Occur within or adjacent to any designated protected areas?
YES _____ NO _____

Affect any protected area downstream of the project?
YES _____ NO _____

Affect any ecological corridors used by migratory or nomadic species located between any protected areas or between important natural habitats (protected or not) (e.g., mammals or birds)?

YES _____ NO _____

Provide an additional description for "yes" answers:

_____

Invasive Species
Is the sub-project likely to result in the dispersion of or increase in the population of invasive plants or animals (e.g., along distribution lines)?
YES _____ NO _____

Provide an additional description for a "yes" answer:

_____

B. The Physical Environment
Geology/Soils

Will slope or soil stability be affected by the project? YES _____ NO _____
Will the subproject cause physical changes in the project area (e.g., changes to the topography)? YES _____ NO _____

Will local resources, such as rocks, wood, sand, gravel be used?
YES ____ NO ____
Could the subproject potentially cause an increase in soil salinity in or downstream the project area? YES _____ NO _____

Could the soil exposed due to the project potentially lead to an increase in lixiviation of metals, clay sediments, or organic materials? YES _____ NO _____

_____

Landscape / Aesthetics

Is there a possibility that the sub-project will adversely affect the aesthetics of the landscape?
YES _____ NO ____

_____

Pollution
Will the sub-project use or store dangerous substances (e.g., large quantities of hydrocarbons)? YES _____ NO _____

Will the subproject produce harmful substances? YES _____ NO _____
Will the subproject produce solid or liquid wastes? YES _____ NO _____
Will the subproject cause air pollution? YES _____ NO _____
Will the subproject generate noise? YES _____ NO _____
Will the subproject generate electromagnetic emissions? YES ____ NO _____
Will the subproject release pollutants into the environment? YES ____ NO ____

_____

C. The Social Environment

Land Use, Resettlement, and/or Land Acquisition

Describe existing land uses on and around the sub-project area (e.g., community facilities, agriculture, tourism, private property, or hunting areas):

_____

Are there any land use plans on or near the sub-project location, which will be negatively affected by subproject implementation? YES ____ NO ____

Are there any areas on or near the subproject location, which are densely populated which could be affected by the sub-project? YES _____ NO _____

Are there sensitive land uses near the project area (e.g., hospitals, schools)?
YES ____ NO____

Will there be a loss of livelihoods among the population? YES ____ NO ____

Will the sub-project affect any resources that local people take from the natural environment? YES _____ NO _____

Will there be additional demands on local water supplies or other local resources?
YES _____ NO _____

Will the sub-project restrict people's access to land or natural resources?
YES ____ NO ____

Will the project require resettlement and/or compensation of any residents, including squatters?
YES _____ NO _____

Will the subproject result in construction workers or other people moving into or having access to the area (for a long time period and in large numbers compared to permanent residents)?
YES ____ NO _____

Who is/are the present owner(s)/users of resources/infrastructures the subproject area?

_____

Loss of Crops, Fruit Trees, and Household Infrastructure

Will the subproject result in the permanent or temporary loss of:

Crops?

Fruit trees / coconut palms?

Household infrastructure?

Any other assets/resources?

Occupational Health and Safety, Health, Welfare, Employment, and Gender
Is the sub-project likely to safeguard worker's health and safety and public safety (e.g., occupational health and safety issues)? YES _____ NO _____

How will the project minimize risk of HIV/Aids?

How will the sub-project minimize the risk of accidents? How will accidents be managed, when they do occur?
_____
Is the project likely to provide local employment opportunities, including employment opportunities for women? YES _____ NO _____

Provide an additional description for "yes" answers:
_____
Historical, Archaeological, or Cultural Heritage Sites

Based on available sources, consultation with local authorities, local knowledge and/or observations, could the sub-project alter:

Historical heritage site(s) or require excavation near the same? YES ____ NO _____

Archaeological heritage site(s) or require excavation near the same? YES ____ NO ____
Cultural heritage site(s) or require excavation near the same? YES _____ NO ____

Graves, or sacred locations (e.g., fetish trees or stones) or require excavations near the same?
YES _____ NO _____

Note: If any of the responses above is yes, then the project is not ESIA exempt, and therefore a project brief should be prepared at the minimum, otherwise an ESMP should suffice for category C and B projects.

CERTIFICATION
We certify that we have thoroughly examined all the potential adverse effects of this subproject.
Reviewer: ……
Name: ……..
Signature: ……
Date: ……

Annex 2: Environmental and Social Checklist Form

(a) Hydropower and Geothermal Projects

Issues	**Mitigation Measures**
Natural Habitat Disturbance	• Strengthening local authorities and conservation personnel responsible for managing natural resources • Public Awareness Programme • Agricultural extension programmes • Provision for energy (kerosene subsidies and wood fuel lots as required during the construction period) • Avoidance of significant areas during pre-construction and construction phases • Downstream flow releases to maintain aquatic habitats
Community Health and Safety	Communities near or on-site should be informed of project activities ahead of time especially if it affects their use of resources (water etc.) • Placement of access deterrents, such as fences and warning signs, to prevent access and warn of existing hazards; • Minimizing the length of necessary pipeline systems; • Consideration of the feasibility of subsurface pipelines orheat shields to prevent public contact with hot geothermal pipelines; • Managing closure of infrastructure such as pipelines and access roads, including: cleaning, disassembly, and removal of equipment; analysis of soil quality with cleanup where warranted; re-vegetation of site and blockade; and reclamation of access roads where necessary; • Siting of potential significant emissions sources with consideration of hydrogen sulfide gas exposure to nearby communities (considering key environmental factors such as proximity, morphology and prevailing wind directions); • Installation of a hydrogen sulfide gas monitoring network with the number and location of monitoring stations determined through air dispersion modeling, taking into account the location of emissions sources and areas of community use and habitation; • Continuous operation of the hydrogen sulfide gas monitoring systems to facilitate early detection and warning; • Emergency planning involving community input to allow for effective response to monitoring system warnings.
Water and soil quality	• Elaboration of a comprehensive geological and hydrogeological model including overall geological, structural and tectonic architecture, reservoir size, boundaries, geotechnical and hydraulic host rock properties; • Completion of a hydrogeological and water balance assessment during the project planning stage to identify hydraulic interconnections between the geothermal extraction and reinjection points and any sources of potable water or surface water features; • Isolation of steam producing sources from shallow erhydrologic formations which may be used as sources of potable water through careful site selection and properly designed and installed well casing systems; • Avoiding negative impacts on surface water by introducing strict discharge criteria and appropriate means to bring water quality and temperature to acceptable standards. • Minimum bypass flows • Measures to reduce organic and inorganic waste runoff into water systems

	• Appropriate material handling, storage and disposal systems • Appropriate disposal of waste materials • Establish appropriately designed landfill sites • Restrictions on blasting • Appropriate locations for handling, storing and disposing of oil products and other harmful chemicals • Limited use of pesticides
Erosion and sedimentation	• Appropriate drainage, erosion prevention and modified construction techniques during the construction period • Site re-vegetation programme • Installation of settlement ponds and sediment traps
Management of Drilling Fluids and Cuttings for Geothermal Projects	• Recovery and storage of oil-based drilling fluids and cuttings in dedicated storage tanks or sumps, lined with an impervious membrane, prior to treatment (e.g. washing), recycling, and / or final treatment and disposal; • Reuse of drilling fluid, where feasible; • Disposal of water-based drilling fluids into the bore hole following toxicity assessment. Water-based cuttings are typically reused if they are non-toxic (e.g. as construction fill) or disposed of in a landfill facility; • During acid treatment of wells, use of leak-proof well casings to a depth appropriate to the geological formation in order to avoid leakage of acidic fluids to groundwater.
Occupational Health and Safety	• Installation of hydrogen sulfide monitoring and warning systems. The number and location of monitors should be determined based on an assessment of plant locations prone to hydrogen sulfide emission and occupational exposure; • Development of a contingency plan for hydrogen sulfide release events, including all necessary aspects from evacuation to resumption of normal operations; • Provision of facility emergency response teams, and workers in locations with high risk of exposure, with personal hydrogen sulfide monitors, self-contained breathing apparatus and emergency oxygen supplies, and training in their safe and effective use; • Provision of adequate ventilation of occupied buildings to avoid accumulation of hydrogen sulfide gas; • Development and implementation of a confined space entry program for areas designated as 'Confined Spaces'; • Reducing the time required for work in elevated temperature environments and ensuring access to drinking water; • Shielding surfaces where workers come in close contact with hot equipment, including generating equipment, pipes etc.; • Use of personal protective equipment (PPE) as appropriate, including insulated gloves and shoes; • Implementing appropriate safety procedures during the exploratory drilling process.
Impacts on Landscape	• Considerations of aesthetic and cultural values in design of project features • Re-vegetation programme
Loss of Cultural Property	• Consultations with local leaders and spiritual leaders to identify important sites and avoidance of important site disturbance • Provisions for relocation of important cultural sites • Funds for conducting necessary rituals and ceremonies related to beliefs
Involuntary Resettlement	• Avoid silting infrastructure where people will be disturbed and where resettlement could be an issue • Consultations with affected persons

	• Prepare and implement resettlement plan and alternatives for affected persons • Cash compensation based on District assessment rates for loss of up to 25% of property or production • Relocation support and livelihood development plan for those affected by more than 25% of property or production • Affected peoples given opportunity to identify potential settlement areas • Host communities brought into the planning process for resettlement • Strengthening of local authorities and line agencies responsible for carrying out resettlement and agricultural extension and possible involvement of local NGOs
Health and safety	• Strengthening existing health facilities – perhaps with the active involvement of NGOs as support • Health awareness programmes – hygiene, malaria and other water-borne diseases and STDs • Supervision of health facilities and worker safety measures during construction period • Provisions to ensure safe drinking water • Ensure effective sewage treatment and properly designed and managed camps to avoid insect and mammal disease carriers • Ensure safety training for workers, safety equipment for workers, and provide safe work conditions and safety management and inspections
International Agreements	• Review of all relevant international agreements as required for projects
	•

(b) Grid Extension Projects

Issues	**Mitigation Measures**
Natural Habitat Disturbance	• Strengthening local authorities and conservation personnel responsible for managing natural resources • Public Awareness Programme • Agricultural extension programmes • Provision for energy (kerosene subsidies and wood fuel lots as required during the construction period) • Avoid disturbance of important areas of biodiversity • Avoid placement of transmission lines across bird flyways and provide devices that will discourage birds from flying into lines and nesting on pylons
Erosion and sedimentation	• Drainage and erosion prevention and modified construction techniques during the construction period • Re-vegetation programme
Community Health and Safety	• Communities near or on-site should be informed of project activities ahead of time especially if it affects their use of resources (traffic for example, etc.) • Extensive public consultation during the planning of powerline and power line right-of-way locations; • Accurate assessment of changes in property values due topower line proximity; • Siting power lines, and designing substations, with due consideration to landscape views and important environmental and community features; • Location of high-voltage transmission and distribution lines in less populated areas, where possible; • Use of signs, barriers (e.g. locks on doors, use of gates, use of steel posts surrounding transmission towers, particularly in urban areas), and education

	/public outreach to prevent public contact with potentially dangerous equipment; • Grounding conducting objects (e.g. fences or other metallic structures) installed near power lines, to prevent shock. For more detailed guidelines, refer to the World Bank Group's Environmental, Health, and Safety Guidelines for Electric Power Transmission and Distribution.
Worker Health and Safety	• Only trained and certified workers will be allowed to install, maintain, or repair electrical equipment; • Ensuring that live-wire work is conducted by trained workers with strict adherence to specific safety and insulation standards. • Testing structures for integrity prior to undertaking work; • Implementation of a fall protection program that includes training in climbing techniques and use of fall protection measures; inspection, maintenance, and replacement offall protection equipment; and rescue of fall-arrested workers, among others; • Safety belts should be of not less than 16 millimeters (mm)(5/8 inch) two-in-one nylon or material of equivalent strength. Rope safety belts should be replaced before signs of aging or fraying of fibers become evident; • When operating power tools at height, workers should usea second (backup) safety strap; • Signs and other obstructions should be removed from poles or structures prior to undertaking work; • An approved tool bag should be used for raising or lowering tools or materials to workers on structures. • Training of workers in the identification of occupational EMF levels and hazards; • Establishment and identification of safety zones to differentiate between work areas with expected elevated EMF levels compared to those acceptable for public exposure, limiting access to properly trained workers; For more detailed guidelines, refer to the World Bank Group's Environmental, Health, and Safety Guidelines for Electric Power Transmission and Distribution.
Water and soil quality	• Appropriate locations for handling, storing and disposing of oil products and other harmful chemicals • Limited use of pesticides
Involuntary resettlement	• Avoid silting infrastructure where people will be disturbed and where resettlement could be an issue • Consultations with affected persons • Prepare and implement resettlement plan and alternatives for affected persons • Cash compensation based on District assessment rates for loss of up to 25% of property or production • Relocation support and livelihood development plan for those affected by more than 25% of property or production • Affected peoples given opportunity to identify potential settlement areas • Host communities brought into the planning process for resettlement • Strengthening of local authorities and line agencies responsible for carrying out resettlement and agricultural extension and possible involvement of local NGOs
Impacts on Landscape	• Considerations of aesthetic and cultural values in design of project features • Re-vegetation programme
Loss of Cultural Property	• Avoidance of all culturally important sites

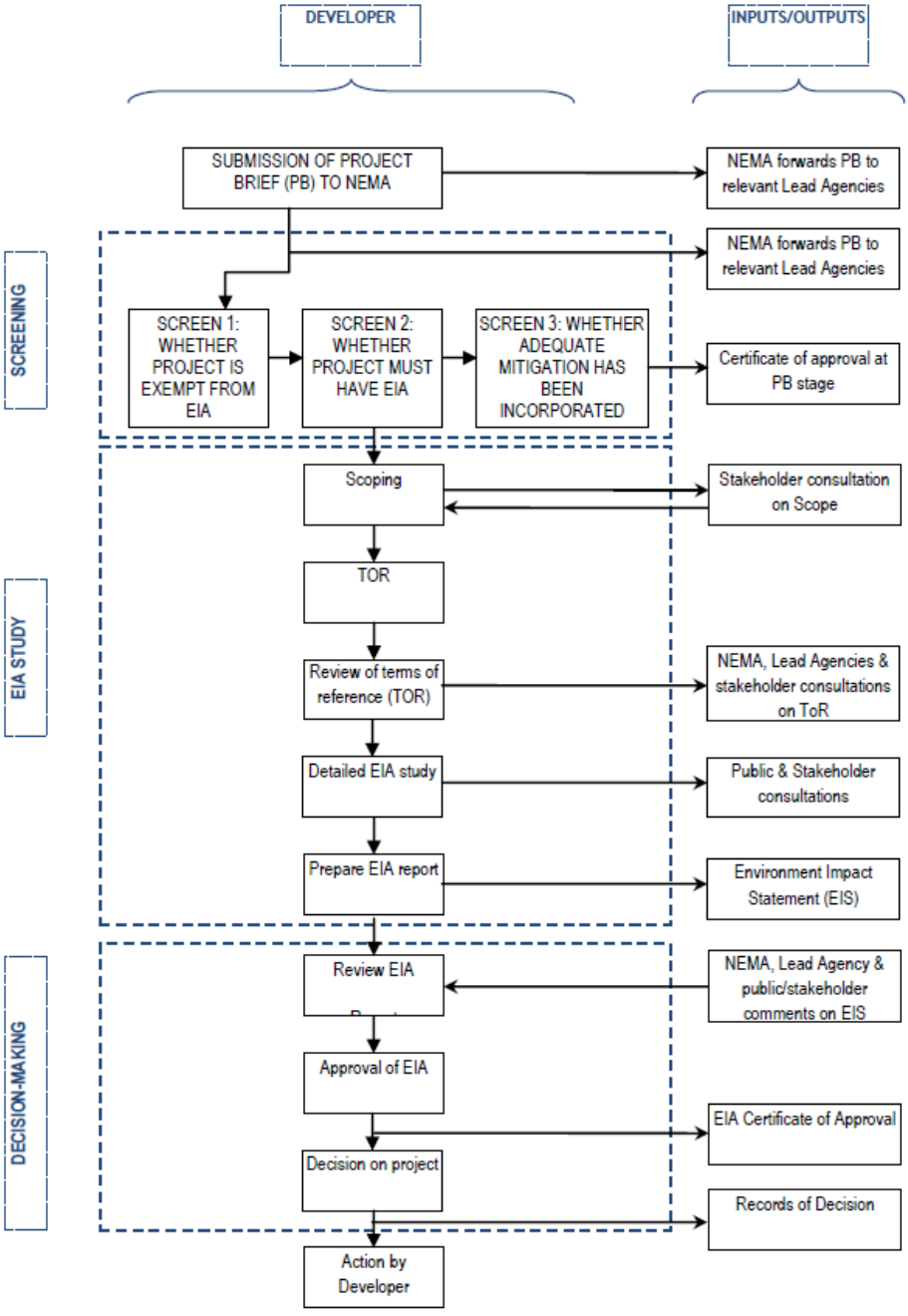
(c)PV System Projects

Issues	Mitigation Measures
Impacts on Landscape	• Considerations of aesthetic and cultural values in design of project features
Loss of Cultural Property	• Avoidance of all culturally important sites
Resettlement	• Avoid disturbing existing land use patterns and inhabited areas or alterations of existing structures • Consultations with affected persons if required • Mechanism for prompt and fair payments, monitoring and grievance procedures if necessary

Annex 3: Detailed ESIA Process in Uganda

Overview

The ESIA guidelines (NEMA 1997) and the ESIA regulations (NEMA 1998) recognize the following stages in an ESIA process: Project Brief formulation; Screening; Environmental impacts study; and Decision making. In addition public consultation is required throughout the ESIA process.



(Source: ESMF MoES, 2013)

The EIA process in Uganda as described is initiated by the submission of a project brief – a document that contains the same sorts of information that are in the ESSF and a format for which is contained in the EIA guidelines. Once the information is judged to be complete, NEMA requests comments from the lead agency and then screens the project. The Executive Director has three options: (a) approve the proposed project, if the EIA is not mandatory and the project brief includes adequate mitigation measures, or (b) request the developer to prepare an Environmental and Social Impact Study (ESIS) if a decision cannot be made on the basis of the project brief. If REA's Environmental Specialist has ascertained that the project is on the mandatory ESIA list, NEMA state that the project brief stage is normally omitted, moving straight into the ESIA process. If the decision is for an ESIS, the proponent obtains NEMA approval of the proposed ESIA consultant, conducts a scoping exercise, and agrees with NEMA on the study terms of reference. The study is conducted, and culminates in submission of an Environmental Impact Statement (ESIS) to NEMA for review and decision. Stakeholder consultation is mandatory at scoping, Terms of Reference preparation, during the environmental study, and preparation of the draft Environmental and Social Impact Statement (ESIS). The content of an ESIS, as specified in the EIA regulations, covers the recognized elements of environmental and social assessment good practice, including consideration of technical and site alternatives and induced and cumulative impacts.

The EIA Regulations (First Schedule) list the issues to be considered in an EIA, including:

- Biodiversity
- Ecosystem maintenance
- Fragile ecosystems
- Social considerations including employment generation, social cohesion or disruption, immigration or emigration, local economy
- Effects on culture and objects of cultural value
- Visual impacts

Preparation of Project Brief

According to the National Environment Act, "project brief" means a summary statement of the likely environmental effects of a proposed development referred to in section 19 of the Act. Unlike the ESIA, a project brief does not require a scoping report and neither submission of terms of reference for approval by NEMA.

According to Regulation 5 of the ESIA Regulations, 2006, a Project Brief is supposed to contain the following:

- the nature of the project in accordance with the categories identified in the Third Schedule of the Act;
- the projected area of land, air and water that may be affected;
- the activities that shall be undertaken during and after the development of the project;
- the design of the project;

- the materials that the project shall use, including both construction materials and inputs;
- the possible products and by-products, including waste generation of the project;
- the number of people that the project will employ and the economic and social benefits to the local community and the nation in general;
- the environmental effects of the materials, methods, products and by-products of the project, and how they will be eliminated or mitigated;
- Any other matter which may be required by the Authority.

If the Executive Director is satisfied that the project will have no significant impact on the environment, or that the Project Brief discloses sufficient mitigation measures to cope with the anticipated impacts he may approve project. The Executive Director of NEMA or his delegated official shall then issue a Certificate of Approval for the project. However, if the Executive Director finds that the project will have significant impacts on the environment and that, the Project Brief does not disclose sufficient mitigation measures to cope with the anticipated negative impacts, he shall require that, the developer undertakes an ESIA for the planned project.

Environmental Screening

The purpose of screening is to assist categorize the type of ESIA required for the project i.e. does it require a full ESIA, a Project Brief or no ESIA at all is required. This is important to enable the application of the appropriate ESIA level based on the project's anticipated levels of significant impacts as elaborated in the National Environment (EIA) Guidelines 1997.

Scoping and Preparation of ToRs

Scoping is the initial step in the ESIA process. Its purpose is to determine the scope of work to be undertaken in assessing the environmental impacts of the proposed project. It identifies the critical environmental impacts of the project for which in-depth studies are required, and elimination of the insignificant ones. The scoping exercise should involve all the project stakeholders so that consensus is reached on what to include or exclude from the scope of work. It is also at this stage that project alternatives are identified and taken into consideration. The contents of the scoping report are the same as the project brief; however, more detail is likely to be needed. This may involve some preliminary data collection and fieldwork. The Developer takes the responsibility for scoping and prepares the scoping report after consultation with NEMA, Lead Agencies and other stakeholders. The developer with assistance from technical consultants will draw up the ToRs for the ESIS and submit a copy to NEMA that shall in turn be forwarded to Lead Agencies for comments, in this case including the District Environment Officer.

Preparation of the ESIS

In preparing an ESIS, relevant information is collected on issues of real significance and sensitivity. These are then analyzed, mitigation measures developed for the adverse impacts and compensatory measures recommended for unmitigated environmental impacts. Measures aimed at enhancing beneficial or positive

impacts are also given. An ESIS documents the findings and is submitted to NEMA by the developer.

Review of ESIS and Decision on Project

The Developer is required to submit ten (10) copies of the ESIS to NEMA for review and approval. NEMA then forwards a copy to the Lead Agencies for comments. NEMA in consultation with the Lead Agencies shall review the contents of the ESIS, paying particular attention to the identified environmental impacts and their mitigation measures, as well as the level of consultation and involvement of the affected stakeholders in the ESIS process. In this review, the level to which the ToRs set out for the study is addressed shall be considered. In making a decision about the adequacy of the ESIS, NEMA shall take into account the comments and observations made by the Lead Agencies, other stakeholders and the general public. NEMA may grant permission for the project with or without conditions, or refuse permission. If the project is approved, the Developer will be issued a Certificate of Approval.

Environmental and Social Management Plan

The Environmental and Social Management Plan (ESMP) is intended to ensure efficient management of environmental and social issues in subprojects. The ESMP consists of:

- The relevant project activities,
- The potential negative environmental and social impacts,
- The proposed mitigating measures,
- The institutions responsible for implementing the mitigation measures,
- The institutions responsible for monitoring the implementation of the mitigation measures and the frequency of the afore-mentioned measures;
- Capacity building needs and
- The cost estimates for these activities.

In many cases, ERT III will likely have sub-projects, most of which are small in nature without significant environmental impacts. This calls for ESMP specific actions to mitigate these impacts and conforming to the obligations stipulated in the screening exercises, the environmental checklists and all legal instruments in force. At the time of the implementation of the sub-projects, the potential environmental and social impacts must be clearly identified and a management plan formulated, implemented and the plan's performance monitored during and after execution of sub-project activities. The impacts must be avoided or neutralized where possible or mitigated in conformity with Uganda's and the World Bank's prescriptions for sound environmental management.

Environmental Management and Monitoring Plan

Monitoring is the continuous and systematic collection of data in order to assess whether the environmental objectives of the project have been achieved. Good practice demands that procedures for monitoring the environmental performance of proposed projects are incorporated in the ESIS. Monitoring provides information on the occurrence of impacts. It helps identify how well mitigation measures are

working, and where better mitigation may be needed. The monitoring program should identify what information will be collected, how, where and how often. It should also indicate at what level of effect there will be a need for further mitigation. How environmental impacts are monitored is discussed below.

- Responsibilities in terms of the people, groups, or organizations that will carry out the monitoring activities be defined, as well as to whom they report amongst others. In some instances, there may be a need to train people to carry out these responsibilities, and to provide them with equipment and supplies;
- Implementation Schedule, covers the timing, frequency and duration of monitoring are specified in an implementation schedule, and linked to the overall sub project schedule;
- Cost Estimates and Source of resources for monitoring need to be specified in the monitoring plan;
- Monitoring methods need to be as simple as possible, consistent with collecting useful information, so that the sub project implementer can apply them.
- The data collected during monitoring is analyzed with the aim of:
  - Assessing any changes in baseline conditions;
  - Assessing whether recommended mitigation measures have been successfully implemented;
  - Determining reasons for unsuccessful mitigation;
  - Developing and recommending alternative mitigation measures or plans to replace unsatisfactory ones; and
  - Identifying and explaining trends in environment improvement or degradation.

Public Consultation

The environmental impacts or effects of a project will often differ depending on the area in which it is located. Such impacts may directly or indirectly affect different categories of social groups, agencies, communities and individuals. These are collectively referred to as project stakeholders or the public. It is crucial that during the ESIA process, appropriate mechanisms for ensuring the fullest participation and involvement of the public are taken by the developer in order to minimize social and environmental impacts and enhance stakeholder acceptance. An effective consultation process should generally ensure that:

- The public has a clear understanding of the proposed project; and
- Feedback mechanisms are clearly laid out and known by parties involved.

Different stages of the ESIA process require different levels of public consultation and involvement. The key stages are:

- Public consultation before the commissioning of the ESIS;
- Public consultation during the ESIS; and
- Public consultation during ESIS review.

Consultation can be before, during the ESIA study or during its review as outlined below:

Consultation before the ESIA

On submission of the project brief to NEMA, it might be decided that views of the public on the project are sought. NEMA is obliged to publish the developer's notification and other relevant documents in a public notice within 4 weeks from the date of submission of the project brief and/or notice of intent to develop. It is important therefore, that a plan for stakeholder involvement is prepared before the ESIS begins. Such a plan should consider:

- The stakeholders to be involved;
- Matching of stakeholders with approaches and techniques of involvement;
- Traditional authority structures and political decision-making processes;
- Approaches and techniques for stakeholder involvement;
- Mechanisms to collect, synthesize, analyze and, most importantly, present the results;
- The ESIS team and key decision-makers;
- Measures to ensure timely and adequate feedback to the stakeholders;
- Budgetary/time opportunities and constraints; and

Pubic consultation during the ESIS

During the ESIS, the study team should endeavor to consult the public on environmental concerns and any other issues pertaining to the project. Though consultations are very critical at the scoping stage, ideally, it should be an on-going activity throughout the study. During the ESIS review, the public is given additional opportunity for ensuring that their views and concerns have been adequately addressed in the ESIS. Any earlier omissions or oversight about the project effects can be raised at this stage. To achieve this objective, the ESIS and related documents become public after submission to NEMA. An official review appointment will be announced, where the reviewing authority has to answer questions and remarks from the public. These questions have to be handed in writing prior to the meeting.

Annex 4: Generic ToRs for Environmental and Social Impact Assessment (ESIA) for ERT III Projects

Background

The Introduction indicates the purpose of the ESIA, presents an overview of the proposed project to be assessed, as well as the project's purpose and needs. It shall also briefly give the background information on the subproject as well as the need for the ESIA in line with national environmental policies and legislations.

Objectives of ESIA study

The main objective of the ESIA should be stated. The environmental and social impacts study should take into consideration all environmental and social impacts of the proposed subproject activities and identify the main environmental and social aspects that are likely to be raised by key stakeholders in order to optimize the project from the environmental and social point of view, by avoiding, minimizing, reducing or off-setting negative and enhancing positive impacts.

ESIA Study Methodology

1. **Desk Research and Literature Review**

The consultant shall perform a comprehensive literature review of key documents related to environmental, security, occupational health and safety legislation, policies, guidelines, manuals, procedures, practices, international best practices related to the project. The appropriate Field tools including questionnaires, data collection forms etc. shall then be developed.

2. **Site Investigation**

The consultant shall visit the project area with the aim of identifying the following:

- Physical-cultural and historical sites
- Noise sensitive areas
- Wildlife habitats, feeding, and crossing areas
- Proximity to residential places, road network, recreational activities etc.
- Hydrological setting

3. **Public and Institutional Consultations**

The consultant shall carry out extensive consultations with all key stakeholders including but not limited to the following:

- NEMA
- MEMD
- PSFU
- MoES
- MoH
- ERA
- REA
- District Local Government Officials
- The Business Communities

4. **Analysis of Project Alternatives**

The Consultant shall identify and systematically, undertake comparison of the potential Project Alternatives taking into account environmental and social factors such as:

- Sites – Assess suitability of the site and potential alternative sites;
- No-Project Scenario: This will include the alternative of not having the project to demonstrate environmental, social, and economic conditions without it.

5. Impact Analysis

The consultant shall evaluate potential project impacts considering planning, construction, and operation stages which shall cover social, ecological, and environmental issues. Identification of impacts shall include positive and negative impacts, direct and indirect impacts, and immediate and long-term impacts, unavoidable or irreversible impacts. The assessment of the potential impacts will also include; landscape impacts of excavations and construction, loss of nature features habitats and species by construction and operation, soil contamination impacts, noise pollution, soil waste, and socio-economic and cultural impacts.

Due to the recent increase in renewable energy developments in Uganda, it is important to follow a precautionary approach to ensure that the potential for cumulative impacts are considered and avoided where possible. Cumulative impacts shall be assessed by combining the potential environmental and social impacts of the proposed ERT III project with the impacts of substantial projects that have occurred in the past, are currently occurring, or are proposed or planned in the future within the proposed Project cumulative impact corridor.

For the case of hydropower projects, the Consultant shall assess both the effects on the baseline situation and the cumulative effects on a set of pre-identified Values Environmental Components (VECs) of the project in combination with other feasible foreseen future hydropower developments (i.e. Cascading dams in the same watershed),as well as other development activities (including non-hydropower) either currently underway or planned in the watershed which may have impacts that reasonably could interact with project-related impacts to generate a cumulative effect. These assessments will be based upon a compilation of information from existing hydrological and power generation studies as well as regional development plans. The selection of the VECs to be the focus of the analysis should take into account stakeholder inputs.

6. Preparation of the ESMP

Depending on the relevance of each impact identified, specific corrective measures have to be identified in order to mitigate the potential negative impacts and eventually to strengthen the positive ones. Mitigation measures could consist of the integration of proposed actions into the designs of the respective components. Besides, appropriate measures can be taken to compensate negative impacts that can occur and cannot be avoided, design appropriate measures to reduce/eliminate the negative identified impacts, to tackle needs and problems pointed out by consultation with stakeholders, to improve local living conditions and

to promote local development. The Consultant will identify the appropriate measures that can be taken to maximize and/or enhance the positive impacts and avoid, reduce or minimize the negative impacts. He shall prescribe and present detailed tangible, practical relevant management/mitigation measures bearing in mind capacity restraints for those who have to implement and monitor their implementation, also bearing in mind the need to first avoid these impacts altogether, or to reverse them and then when these are not possible to manage them in an sustainable way. The ESMP will include measures to avoid, prevent, reduce, mitigate, remedy or compensate any adverse effects on the environment and social in relation to the respective construction and operation activities.

7. Capacity and Training Needs

The Consultant shall identify the institutional needs to implement the environmental and social assessment recommendations by reviewing the institutional mandates and capability of implementing institutions at local/district and national levels and recommend steps to strengthen or expand them so that the management and monitoring plans in the ESIA can be effectively implemented. The recommendations may extend to management procedures and training, staffing, and financial support.

8. Preparation of Environmental and Social Monitoring Plan

The Consultant will prepare a specific description, and details, of monitoring measures for the Environmental and Social Monitoring Plan including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, and definition of thresholds that will signal the need for corrective actions as well as deliver a monitoring and reporting procedure. The monitoring program would enable verification of the adequacy of the management plans and other mitigation measures identified in the ESMP, and would provide a basis for determination of any remedial measures or adjustments to management aspects if required. The Consultant should provide a time frame and implementation mechanism, staffing requirements, training and cost outlays.

Team Composition

The ESIA Experts for ERT III Subprojects shall comprise of experts proposed herewith. It is important that, the ESIA teams are constituted taking into account the prevailing conditions on the proposed subproject sites.

1. Environmental Management Specialist (Team Leader)

Key Qualifications:

He/she should possess the following qualifications:

- At least an MSc. Environmental Management, Natural Resource Management or Environmental Engineering and four years of experience or a good BSc degree with experience of at least6 years in conducting EIAs for infrastructure projects
- Should be registered with NEMA as an Environmental Practitioner and also certified as a Team Leader;
- .

Tasks:
He/she will perform the following roles:

- Provide overall coordination and leadership to an ESIA team;
- Take a leadership role in steering stakeholder consultations during ESIA for slaughterhouse projects;
- Play an inter-phase role between client, NEMA and other stakeholders during EIA process;
- Conduct site visits of planned subprojects;
- Identify impacts of the project activities on the social and associated environment items;
- Participate in the elaboration of technical, legal and regulatory norms to comply with environmental requirements in all the chain of project activities;
- Identify, assess and propose environmental mitigation measures for the ERT III subproject under study; and
- Prepare an ESMP for the project.

2. Occupational Health and Safety Specialist

Key qualifications:

- In addition to relevant formal training, should have undertaken training in OHS;
- Should have undertaken trainings in ESIA and or Environmental Audits;

Tasks:

- Participate in stakeholder consultations to discuss energy issues and safety aspects;
- provide OSH input throughout the assignment;
- provide public health aspects in the assignment;
- Participate in development ESIA for projects and participate in stakeholders' workshop.

3. Electrical Engineer

Key qualifications:

- Bachelors degree in electrical engineering related courses
- Must be registered by Institute of Engineers.
- Have at least 4 years of relevant experience

Tasks:

- Provide technical description on the project planned activities during its phases of implementation
- Take a lead in identifying environmental impacts from an engineering perspective;
- Participate in consultative meetings during the EIA process;
- Participate in the development of the ESIA report.

4. Ecologist

Key qualifications:

- Must have a postgraduate training in natural sciences (forestry, botany or zoology);
- Must have undertaken an ESIA training;
- Conducted at least 5 ESIAs studies in development projects.

Tasks:

- Take a lead in the ecological investigations of the project;
- Consult with stakeholder institutions on ecological aspects of the project;
- Review various literature sources on ecological matters of the projects; and
- Participate in write up of Environmental Impact Report

5. Socio-economist

Key qualifications:

- He/she should have undertaken postgraduate training in the fields of sociology, anthropology or social work or related social sciences;
- He/she should have conducted ESIAs with experience of at least 5 years; and
- Must be registered with NEMA.

Tasks:

- Take a lead in stakeholder consultations especially with the key stakeholders, local residents etc.;
- Provide socio-economic input/expertise throughout the assignment;
- Lead in the formulation of social survey instruments;
- Prepare reports relating to RAP and compensations; and
- Provide social input in the Environmental Impact Report.

6. AquaticEcologist

- **Key qualifications:**
  - Must have a postgraduate degree or training in natural sciences (fisheries, aquatic ecology or zoology);
  - Must have undertaken an ESIA training;
  - Conducted at least 5 ESIA studies in water resources development projects.

- **Tasks:**
  - Take a lead in all aquatic ecological assessments of the project;
  - Assess impacts on aquatic ecology including fish;
  - Consult with stakeholder institutions on ecological aspects of the project;
  - Participate in write up of Environmental and Social Impact Report.

7. Hydrologist

Key qualifications:

The Hydrologist shall possess proven experience in river management in developing countries. He/she shall have a minimum of BSc Degree qualification in a relevant field as well as post graduate qualifications in river management with a minimum of fifteen (15) years overall experience. Knowledge of sediment transport modeling in rivers will be an advantage.

Tasks:

- Review the hydropower designs and their potential impact on the river's hydrology;
- Assess the potential impacts of any river diversions or other activities;
- Overall evaluate the different dam safety designs

Expected Deliverables

The Consultant shall produce an ESIA report acceptable to REA, NEMA and the funding institution and the report shall include the following as per the requirements of Regulation 14 of the National (Environmental Impact Assessment) Regulations of Uganda:

a. the project description and the activities it is likely to generate;
b. the proposed site and reasons for rejecting alternative sites;
c. a description of the potentially affected environment including specific information necessary for identifying and assessing the environmental effects of the project;
d. the material in-puts into the project and their potential environmental effects;
e. an economic analysis of the project;
f. the technology and processes that shall be used, and a description of alternative technologies and processes, and the reasons for not selecting them;
g. the products and by-products of the project;
h. the environmental effects of the project including the direct, indirect, cumulative, short-term and long-term effects and possible alternatives;
i. the measures proposed for eliminating, minimizing, or mitigating adverse impacts;
j. an identification of gaps in knowledge and uncertainties which were encountered in compiling the required information;
k. an indication of whether the environment of any other State is likely to be affected and the available alternatives and mitigating measures;
l. such other matters as the Executive Director may consider necessary.

Annex 5: Chance Finds Procedures

Chance find procedures will be used as follows:

- Stop the construction activities in the area of the chance find;
- Delineate the discovered site or area;
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be present until the responsible local authorities and the Directorate of Museums and Monuments take over;
- Notify the supervisory Engineer who in turn will notify the responsible local authorities and the Directorate of Museums and Monuments under the Ministry of Tourism, Wildlife and Antiquities (within 24 hours or less);
- The Directorate of Museums and Monuments would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the archeologists of the Directorate of Museums and Monuments (within 24 hours). The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values;
- Decisions on how to handle the finding shall be taken by the Directorate of Museums and Monuments. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage;
- Implementation for the authority decision concerning the management of the finding shall be communicated in writing by the Directorate of Museums and Monuments; and
- Construction work could resume only after permission is given from the responsible local authorities and the Directorate of Museums and Monuments concerning safeguard of the heritage;
- These procedures must be referred to as standard provisions in construction contracts, when applicable. During project supervision, the Site Engineer shall monitor the above regulations relating to the treatment of any chance find encountered are observed;
- Construction work will resume only after authorization is given by the responsible local authorities and the National Museum concerning the safeguard of the heritage; and
- Relevant findings will be recorded in World Bank Implementation Supervision Reports (ISRs), and Implementation Completion Reports (ICRs) will assess the overall effectiveness of the project's cultural property mitigation, management, and activities, as appropriate.

Annex 6: Proposed ERT III Grid Areas

Proposed Grid-Extension Lines under ERT Phase III		
Item	**Description**	**Estimated km**
A	**West Nile**	
1	Wandi - Yumbe - Moyo	304.3
2	Onduparika – Odrmachaku – Abiria	41.5
	Sub-Total A	**345.8**
B	**Eastern**	
1	Kibaale - Kikalu, Namalemba - Nakalama & Namutumba - Mazuba	82
2	Kabowa - Lumuli - Budima	35
3	Bubiita - Bukalasi & Mayoka	50
4	Busitema - Busia	40
5	Wanale – Budwale and environs	50
6	Nampologoma, Namulo, Bufuja, Manyamye, Butenga and environs	50
	Sub-Total C	**307**
C	**Central**	
1	Gomba & Butambala	
	Kyabadaza - Masankwa, Nyanama, Mpenja - Maseruka, Kiriri - Kasasa, Mpenja - Nsambwe - Kononi - Mamba - Mauki	123
2	Nakifuma - Nagojje, Walusibi - Katogo - Mbaliga - Namele & Nakasajja - Kyampisi with tee-off Kasawo - Luwero	71.7
3	Kiganda - Mile 16 with tee-off Katabalanga & Kibyamirizi	109
	Sub-Total D	**303.7**
D	**North Western**	
1	Kibaale & Mubende	

	Mubende - Kyabayanga - Ngangi with tee-off Kahirimbara, Kibaale - Kikwaya & Karuguza SS, Kibonge, Buronzi, Katete, Nyamarunda, Kitoro & Kabale Pri Sch	134
2	Kiyagara – Bwizi, Biguri – Ntonwa, Ntara - Bwensamba	87.5
	Sub-Total E	**221.5**
E	**South**	
1	Masaka	
	Mitemula - Nakiyaga - Nkuke - Kyanamukaka with tee-offs Nkule - Ketengesa ,Bukeri - Namirembe & Baale Landing sites, Kyanamukaka - Butamo	125
	Sub-Total F	**125**
F	**South Western**	
1	Rukoni (Mail 36) - Rwoho - Ngugo - Bugamba	30
2	Bugangari - Rwenshama with tee-off to Mirama Sub county	80
	Sub-Total G	**80**
H	**Rwenzori**	
1	Karugutu - Ntoroko including Semiliki Safari Lodge	55
	Sub-Total H	**55**
G	**Central North**	
1	Ngeta - Ayala - Alito - Ogur - Apala - Aloi - Adwari - Patongo	103
2	Dokolo - Agwata HCIII, Aceng - Dokolo - Atur, Dokolo - Apapai - Tiriri & Otuboi - Orungo - Acuna	111
	Sub-Total I	**214**
H	**Mid-Western**	
1	Ruhumba - Kashwa with tee-off Rwebishuri	123

2	Kagongo - Rweshuri with tee-off Kigalama & Nyansimbo - Rwenkoobwa	53.7
	Sub-Total K	**176.7**
	Grand Total	**1,828.7**

(Source: Draft REA ERT III Working Project, 2013)

Annex 7: Summary of a Generic Environmental Management Plan for ERT III

Project Component	Project Activities	Project Impacts	Mitigation Measures	Project Phase	Surveillance		Mitigation Cost (USD)
					Responsible Entity	Frequency	
Component 01: Rural Energy Infrastructure	❖ Vegetation clearance ❖ *Pole hole digging,* ❖ Pole Framing, Erection and Installation of Stay wires, ❖ Conductor installations, ❖ Transformers putting up, ❖ Campsite/equipment yard erection, ❖ Line hardware Service drops ❖ Post Construction Clean up	❖ Soils erosion from loose soils; ❖ Loss of vegetation from site clearance; ❖ Management of construction waste at end of the project works; ❖ Likely bird kills by the distribution lines; ❖ OSH concerns from creosote on poles ❖ Potential contamination from transformer oils; ❖ May trigger some impacts on physical cultural resources such as graves amongst others; and ❖ Complaints over compensation for borrow and dump sites for cut to spoil materials.	❖ A Resettlement Policy Framework is in place to guide land uptake issues; ❖ Vegetation planting on the embankments; ❖ Securing disposal sites of cut to spoil materials; ❖ Site restoration and clean up at the end of the project; ❖ Restoration of borrow pits; ❖ Stock piling top soil for restoration of borrow areas; ❖ PCR Chance Finds Procedures have been prepared to remedy such issues; ❖ Compensation for the borrow areas and dumpsites as per available law and policies and RPF provisions; and ❖ Conducting ESIAs and Project Briefs.	Construction Operational	DEOs/District Engineers/REs/ MEMD/PCU/NEMA	Monthly	All the costs for mitigation measures to be embedded under project costs
Component 02: Energy	❖ Erection of PV solar systems for households,	❖ Management of waste batteries	❖ Preparation of Waste	Construction	DEOs/District Engineers/REA	Monthly	To be integrate

Project Component	Project Activities	Project Impacts	Mitigation Measures	Project Phase	Surveillance		Mitigation Cost (USD)
					Responsible Entity	Frequency	
Development, Cross-sectoral Impacts Monitoring	schools and health centers; ❖ Construction of mini-hydropower projects;	and solar panels, ❖ Impacts relating to small hydropower projects will be documented in details during their ESIAs and RAP studies.	Management Plan; Suppliers of solar panels to be responsible for their disposal and should be embedded in the procurement process; The RPF will provide measures for addressing resettlement and compensation issues.	Operations Construction phases.	/Implementing agency/NEMA		d into overall project budgets.
Component 03: Renewable Energy Development	This component will finance development of other renewable energy resources such as geothermal energy, studies for small hydropower development etc., and will be implemented by the MEMD. Technical Assistance provided under this component will finance the necessary consultancy services, capacity building and operations costs as agreed.	This component will have minimal impacts since its activities will be restricted to studies and technical assistance	Mainly to be based on operations of offices where the components will be implemented.				These are to be part of project budget.

Annex 8: Sample Contract Clauses for Civil Works

The following information is intended solely as broad guidance to be used in conjunction the national laws. Based on this information, environmental rules for contractors should be developed for each project, taking into account the subproject size, site characteristics, and location (rural vs. urban). After choosing an appropriate site and design, construction activities can proceed. As these construction activities could cause significant impacts on and nuisances to surrounding areas, careful planning of construction activities is critical. Therefore the following rules (including specific prohibitions and construction management measures) should be incorporated into all relevant bidding documents, contracts, and work orders.

Prohibitions

The following activities are prohibited on or near the project site:

- Cutting of trees for any reason outside the approved construction area;
- Hunting, fishing, wildlife capture, or plant collection;
- Use of unapproved toxic materials, including lead-based paints, asbestos, etc.
- Disturbance to anything with architectural or historical value;
- Use of firearms (except authorized security guards); and
- Use of alcohol by workers.

Protection of Archaeological and Historical sites

A clause for **"Protection of Archaeological and Historical Sites'** should be added to all bidding documents for the works contract which explains the steps to follow whenever new archaeological remains, antiquity or any other object of cultural or archaeological importance are encountered during construction.

Excavation in sites of known archaeological interest should be avoided. Where this is unavoidable, prior discussions must be held with the Department of Museums and Monuments in order to undertake pre-construction excavation or assign an archaeologist to log discoveries as construction proceeds. Where historical remains, antiquity or any other object of cultural or archaeological importance are unexpectedly discovered during construction in an area not previously known for its archaeological interest, the following procedures should be applied:

a. Stop construction activities.
b. Delineate the discovered site area.
c. Secure the site to prevent any damage or loss of removable objects. In case of removable antiquities or sensitive remains, a night guard should be present until the responsible authority takes over.
d. Notify the responsible foreman/archaeologist. Who in turn should notify the responsible authorities, Department of Museums and Monuments and local authorities (within less than 24 hours)
e. Responsible authorities would be in charge of protecting and preserving the site before deciding on the proper procedures to be carried out.
f. An evaluation of the finding will be performed by the Department of Museums and Monuments. The significance and importance of the findings will be

assessed according to various criteria relevant to cultural heritage including aesthetic, historic, scientific or research, social and economic values.

g. Decision on how to handle the finding will be reached based on the above assessment and could include changes in the project layout (in case of finding an irrevocable remain of cultural or archaeological importance), conservation, preservation, restoration or salvage.
h. Implementation of the authority decision concerning the management of the finding.
i. Construction work could resume only when permission is given from the Department of Museums and Monuments after the decision concerning the safeguard of the heritage is fully executed.

In case of delay incurred in direct relation to Archeological findings not stipulated in the contract (and affecting the overall schedule of works), the contractor may apply for an extension of time. However the contractor will not be entitled for any kind of compensation or claim other than what is directly related to the execution of the archeological findings works and protections

Construction Management Measures
Waste Management and Erosion:
Solid, sanitation, and, hazardous wastes must be properly controlled, through the implementation of the following measures:

Waste Management:

- Minimize the production of waste that must be treated or eliminated.
- Identify and classify the type of waste generated. If hazardous wastes (including health care wastes) are generated, proper procedures must be taken regarding their storage, collection, transportation and disposal.
- Identify and demarcate disposal areas clearly indicating the specific materials that can be deposited in each.
- Control placement of all construction waste (including earth cuts) to approved disposal sites (>300 m from rivers, streams, lakes, or wetlands).
- Dispose in authorized areas all of garbage, metals, used oils, and excess material generated during construction, incorporating recycling systems and the separation of materials.

Maintenance:

- Identify and demarcate equipment maintenance areas (>30m from rivers, streams, lakes or wetlands).
- Ensure that all equipment maintenance activities, including oil changes, are conducted within demarcated maintenance areas; never dispose spent oils on the ground, in water courses, drainage canals or in sewer systems.
- Identify, demarcate and enforce the use of within-site access routes to limit impact to site vegetation.
- Install and maintain an adequate drainage system to prevent erosion on the site during and after construction.

Erosion Control

- Erect erosion control barriers around perimeter of cuts, disposal pits, and roadways.
- Spray water on dirt roads, cuts, fill material and stockpiled soil to reduce wind-induced erosion, as needed.
- Maintain vehicle speeds at or below 10mph within work area at all times.

Stockpiles and Borrow Pits

- Identify and demarcate locations for stockpiles and borrow pits, ensuring that they are 30 meters away from critical areas such as steep slopes, erosion-prone soils, and areas that drain directly into sensitive water bodies.
- Limit extraction of material to approved and demarcated borrow pits.

Site Cleanup

- Establish and enforce daily site clean-up procedures, including maintenance of adequate disposal facilities for construction debris.

Safety during Construction

The Contractor's responsibilities include the protection of every person and nearby property from construction accidents. The Contractor shall be responsible for complying with all national and local safety requirements and any other measures necessary to avoid accidents, including the following:

- Carefully and clearly mark pedestrian-safe access routes.
- If school children are in the vicinity, include traffic safety personnel to direct traffic.
- Maintain supply of supplies for traffic signs (including paint, easel, sign material, etc.), road marking, and guard rails to maintain pedestrian safety during construction.
- Conduct safety training for construction workers prior to beginning work.
- Provide personal protective equipment and clothing (goggles, gloves, respirators, dust masks, hard hats, steel-toed and–shanked boots, etc.,) for construction workers and enforce their use.
- Post Material Safety Data Sheets for each chemical present on the worksite.
- Require that all workers read, or are read, all Material Safety Data Sheets. Clearly explain the risks to them and their partners, especially when pregnant or planning to start a family. Encourage workers to share the information with their physicians, when relevant.
- Ensure that the removal of asbestos-containing materials or other toxic substances be performed and disposed of by specially trained workers.
- During heavy rains or emergencies of any kind, suspend all work.
- Brace electrical and mechanical equipment to withstand seismic events during the construction.

Nuisance and dust control

To control nuisance and dust the Contractor should:

- Maintain all construction-related traffic at or below 15 mph on roads within 200 m of the site.
- Maintain all on-site vehicle speeds at or below 10 mph.
- To the extent possible, maintain noise levels associated with all machinery and equipment at or below 90 db.
- In sensitive areas (including residential neighborhoods, hospitals, rest homes, etc.) more strict measures may need to be implemented to prevent undesirable noise levels.
- Minimize production of dust and particulate materials at all times, to avoid impacts on surrounding families and businesses, and especially to vulnerable people (children, elders).
- Phase removal of vegetation to prevent large areas from becoming exposed to wind.
- Place dust screens around construction areas, paying particular attention to areas close to housing, commercial areas, and recreational areas.
- Spray water as needed on dirt roads, cut areas and soil stockpiles or fill material.
- Apply proper measures to minimize disruptions from vibration or noise coming from construction activities.

Community Relations

To enhance adequate community relations the Contractor should:

- Follow the Ugandan and EA requirements i.e. inform the population about construction and work schedules, interruption of services, traffic detour routes and provisional bus routes, as appropriate.
- Limit construction activities at night. When necessary ensure that night work is carefully scheduled and the community is properly informed so they can take necessary measures.
- At least five days in advance of any service interruption (including water, electricity, telephone, and traffic routes) advise the community through postings at the project site, and affected homes/businesses, or through any other means as deemed adequate.

Environmental Supervision during Construction

The bidding documents should indicate how compliance with environmental rules and design specifications would be supervised, along with the penalties for non-compliance by contractors or workers. Construction supervision requires oversight of compliance with the manual and environmental specifications by the contractor or his designated environmental supervisor. Contractors are also required to comply with national laws governing the environment, public health and safety.

Annex 9: Some of the Key Issues Raised During the Consultations

Meeting held on December 5, 2013 at Seeta- Nazigo Health Centre III, Mukono		
Name and Designation:	**Key issues**	**Response**
Seeta- Nazigo and Kirwanyi Communities	▪ The process of compensation and value for destroyed properties are not understood. At the start the Surveyor comes and surveys the plot plus the valuer who counts the plants but don't tell the owner the amount of the plants, before the plants are cut. ▪ The phase II people whose crops were cut twice were not paid but make sure that in ERT III they are paid. ▪ Land is not compensated for, it is only the crops, but yet such land cannot be used after the grid lines go through it. ▪ Local people are not given work in the project, contractors come with their workers. ▪ Put in place measures to compensate project affected person to avoid unnecessary grumbling and politicking. ▪ The electricity should reach the people and not end in the trading centers. ▪ People should be consulted and sensitized before their gardens are destroyed ▪ Communities should utilize their sub-counties and local leaders to get information and how to handle issues. ▪ There was no Grievance Officer or committees where we could report our complaints, or to handle our issues. We are told to write letters and take them to Head Office in Kamokya, where some of us don't know and we have not ever reach Mukono town either can we read and write. ▪ When should we start connect power to our houses and who is to be consulted?	▪ Communities should utilize their sub-counties and local leaders to get information and how to handle issues. ▪ The Grievance committee was to be initiated to handle complaints. You could also use the sub-county leaders to handle issues because in most cases they are aware of the project and able to handle resolve the issues raised ▪ It's in the law the individuals should be paid through filling a payment form. It's the district which determines the crops price rates then send it to the Chief Government valuer to verify the rates. All phases should also be paid. ▪ For connection to the house, Government is in process to start the connection of power to house through a scheme called Output-Based Aid- OBA ▪ Connection of power to houses should wait for commission of the line and also use qualified firms/ companies to do the wiring to avoid fire breakage after some time. ▪ Destroyed property outside the road

	▪ Usually these distribution line involve destruction of vegetation especially trees of a certain height. Will such losses be compensated for and at what rates? ▪ Our experience here is that crops were destroyed during construction without prior notification of the farmers and the grass thatched houses in the Right of Way damaged without any form of compensation.	reserve will be compensated

Meeting with: Nakalama Residents, Iganga district		
Purpose of meeting: To obtain stakeholder input into the Environmental and Social Management Framework (ESMF) for ERT III		
Date held & place: 2nd December 2013 at Nakalama Trading Centre		
Present: Moses Basoma, Francis Mugenyi and Grace Balikoowa		
Name & designation	**Issues Raised(quoted verbatim)**	**Responses to issues raised**
Mr. Bekweke John (Fisheries Officer-Iganga District)	❖ People have built in the road reserves especially here in the trading center. How will they be handled for their properties to be affected? ❖ Some of these Projects take forever to be implemented, in some areas poles are dropped and no electricity is connected, how different is this Project form such? ❖ Will electricity be extended to the landing sites as well? ❖ What measures are there to ensure local people will be able to afford electricity? ❖ What measures are there to ensure girls are not lured to sex by the project workers?	❖ Where people have to be displaced, there will likely be some compensation to be paid to project affected persons. ❖ By the time the project rolls out to implementation, all requirements are set in place and works will go to completion. ❖ Will work with local leaders to sensitize girls and the communities about dangers of early sex relations. ❖ Contractors will sensitize their workers on the need to have good working conditions with communities.
Mr. Nyende Muzamil (Area Councilor Namutumba)	❖ When will the project begin? ❖ Roadside vegetation is usually lost without any compensation what measures are in place to ensure affected persons are compensated? ❖ What criteria are used in selecting areas of the projects? Isn't it political? ❖ Our experience is, poles will be dropped and the works don't start till near times of elections than they begin which was the case in the areas of Luuka where poles. What is the plan like with this phase? ❖ We have some water falls in one of the rivers; why not develop such than extend the grid to the areas? ❖ But why do we just have power lines go through our areas yet we have benefits	❖ ERT III has time line when works are to start, ❖ Roadside vegetation and developments needs to be valued and costs assessed and paid out to the beneficiaries, ❖ On selection of beneficiaries that is done on Government priorities and plans. ❖ The small waterfalls potentials have to evaluate to see if they are economically viable. ❖ The local people are to protect the project facilities in their areas.

	that people get since they will not be able to afford electricity? ❖ What measures will be put in place to guard against transformer vandalism which is now rampant. People steal transformer oil.	
Mr. Balenzi baani Boaz (Resident)	This information is very good and everyone here should go and disseminate it to all that are not here. What I want to inquire if you will compensate anyone if their children die through electrocution from power lines?	The community will be sensitized on the dangers and precautionary measures regarding electricity related accidents that shall be instituted.
Ms Eunice Babirye	❖ I'm suggesting that the local people are educated on precautionary measures before the power is extended to the area. ❖ We should be provided with written brochures in both English and our local language.	❖ The community leaders should be able to take a lead in sensitizing local communities on issues of electricity extension to their areas as well as attendant risks associated with power lines.
Mr. Abuya Gawaya	I heard about this power project long time ago but it good that I have listened to you this time. I'm requesting that you use our local *lusoga* radio stations so that the massage can reach many people. My fear is, such long term projects bring their workers from far, usually from the north, and they don't consider our people saying that they are weak. I would like to assure you that our people here seriously need those jobs especially manual work. As you may have noticed, many young men are idle on the verandahs. If the project decided to bring skilled people from Kampala and other places, those people should respect us and they should be warned against bringing their city behaviors to our place, they should be reminded about the dangers of HIV/AIDs all the time.	❖ We shall recommend that local people be given priority in terms of employment on the project. ❖ I also urge the LC Chairperson to table community demands early when the contractors come to his office. Demands like the contacts of the foremen and their bosses and payment. ❖ Project staff will be cautioned against elicit sexual behaviors

Meeting held on December 2, 2013 at Namutumba District Headquarters for the District technical staff

Meeting with: Namutumba District Officials		
Purpose of meeting: To obtain stakeholder input into the Environmental and Social Management Framework (ESMF) for ERT III		
Date held & place: 2nd December 2013 at Namutumba District Headquarters		
Present: *Moses Basoma, Francis Mugenyi and Grace Balikoowa*		
Name & designation	**Issues Raised(quoted verbatim)**	**Responses to issues raised**

1.Mr. Musiita Apollo (District Fisheries officer)	❖ What criterion was used to arrive at these areas? Some places which we feel deserve power have been left out despite promises made during elections. ❖ I think REA should give the district an opportunity to revisit some of the selected areas where the lines will be constructed so that our planned developments are catered for. ❖ The ongoing debate on the fate of Umeme is a source of concern on the tariff plan. What assurance is there that, once communities are connected, power supply will be cut off by a new service provider	❖ The concerns were noted and will be brought to the attention of the Client.
2. Dr. Kirya James (DHO)	❖ Usually these distribution line involve destruction of vegetation especially trees of a certain height. Will such losses be compensated for and at what rates?	❖ Destroyed property outside the road reserve will be compensated
3 Mr. Ziraba Moses (Chief Internal Auditor)	❖ Is there any contribution towards the project that will be needed from the community?	❖ REA has different projects some are community ones and such will require part pay from the community and details of the projects will be clarified one the project is approved. ❖ No. but maximum cooperation is required from community members for the success of project implementation.
4. Mr Dauda Ikaaba	❖ We are grateful for the information that the greatly needed power will actually come to other areas of our district. We shall all give our support and shall always resolve any problems as they arise, provided REA decides to work with the district staff. On many occasions, contractors are sent by REA to districts without any information on the need to work closely with district staff. ❖ Contractors at times do not even know whether an EIA was conducted or not. ❖ Our experience here is that crops are usually destroyed during construction without prior notification of the farmers and the grass thatched houses in the Right of Way damaged without any form of compensation. ❖ REA should ensure that the contractors prepare contractor's environment management plans (CEMP) and have them approved by REA before commencement of the construction works. Such plans should be shared with the District Environment Office.	❖ Normally, where there is land up take, compensation is done for the affected houses and crops. The contractors will definitely work closely with the district staff. The practice is that NEMA sends a copy of the certificate of approval to the District Environment Officer to enable him/her monitor compliance; REA will ensure that the contractor adopts and implements the suggested Environment and Social Monitoring Plan (ESMP).

Mr. Basalilwa James District NAADS Coordinator	❖ Rural electrification is intended to avert poverty and also enhance environment management or conservation by reducing the usage of fuel wood. However, it turns out to be very expensive, for the rural people its intended for and in that case, will government subsidize it for the rural poor.	❖ Tariffs will be determined by UMEME
Mr Baluzarile DFO - Jinja	❖ Owners of forests and woodlots traversed by the distribution lines should always be established and compensated for any damage caused before construction commences. ❖ REA should always be clear on the extent of the lines because they always say such lines are to be within the road reserve but due to unavoidable circumstances such as terrain sometimes this is not possible. ❖ Effort should be made to compensate trees lost in incidences where the lines divert from the planned road reserves to private land.	

Meeting held on November 22, 2013 at Yumbe District Headquarters for the District technical staff

Meeting with: Yumbe District Officials		
Purpose of meeting: To obtain stakeholder input into the Environmental and Social Management Framework (ESMF) for ERT III		
Date held & place: 22nd November 2013 at Namutumba District Headquarters		
Present: *Moses Basoma, Francis Mugenyi and Grace Balikoowa*		
Name & designation	**Key Issues Raised(quoted verbatim)**	**Responses to issues raised**
Manduru Salira (Senior Community Development Officer)	❖ This project will show commitment of this Government to electrification of West Nile Region which has lagged behind for decades. ❖ There will be reduction on daily expenditure on paraffin. ❖ Development in the area will be speeded up as this is likely to encourage establishment cottage industries such as welding. ❖ Value addition on crop products will be realized and people's livelihoods will be enhanced. ❖ Since the biggest proportion of the people in the district is low income earners, they should also be sensitized early enough before line construction about the power tariffs prior to being connected to the grid so that they are sure that the service comes at a cost. ❖ Put in place measures to compensate project affected person to avoid	Basically the officer was appreciative of the project

	unnecessary grumbling and politicking.	
Guma Victor (Statistician)	❖ How will compensation issues be handled because people's land and property is bound to be affected?	❖ Since the line runs along the road, it is considered that most of the project land take will be within the road reserve area. However if there are any such incidences the developer will work together with the area local leaders to come to a consensus since the district needs power.
Meeting with: Moyo District Officials		
Mr Edema Mourice (District Environment Officer-Moyo)	❖ This project is long overdue because power will stimulate development of different enterprises that require power. Such will include agro-processing and milk production. ❖ The demand might be over whelming so we hope the power that will be supplied will be sufficient to meet consumer needs. ❖ Compensation of land and property to affected owners should be extended so that people embrace the project. ❖ Compensation issues are likely to manifest along the different spurs since these may run through people's private land unlike the main power line which will run along the road reserve. ❖ Comprehensive sensitization of the communities along the line about the width of the way leaf should be done timely. ❖ There are trees along the line which are likely to be cut so replacement tree planting should be done. During similar works it has been observed that managing felled trees is not catered for during project implementation. This should be noted and proper management and transportation of felled trees be done were necessary.	❖ The officer sounded precautionary issues that need to be taken into project aspects.
Emuto Joseph (District Forestry Officer-Moyo)	❖ It is definite that there are trees along the proposed line route so these will have to be cut down. This lost biodiversity should be replaced either on the side of the road where the line is not or any other area identified. ❖ Cutting of mature roadside trees is a threat to environment. This is to be avoided by having the power line go through acquired RoW	
Arua District Officials		
Andiandu Joackim District Environment Officer –Arua)	❖ There will be clearance of vegetation during implementation so incorporate replacement of lost vegetation. This may be done in identified appropriate areas outside the 30 meters corridor of the proposed distribution	

	power lines. ❖ During recruitment source the man power locally where possible so that communities through which the line passes perceive the project as beneficial since many of them may not be able to use the power directly. ❖ During construction of the distribution line all vehicles should have one central packing place to localize oil spillage. In addition workers should have a central camp which should be located away from sensitive ecosystems such as rivers, forests and wetlands. ❖ Health and safety issues of workers should be catered for by providing necessary gear such as gloves, boots and helmets during working.	

North western		
Meeting with: District environment Officer		
Date held & place		Mubende District Headquarters
Name & designation	**Issues Raised(quoted verbatim)**	**Responses to issues raised by consultant**
Vincent Kinene DEO- Mubende	❖ In as long as its government funded Project, people expect compensation. Therefore REA should embark on a sensitization Project of all the likely project affected persons so as to get their expectations and also prepare them for any eventuality. ❖ REA should legally acquire the right of way i.e. the road reserves where they intend to construct these lines may not exist in most areas. Because of the laxity in enforcing the law on road reserves by the districts and UNRA, many people have acquired land titles which extend up to the road reserves either intentionally or un aware. In such situations, REA may either have to negotiate with such land lords or pay them off. ❖ But the ultimate solution is that REA and UNRA or Ministry of Works should jointly legally acquire this land so that issues of compensation do not keep rising. ❖ Restorations and compensatory tree planting should be budgeted for by REA. A lot of vegetation is cleared during the construction phase of these distribution lines but REA or their contractors just walk away without any form of restoration or even planting some trees elsewhere. ❖ Where possible, the lines should be limited to the road reserves only.	

South		
Mr. Behwera Wilson (DEO – Masaka)	❖ What happens in case a pole fell on some one's house, yet this person is outside the right of way? ❖ Where the poles have been erected, there have been many occurrences of lightening, how does REA intend to address this? ❖ Contractors have been notably very destructive. Crops are destroyed with disregard while they claim that they are doing the affected person a fever to connect them to the national grid. However, it should be noted that most people on whose land the poles are situated are not connected to these lines. Either because of the high costs involved or because the line is intended for some public facility or trading center. ❖ REA should therefore think of some form of direct benefit for these land lords	
Rwenzori		
Kamuhanda Herbert (DEO – Ntoroko)	❖ Costs associated with electricity are high so need for subsidy. ❖ Sensitize the communities that power is a cost and they need to plan to include it in their budgets and that it is not free as people may think. REA should explain the total benefits of being connected to power supply so that it is demand driven and socially accepted. ❖ While working across ecologically sensitive areas like wetland, game reserves (like Semliki in my area) REA may use underground cables. Much as it may be costly, REA should explore this technology starting with ERT III.	
Central North		
Mr. Epilla Rajab (DNRO - Dokolo)	❖ It is important to preserve the environment so wherever there is destruction, replacement and restoration should be immediate and spontaneous and this should be done in consultation with the affected community. For example if REA decides to plant trees to replace those which have been cut during construction, then the benefiting community should be consulted on the species that should be provided, and not just choosing for them any tree species.	

	❖ There is a tendency of our people to cultivate right up to where the road ends, disregarding the issue of the road reserve, actually, in our villages, there are no road reserves. People have constructed permanent houses in the road reserves. Will such people be compensated? ❖ There are also big trees found in the road reserves, some with some cultural attachments. REA needs to work out some modalities in regards to this, for who should assume ownership of the timber once such big trees felled? ❖ Design a mechanism of negotiating with affected community or clan with any cultural attachment to such big trees. ❖ REA should document or develop management and monitoring plans for the contractors while working across fragile ecosystems like the wetland and forests.	
North North West		
Francisco (DEO Gulu)	❖ Electric poles passing through peoples land may attract compensation claims and other demands as people are more inclined to do that these days, especially with projects. ❖ Prior sensitization of people about power and what constitutes a road reserve should be done before commencement of the construction works. Under this ERT III, REA should subject all its other old distribution lines should to environmental audits so that we can ascertain the level of compliance to the set environmental standards.	
North East		
Mr Opolot Francis (DEO Soroti)	❖ If REA decides to revegetate the right of way, there should a well-documented plan on how this should be under taken. That plan should spell out the species, planting seasons, responsibility for caring for the plants and the period after which the plants should be left to the community. ❖ Along proposed local roads, large trees especially mango trees in some areas form a scenic canopy over the road. Construction of a distribution line ROW that overlaps the road ROW will require the clear cutting of these trees and this will negatively impact on the aesthetic view of such areas. ❖ Therefore, REA should devise ways of	

	improving on the lost aesthetics	
Serere	❖ The previous electricity projects destroyed most of the roadside mature vegetation including mangoes, shea butter and some muvule trees. ❖ There are normally no deliberate plans by the project implementers to undertake any tree planting to compensate for trees cut. ❖ Sometimes salvage harvesting is not properly coordinated and even trees can fall on the roads thereby interfere with traffic.	
Tom Rukundo – NFA ESIA Specialist	❖ Usually, the EIA teams come and mention different line routes from what the contractors actually construct. REA should ensure that the EIA teams are given the final routes so that the EIA study addresses site specific issues. ❖ The proposed Right of way within the road reserves also has other users like communications companies, national water on top of the distribution lines, although the impacts of distribution lines are small and localized, the impacts of the other projects may be significant or the cumulative impacts of all the users of the road reserve may have significant impacts on the forest. REA should encourage other users of the road reserves to also carry out EIAs and also come up with guidelines on how the road reserves should be utilized. ❖ While traversing forest reserves, REA should calculate the total economic value of forest loss and should then compensate that. Not only the timbers ❖ REA should have a budgetary provision for planting trees elsewhere to replace those which may be lost within the ROW	The line routes given to the EIA teams are usually the final routes but the contractor for some reason or the other may slightly adjust the line. However, not to the extent that will have significant effect on the outcomes of the EIA study

Minutes of the meeting with Communities of Nakiyanga in Masaka areas held on 28th November, 2013

Issues raised	Discussion
Is the project really going to be implemented or just a way of preparing for votes comes 2016?	❖ The members wanted assurance if the project was going to take place or it was just to deceive them in preparation for 2016 elections after which, there would be nothing forthcoming. ❖ The need to be updated through the LCs on the progress of planning of the project others, they feared they are being deceived the project was not taking place.
The project is timely and very	❖ The project will bring about developments in their areas as it would attract developments and engage youth who are largely idle and now prone to crime.

Issues raised	Discussion
welcome	❖ There will be a variety of leisure and recreation activities such as video shows in their trading centers.
Employment	❖ The community said that they will be able to get employment during construction. When asked what kind of jobs they will be able to work mainly as unskilled labour and their wives would prepare food for sale to the workers.
Compensation for trees	❖ There were regarding compensation for crops and developments along the way leaves.
Electricity affordability by the communities	❖ People were eager to know if power would be affordable by them knowing the communities were poor. Is Government supporting by paying part costs?

Closing Remark

The consultant thanked the meeting for their time and hoped the project becomes a reality for the betterment of their areas.

Minutes of the meeting with Dokolo Agwata communities held on 19th November, 2013

Issues raised	Discussions on the issues Raised
Commencement	❖ The community wanted to know when the electricity project would be implemented. They have waited for years and have not seen commitment to the extension of electricity by Government to their area.
Employment	❖ The community said that they will be able to get employment during project construction. ❖ When asked what kind of jobs they will be able to do, they said that they could work as drivers, way leave clearers, storekeepers, and casual laborers. The women said that they will cook food and tea for the contractors
Promiscuity	❖ People who will be engaged in the implementation of the project who will be having money may sexually exploit young girls and married women leading to HIV infection and other sexually diseases. ❖ Early pregnancies among school girls with eventual school dropout and family break ups.
Accidents	❖ People were worried about accidents during project construction since some power lines will be close to the existing roads. The project will work will traffic police to guide traffic on such sections where works will be ongoing.
Noise	❖ The members especially those living along the proposed project were worried about the noise from construction equipment. ❖ Construction works will be restricted to day time to avoid interrupting sleep.
Land take and property loss	❖ People were concerned about the possible loss of their land and property to the electricity project. ❖ They were assured there would be compensation for any such property uptake by the project.
Improvement in	❖ The project will avail power to health centers thereby making

Issues raised	Discussions on the issues Raised
security in health centers	services to be better delivered to the communities. ❖ However, there is need to have communities own up the facilities to avoid vandalism and abuse of such interventions.
Increase business opportunities	❖ Due to power availability, the community felt that, a number of agro-processing facilities would established such as milk coolers, maize mills and communication facilities e.g. internet cafes would be established.
Development of the areas	❖ People living along the roads along which the power lines will be passing felt that, extension of electricity to their areas will attract developments and general development of the areas and subsequent appreciation of properties.
Fears regarding electrocution	❖ They also pointed out that there have been instances of electrocution of children arising out of broken power lines. ❖ In addition, some thieves have died in their attempt to steal transformer oils. ❖ This is to be controlled through sensitization and awareness creation in the public regarding dangers of electricity.

Figure 1: A section of Dokolo-Atur community met

Figure 2: 3: Consultations of community leaders in areas of Arua (Difule)

Figure 4: Consultations of community leaders in Dokolo areas in Lira

Figure 5: Meeting community members in Otuke areas

Figure 6: A section of District Leadership in Mubende during public consultations

Figure 7: Public consultations in Pader

Annex 10: List of Persons Consulted

LIST OF PERSONS CONSULTED

Sr No.	NAME	ORGANISATION/DESIGNATION
1	Arnold Waisswa	Director, Environment Compliance and Monitoring, NEMA
2	Alex Winyi	EIA Officer, NEMA
3	Ms. Patricia Anabo	Legal Officer, REA
4	Mr. Grace Birikadde	Environmental Specialist, REA
5	Mr. James Litta	Wayleave Officer, REA
6	Ms. Carolyn Nabweteme	Wayleave Assistant
7	Mr. Geoffrey Ssebuggwawo	PSFU
8	Eng. Robert Ssenozi	Manager, ERT Program MoES
9	Mr. Emmanuel Biringuriza	Manager, ERT , MEMD
10		
11	Mr. Tom Rukundo	National Forestry Authority/EIA Specialist
12	Mr. Bekweke John	Iganga District /Fisheries Officer
13	Mr. Nyende Muzamil	Namutumba District /Area Councilor /
14	Maganda Moses	District Environment Officer, Jinja District
15	Mr. Balenzi baani Boaz	Resident/ Nakalama trading centre
16	Ms Eunice Babirye	Trader/ Nakalam Trading centre
17	Mr. Abuya Gawaya	Namutumba District/Councilor
18	Mr. Musiita Apollo	Namutumba District/ (District Fisheries officer)
19	Dr. Kirya James	Namutumba District/District Health Officer
20	Mr. Ziraba Moses	Namutumba District(Chief Internal Auditor)
21	Mr Dauda Ikaaba	Namutumba District District Environment Officer
22	Mr Baluzarile DFO	Jinja District / District Forestry Officer
23	Kinene Vincent	Mubende District/ District Environmewnt Officer
24	Manduru Salira	Yumbe/ Senior Community Development Officer)
25	Mr. Guma Victor	Yumbe/District Statician

26	Mr. Edema Mourice	Moyo District /District Environment Officer
27	Mr. Emuto Joseph	Moyo District/District Forestry Officer
28	Mr. Andiandu Joackim	Arua District/ District Environment Officer
29	Mr. Behwera Wilson	Masaka District/DEO
30	Kamuhanda Herbert	Ntoroko District/ DEO
31	Mr. Epilla Rajab	Dokolo District/DNRO
32	Francisco	Gulu District /DEO
33	Mr Opolot Francis (DEO Soroti)	Soroti District/ Senior Environment officer
34	Nabisere Millly	
35	Sempa James	Peasant -Seeta Nazigo
26	Namagembe Mariam	Peasant - Kilwanyi
37	Ntuyo William	Peasant - Kilwanyi
38	Nalubwama B	Peasant- Byafula
39	Sekirime Vicent	Peasant- Byafula
40	Nansikombi Jane	Farmer- Seeta
41	Nadagire Josephine	Peasant - Kilwanyi
42	Nakato Josephine	Peasant - Kilwanyi
43	Kagobe John	Peasant - Kilwanyi
44	Namusisi Jane	Peasant - Kilwanyi
45	Magambo Bruno	Peasant - Seeeta
46	Lukabwe Godfrey	Trader- Seeta Nazigo
47	Dodovico Lutalo	Farmer- Kirulanyi
48	Nsibambi Edward	Farmer- Nawanjuka
48	Mwebe Sepuyo Edward	Peasant - Kilwanyi
50	Katongole Ronald	Peasant - Kilwanyi
51	Josephine Kiwanuka	Peasant - Kilwanyi
52	Sozi seeta	Peasant- Simari
53	Bukenya Charles	Peasant - Kilwanyi
54	Emmanuel Lutwama	Peasant - Kilwanyi
55	Namusoke justina	Peasant - Kilwanyi
56	Salongo Lukwago	Framer -kiteza