

ENVIRONMENTAL AND SOCIAL IMPACT STATEMENT FOR THE PROPOSED CONSTRUCTION OF LAROPI-MOYO-AFOJI ROAD (37km)

A Revised and Updated Version



Uganda National Roads Authority
Plot 3-5 New Port Bell Road, UAP Business
Park, Nakawa P.O. Box 28487 Kampala, Uganda

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Declaration

This Updated Environmental and Social Impact Statement has been prepared by the Department of Environment and Social Safeguards (DESS) of Uganda National Roads Authority (UNRA).

Preparation of this report has been undertaken in accordance with the National Environment Act (NEA), 2019, National Environment (Impact Assessment) Regulations, 2020; as well as abiding by African Development Bank Operational Safeguards Standards (OSS), the UNRA Environment and Social Safeguards Policy, IUCN Considerations and IFC Performance Standards.

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Department of Environment and Social Safeguards-DESS
Uganda National Roads Authority-UNRA
Plot 3-5 New Port Bell Road, UAP Business Park, Nakawa
P.O. Box 28487 Kampala, UGANDA
[http://: www.unra.go.ug](http://www.unra.go.ug)

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ESIA Team

No.	Name	Role and Qualification	Signature
<i>ESIA Team Leader</i>			
1	Patrick I. KAMANDA	MSc EP & M (APUS - USA), BSc [Chem], (MUK), PGDEM (RVB), PGDE (MUK), IEMA (UK), IAIA, EAAIA (EA), UAIA (UG).	
<i>Biodiversity specialist</i>			
2	Wilber LUKWAGO	MSc. Environment and Natural Resource, BSc. Forestry, Nature Uganda, UAIA (UG), Herpetological Society, Cert. BIOFIN (UNDP)	
<i>Environment Management Systems Expert</i>			
3	Joseph ASIIMWE	MSc. Environment and Natural Resources (MaK), PGCert in EIA & Audit (India), Oil & Gas monitoring (UK), BSc. Environmental Science (MaK); Competence Certification in ISO 14001, ISO 9001(SA). UAIA (UG).	

Contributing specialists

Bernard MATOVU	-	Vertebrate Ecologist
Samuel MUTEBI	-	Botanist
Henry Kizito SEGUYA	-	Sociologist
Esther KITUI	-	Sociologist
Jackie Lydia MWENDEZE	-	Sociologist
Enid KANSIIME	-	Sociologist
Jackie Esther NANTONGO	-	Sociologist

Contributing Government Agencies

Directorate of Water Resources Management, Ministry of Water and Environment	-	Water Quality assessment
Department of Museums and Monuments, Ministry of Tourism and Wildlife Antiquities	-	Physical Cultural Resource Assessments
Department of Occupational Safety and Health, Ministry of Gender, Labor and Social Development	-	Occupational Safety and Health (OSH)

Reviewers

Monicah E. Seruma: Head Environment and Social Safeguards UNRA
 Carolyne Natuhwera: Senior Environment Officer UNRA
 Mose Kutosi: Environment Officer UNRA



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ACRONYMS

ADT	-	Average Daily Traffic
AfDB	-	African Development Bank
BTO	-	British Trust for Ornithology
CAC	-	Criteria Air Contaminants
CAO	-	Chief Administrative Officer
CBD	-	Convention on Biological Diversity
CEDAW	-	Convention on the Elimination of all Forms of Discrimination against Women
CITES	-	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COVID19	-	Corona Virus Disease 19
CMW	-	Committee on Migrant Workers
CR	-	Critically Endangered
DDPs	-	District Development Plans
DMM	-	Department of Museums and Monuments
DPS		Department of Petroleum Supply
DWRM	-	Water Resources and Management
EIA	-	Environmental Impact Assessment
ELF	-	Extremely Low Frequency (ELF).
EN	-	Endangered
ENSO	-	El Niño–Southern Oscillation
ESIA	-	Environmental and Social Impact Assessment
ESIPs	-	Environmental and Social Implementation Plans
ESISs	-	Environmental and social impact statements
ESMMP	-	Environmental and Social Management and Monitoring Plan
GPS	-	Geographical Positioning System
GRM	-	Grievance Redress Mechanism
HIV	-	Human Immune Virus
ICESCR	-	International Covenant on Economic, Social and Cultural Rights
IFC	-	International Finance Corporation
IOD	-	Indian Ocean Dipole
ISS	-	Integrated Safeguards System
IUCN	-	International Union for the Conservation of Nature
MAAIF	-	Ministry of Agriculture, Animal Industry and Fisheries
MGLSD	-	Ministry of Gender Labour & Social Development
MOLG	-	Ministry of Local Government
MoWE	-	Ministry of Water and Environment
MoWT	-	Ministry of Works and Transport
MTWA	-	Ministry of Tourism, Wildlife and Antiquities
NDP	-	National Development Plan
NEA	-	National Environment Act
NEMA	-	National Environmental Management Authority
NGOs	-	Non-Governmental Organizations
OPM	-	Office of the Prime Minister

OSs	-	Operational Safeguards
PCRs	-	Physical Cultural Resources
PC	-	passenger car units
PM	-	Particulate Matter
RF	-	Radio Frequency
SSD	-	Stopping Sight Distance
TOR	-	Terms of Reference
TSP	-	total suspended particulate
UDHR	-	Universal Declaration of Human Rights
UNCRC	-	United Nations Convention on the Rights of the Child
UNEP	-	United Nations Environment Program
UNESCO	-	United Nations, Educational, Scientific and Cultural Organization
UNHCR	-	United Nations High Commission for Refugees
UNRA	-	Uganda National Roads Authority
UTM	-	Universal Transverse Marketer
UV	-	ultraviolet light
VES	-	Visual Encounter Surveys
VOC	-	Volatile Organic Carbon
VU	-	Vulnerable
WBGT	-	Wet Bulb-Globe Temperature Index
WCS	-	Wildlife Conservation Society
WHO	-	World Health Organization
SOPs		Standard Operational Procedures



EXECUTIVE SUMMARY

(a) Introduction

Laropi-Moyo-Afoji road project starts at Laropi (UTM 36N, 367969.4E 392957.3N) and traverses through several villages before terminating at the Uganda-Sudan border in Afoji (UTM 36N 353050.9 E, 409442.6 N). The Government of Uganda represented by Uganda National Roads Authority (UNRA) seeks to carry out upgrading of 37km of Laropi-Moyo-Afoji Road. This road is part of a Atiak-Moyo-Afoji regional, national and international route connecting the remote north-western region of Uganda and Southern Sudan to the Ugandan capital at Kampala via the Regional capital at Gulu. The River Nile divides the road into two sections, which are currently connected by the Umi-Laropi ferry. The Atiak-Umi (65Km) section is currently under development with support from European Union while the African Development Bank (AfDB) has considered financing the construction of the Laropi/Umi bridge and the Laropi – Afoji section which is currently in a reasonable state of repair, but needs regular maintenance due to increasing traffic.

The development of the Laropi/Umi Bridge and the Laropi-Moyo-Afoji Road were identified under NDP III among the infrastructure required to facilitate connectivity for improved household incomes and improved quality of life. The National Development Plan III (NDP III) 2020/2021-2024/2025 developed under the theme “Sustainable Industrialization for inclusive growth, employment and wealth creation”, placed integrated Transport Infrastructure and Services among the development drivers. The project will play a major role in economic development of Moyo District by providing an essential link to markets and social services, industry, tourism, health and education and also acting as a major export/import route to South Sudan.

In accordance with the National Environment Act (NEA), 2019, the National Environment (Impact Assessment) Regulations, 2020 and the Guidelines for Environmental Impact Assessment in Uganda, a screening was conducted to determine the level of environmental and social impact assessment (ESIA) is required. The requirement to undertake ESIA for Laropi-Moyo-Afoji road development project falls under Sections 49(1) & (2), 113 (2) & (3), 176(1), 177(1), 126(2) & (3) and 181(2) of the NEA, 2019. Specifically, Schedule 5 Section 1 (a) of the NEA, 2019 under Transport, transportation equipment and related infrastructure, that highlights “Construction of public roads not being community access roads, including—(i) Enlargement or upgrade of existing public roads” among projects for which Environment and Social Impact Assessments are Mandatory. Furthermore, the proposed project is to be funded by the AfDB and therefore must comply with the Integrated Safeguards System (ISS) of AfDB especially the Operational Safeguards (OSs) which require assessment of environment, climate change and social risks and impacts as early as possible in the project cycle. Using the Screening guidelines of the AfDB, the proposed projects fall under “Category 1” of projects that are associated with environmental and social impacts that trigger a full environmental assessment.

The specific objectives of the ESIA included identifying and assessing potential environmental and social impacts and recommending appropriate mitigation strategies (avoid, minimize, restore and compensate); analysing project alternatives with a view of avoiding and minimizing adverse impacts and risks, and to optimize the benefits to socio-economic development and other development activities in the region; To undertake meaningful consultations with relevant stakeholders including potentially affected persons, government agencies, Non-Governmental Organizations (NGOs), private sector and the public in order to design and implement an all inclusive project; prepare an Environmental and Social Management Plan that details required mitigation and monitoring actions.

(b) ESIA methods

Various methods were used to collect data for the update of the ESIA for Laropi-Moyo-Afoji Road project. District Development Plan for Moyo District was reviewed. This provided useful information for the baseline conditions of the project area. In addition, relevant guidelines, policies and laws that guide environment Impact Assessment in Uganda were reviewed. For air quality, the assessment focused on the Criteria Air Contaminants (CAC) and Greenhouse Gases which reflect the project emissions of concern with respect to environmental health. Different air pollutants were assessed.

For vegetation surveys, a quadrant sampling unit of (25 x 25) meters for woodlands & forest; (10 x 10) m for swampy & marshy vegetation; thickets and Bushy vegetation was adopted. While, Large and medium-sized mammal surveys involved looking for physical signs (fecal, prints, bones etc.) of mammal presence and actual mammal sightings especially ungulates and carnivores. Opportunistic data on the occurrence of smaller carnivores (genets and mongoose) was also collected based on sightings, spoor/prints or fecal material. The bat surveys were conducted at the survey locations identified in the reconnaissance survey. Bats were surveyed using acoustic techniques. Acoustic techniques were employed at the survey locations using an SM2 Bat detector.

For birds, transects and Timed-Point Counts Method were used, as recommended by Nature Uganda based on the British Trust for Ornithology (BTO) method. Timed Point Count involved records all birds were seen and heard from a Point Count Station for a set period of time. While for transects, the observers walked along the proposed Road alignment, stopping as necessary to use binoculars, and all birds seen or heard are recorded. Well as both reptiles and amphibians were surveyed using Visual Encounter Surveys (VES) as recommended. VES was conducted by observers walking through a designated area for a prescribed period of time visually and systematically searching for animals.

Social economic surveys were conducted using guided interviews, focus group discussions and stakeholder meetings as the main source of information. In addition, consultative meetings which were held with various stakeholders. Furthermore, secondary data previously collected in the districts of Moyo was reviewed and utilized. Physical Cultural Resources Surveys were conducted for Paleontology, Archaeology and ethnography.

The significance of impacts associated with the proposed Road project was analyzed using Matrix method and later subjected to professional judgment.

(c) Project Description

The Laropi-Moyo-Afoji (37Km) is currently a Class C gravel road. The road is divided into two main sections including Laropi - Moyo Section (26.7 km); the first stretch starting at Laropi from the current ferry landing and moves through mountainous terrain (71+000 – 77+000) to Metu Trading center. This road section goes through Otzi forest reserve and finally terminates in Moyo Town. And then Moyo – Afoji which is 8.7 km long; starting from Moyo town council about 1.2km of the Moyo – Yumbe road. It is generally flat to rolling terrain all through to Uganda – South-Sudan boarder in Afoji. The road section has insufficient drainage with a lot of both seasonal and permanent wetland crossings. The existing cambers, culverts and bridges are in fairly good condition. Several drainage facilities will be provided in all areas that have been identified.

The Proposed Road Project Geometry has an overall objective of producing a sound, consistent, safe, and efficient design that will serve the traffic with its intended purpose. Needless to mention, there is no way to achieve this without making a proper selection of the alignment elements like Sight distances, Super elevation, Widening, grades, Horizontal and Vertical Alignment features. In order to establish the Road Design Class, the AADT in the design year was converted into equivalent

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passenger car units (PCU) in accordance with the PCU factors spelt out in Table 5-4 of the URDM (2010). The PCUs computed total to 5572 at 20-year design life which results in a Paved Class II road as presented in the URDM (2010). The standard elements of a Paved Class II road are including a design speed of 90kmph in flat, 70kmph in rolling and 50kmph in urban centers. The Proposed road shall have a Right of Way of 50m.

(d) Baseline conditions

The project lies in the West Nile region which receives a bi-modal rainfall pattern with average total rainfall of 1250-1267mm. The area experiences two seasonal rainfall periods, light rains between April and October. The wettest months are usually July-November with >120mm/month. The area is composed of largely sandy alluvial sediments, which are easily eroded, the soils in this area are characterized as Vertisols-Arenosols complexes towards Albert Nile. Compared to the National Ground Water Resource, Uganda has a good potential of groundwater resources. Noise measurements were taken and indicated that, the average day time readings per location was 39.78 dB (A) with the minimum and maximum sound levels as 57.8 dB (A) and 29.2 dB (A) respectively. The project area has low particulate matter of respirable granule sizes and none was detected exceeding the standard as set by WHO. All sampled sites indicated that the levels of Hydrogen Sulfide, Nitrogen Dioxide and Methane were less than the detection limit at 0 as the minimum level for this equipment. However, though levels of at the Carbon dioxide were detected, none was above the PEL.

The landscape setting of the 37km Laropi-Moyo-Afoji road network is defined by modified landscape with extensive subsistence croplands, bushland/grassland fallow mosaics, built up area, Towns and plantation agriculture; and transition natural vegetation within the hilly rocky grounds of Awaole village and neighboring villages about 3-4km stretch and one kilometer stretch towards the south Sudan boarder in Afoji. In general, the natural vegetation cover within the project corridor had been reduced by human presence leaving small patches of natural transitional vegetation amidst vast degraded habitats. Subsistence farming, plantation agriculture, urban development and trading centres characterize the great part of the project landscape. Natural transitional savanna vegetation is common within Central forest reserves of Atiya, West Otzi and Ayipe and within the rocky hilly grounds of Awaole village and the recently secured South Sudan- Uganda boarder with Savanna woodland on gentle hilly ground. Other sites of natural vegetation are the fallow lands and seasonal riverbeds like river Amua. Most of the dry lands and small water courses comprised of settlements, agricultural farms, trading centers and urban centers with a dense network of tree cover especially *Milicia excelsa*, *Mangifera indica*, *Azadirachta indica*, *Senna siamea*, *Tectona grandis*, *Vitellaria paradoxa*, *Khaya senegalensis*, *Ficus spp* and other trees. Plantation agriculture is characterized by *Tectona grandis* woodlots. Most of the tree cover are within homesteads and along the road.

A total of 26 mammal species belonging to 6 Orders and 15 families were recorded within the project area. The Order Rodentia was the most abundant Order associated with 7 species; followed by Chiroptera (6 species). While a total of 10 reptile species belonging to 8 families and 7 genera were recorded. These species belonged to 2 Orders namely; Serpentes, and Sauria of class Reptilia. From this study, a total of only 8 amphibian species were recorded, belonging to Order Anura, 5 families and 7 genera. This is relatively a low amphibian diversity considering the biodiversity potential of the project area; this could be attributed to the extreme dry conditions that limit amphibian activity along the river. A total of 100 Bird species were recorded within the project area and the surrounding habitats. These belonged to 12 Orders, 29 Families and 65 Genera. The Order Passeriformes had the highest number of species (77 species of this Order were recorded), the passerines form one of the most diverse terrestrial vertebrate orders hence increased chances of finding them in most terrestrial ecosystems. This was followed by Orders; Columbiformes, Apodiforms, Accipitriformes and others.

The project traverses three sub-counties including Laropi, Metu and Moyo within Moyo District. Administratively, the District is politically headed by the LCV Chairperson with the elected other Chairpersons at LC I and LC III levels, which together form the local government political structure (comprising of elected councillors at various village). The Chief Administrative Officer (CAO) heads the civil service or technical staff. The Resident District Commissioner represents the President's office at the district level.

The emergency of COVID19 pandemic has destabilised most socio-economic aspects of the communities especially the implementation of Standard Operational Procedures and Curfews. The project area is heterogeneous, and a number of tribes were established to exist in the area. Moyo district is predominately occupied by Madi representing 97 percent of the sampled households within the district. The population within the project area is growing at a relatively high rate with an average household size ranging between 5 and 6 individuals. Moyo District had a population of 137,489, of which 67,937 were males and 69,552 were females according to the 2014 population census. Moyo district population growth rate between 1991 and 2002 was 7.69 percent per annum and the growth rate between 2002 and 2014 was 2.9 percent per annum. Within the project area, the literacy levels were quite high with over 70% of household members able to read and write. However, majority of the population have not attained formal education (56%). Moyo District has a total of 28 Nursery, 87 primary, 15 secondary schools and 4 tertiary institutions. The nursery schools are exclusively owned and managed by the community and private sector. There has been a steady increase in gross enrolment at primary level from 33,262 pupils in 2009 to 34,280 pupils in 2013 presenting 30.1% increase.

The project and surrounding areas are archeologically rich with lots of iron slags and pottery scatters. Common were the iron slag scatters especially in the areas of Moyo particularly in the villages of Metu. Results from the field research revealed that the technology of iron smelting (iron ore as raw material) has disappeared replaced by black smithing (metal as raw material) using the same method but different raw materials. Whereas fragments of raw quarts were observed, very few lithic artifacts were identified in the project area neither from the field walks nor the test pit excavations. Similarly, granites rocks with shelters exist in and outside the project area but no evidence of rock art was established. Historical ferry wrecks at Laropi landing site are located only 14 meters from the existing road at UTM GPS coordinates; 0368137, 0393041. This is believed to have been used in 1980s and acted as a pull-out machine for the ferry. No fossil record in the project area was discovered or known. However, the project corridor contains mainly alluvial deposits seemingly younger for fossilization.

(e) Public consultations

Stakeholder consultations were done throughout the ESIA process. The stakeholder analysis established that the following are stakeholders for the proposed road upgrade and were involved in public consultations; Moyo District, Moyo Town council, Laropi Sub-county, Metu Sub-county, Moyo Sub-County, National Forestry Authority, Ministry of Gender, Labour and Social Development, Ministry of Tourism Wildlife and Antiquities, Uganda Electricity Generation Company Limited, and selected Civil Society Organization. The following emerged as key themes for environmental and social aspects from stakeholder consultations; employment, population influx, land acquisition, road works, road operations, camps, water resources, construction materials, safety and security, and physical cultural resources.

(f) Analysis of alternatives

The assessment of the robustness of the project was based on a comparative analysis of the two project alternatives; Option 1: "No project" scenario - Maintaining the Road as Gravel; and Option 2:

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Upgrading the proposed road to Bituminous Standard. Alternative alignment in Moyo Town Council were made to save the numerous trees along the existing roads. The upgrading scenarios of the project roads were also specified within the “Improvement Standard” in HDM4 which included details of geometric characteristics of the road after improvement, and the improvement type. Option 1: Upgrading to Asphalt Concrete (AC) surfaced road, and Option 2: Upgrading to Double Bituminous Surface Treatment (DBST) surfaced road.

(g) Evaluation of impacts and mitigation measures

The pre-construction, construction and operation phases of the proposed roads upgrade have the potential to result into significant impacts on the biophysical and socio-economic environment. The roads upgrade project has benefits on which the need and purpose for the project are premised.

The main positive impacts associated with all phases of the project include; facilitate development and economic opportunities, employment opportunities, improvement of transport system, enhancement of agriculture and boosting the tourism sector as well as enhancing climate change mitigation measures. The ESIA identified potential major negative impacts to include; loss of property due to land take, habitat modification and fragmentation, and waste accumulation, impacts from influx of workers and impacts from road works. Implementation of the project is associated with cumulative impacts from previous, present and more importantly future developments in the oil and gas sector.

The ESIA proposes enhancement measures for the benefits from the project and mitigation measures to avoid, reduce and compensate for the residual negative impacts. The ESIA has proposes risks/impacts management measures including: (a) Implementation of Complementary Initiatives; (b) inserting Environment Health Safety clauses into the works contract including: (i) the General rules of Hygiene health and safety (HHS) on construction sites (ii) the STD - HIV awareness (iii) the management of the relationship between employees and the communities in the project area, with the emphasis on the protection of minors and other vulnerable (iv) the consideration of gender equity and gender-based-violence (GBV) as well as sexual exploitation and abuse, whenever relevant (v) management of “chance finds”; (c) capacity-building.

A Resettlement Action Plan has been prepared to address Land acquisition and involuntary resettlement. Measures to address cumulative impacts have been proposed and should be considered by other developers in the project area during project planning and implementation.

A summary of complementary initiatives and their estimated costs are presented in the table below:-

SN	Impact/ Mitigation/ Enhancement and Commitments	Estimated Cost in UGX Billion	Estimated Cost in US \$
ESMMP			
1	Training of Environment and Social staff on the project	0.22	62,000
2	2 Technical consultants in ESHS	0.16	45,000
3	Conducting Occupational Safety and Health training: including SOPs for COVID19 pandemic, community awareness on road safety	0.08	22,000

SN	Impact/ Mitigation/ Enhancement and Commitments	Estimated Cost in UGX Billion	Estimated Cost in US \$
ESMMP			
4	Enhancing Gender and social Development	0.6	150,000
5	Increased HIV/AIDs illnesses awareness, HBV, prevention of Prostitution, crime, insecurity and drug abuse due to influx of people	0.05	13,000
6	Prevention of child abuse e.g., child pregnancy/ marriage, sex work, school dropout and defilement	0.25	70,000
7	Increase in water availability to reduce water conflict	0.25	70,000
8	Climate change mitigations and Biodiversity Restoration, Habitat integrity: avoid Spread of invasive/ alien species, Conservation of Muvule Trees and other trees of conservation importance; Comprehensive tree planting and reforestation.	1	383,000
9	Protection of physical cultural resources by facilitating chance findings & engagement of DMMs	0.08	22,680
10	RAP implementation and Audits	19.485	5,524,525
11	Sub-Total	22.175	6,362,205

Complimentary initiative to be included in Works Budget			
1	Refurbishment of a Trauma centre , supply of required medical equipment and ambulance as well as training of staff / Road safety sensitisations and awareness creation	0.8	140,000
2	Construction and Rehabilitation of Community Access Roads, Town roads and street lighting	2	570,000
3	Awareness creation on gender and prevention of Gender-Based Violence, strengthening of referral pathways and support to survivors.	0.5	142,000
4	Construction of road side market stalls in Moyo and Laropi town	2	570,000
5	Training of unemployed youth and women in labour-based methods and supply of tools	2	570,000
	Sub - TOTAL	3.7	1,710,000
	Grand Total	26.14	8,072,205

(h) UNRA will provide the oversight role for the implementation of ESHS for the project through the project implementation unit (PIU). The Unit will be assisted by technical consultants in the field of environment and social development. The day-to-day ESHS supervision will be undertaken by the ESHS staff of the Supervising Engineer. Implementation of ESHS requirements in the environmental and social planning documents will be the responsibility of the Contractor. ESHS staff of Lead Agencies will undertake monitoring within their mandates. Overall ESHS staff at all level will need skills enhancement through training.

(i) Conclusion and Recommendations

The proposed Road constitutes an integrated project for purposes of supporting Regional Development and connectivity, providing an opportunity for equal development in the Country. The road has the potential to result into adverse negative environmental and social impacts. Mitigation measures which are proposed in this Statement are implemented by UNRA, other developers in the project area and are enforced by Regulatory Agencies/Lead Agencies. Stakeholders should be given an opportunity to participate in monitoring the implementation of environmental and social mitigation measures and a Grievance Redress Mechanism (GRM) should be instituted prior to commencement of construction activities.

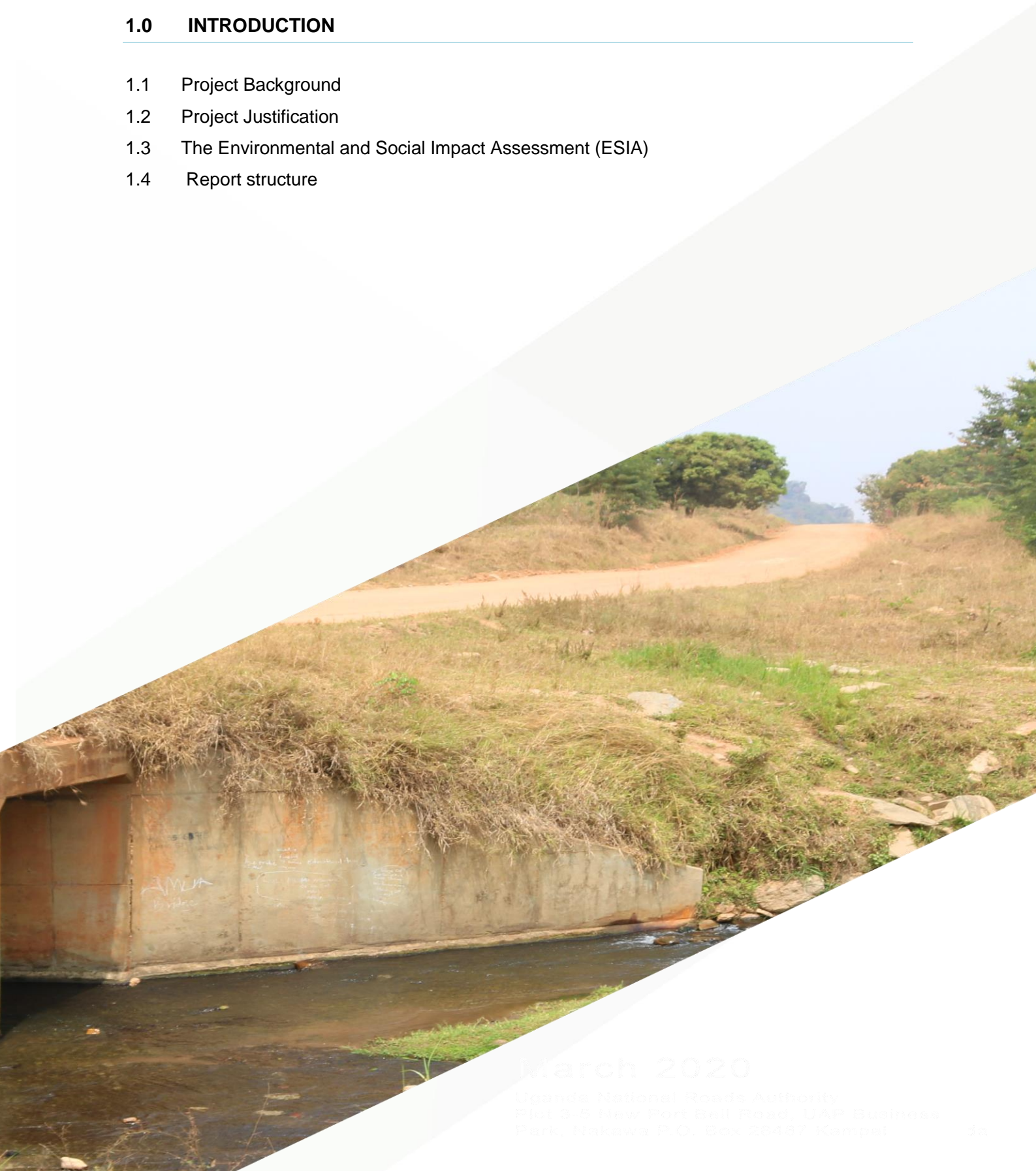
To ensure compliance, the Contractors, shall be required to acquire all the necessary approvals & permits, prepare standalone ESIA's for support infrastructure as well as prepare Environmental and Social Implementation Plans (ESIPs). The ESIPs shall be reviewed and approved by UNRA or its representatives to guide implementation of environmental and social mitigation measures during the project implementation phase. This should be done before commencement of construction activities



CHAPTER ONE

1.0 INTRODUCTION

- 1.1 Project Background
- 1.2 Project Justification
- 1.3 The Environmental and Social Impact Assessment (ESIA)
- 1.4 Report structure



March 2020

Uganda National Roads Authority
Plot 3/5 New Port Ball Road, UAP Business
Park, Nakawa P.O. Box 26487 Kampal 30



1.0 INTRODUCTION

1.1 Background

Government of Uganda adopted a 30-year development paths and strategies through Vision 2040; to transform Uganda from a predominantly peasant and low-income country to a competitive upper middle-income country. The National Development Plan (NDP) III underscores the importance of the transport sector in attaining goals of Uganda Vision 2040. The government of Uganda envisages attaining 7,100 km of tarmacked national roads by 2023¹. This will propel growth in sectors of minerals, oil and gas, tourism, agriculture as well as mobility of people and goods as one of the critical means to gaining sustainable enhancement in welfare

Road transport is by far the most dominant mode of transport in Uganda, carrying well over 90% of passenger and freight traffic, and serving as a true backbone supporting the country's economy (UNRA, 2018). The National Roads Network carries more than 80% of this passenger and freight traffic, with a density as recently estimated to about 16km/100km², compared to average of 6.6km/100km² for East African land locked countries. However, with numerous missing links in the regional and sub-regional networks, poor quality of roads due to insufficient road maintenance and vehicle overloading, and the road network needs expansion, upgrading, maintenance or Rehabilitation.

Government has therefore allocated funds from its Road Development and Maintenance Budget towards Upgrading of major links on the National Road Network. It is in the same vain that Uganda National Roads Authority (UNRA) seeks to carry out upgrading of Laropi-Moyo-Afoji Road (37km). This road is part of a regional, national and international route connecting the remote north-western region of Uganda and southern Sudan to the Ugandan capital at Kampala via the Regional capital at Gulu. The River Nile divides the road into two sections, which are currently connected by the Umi-Laropi ferry. The Atiak-Umi (65Km) is currently under development with support from European Union while African Development Bank (AfDB) has considered financing the construction of the Laropi/Umi bridge and the Laropi – Atiak section which is currently in a reasonable state of repair, but needs regular maintenance due to increasing traffic.

1.2 Project Justification

The Uganda National Roads Authority (UNRA) is responsible for managing, maintaining and developing the national roads network across Uganda. Much of the network requires substantial improvement or development to meet current and forecast traffic demands, and to promote equal distribution of, and access to, economic and social development across the country. The development of the Laropi/Umi Bridge and the Laropi-Moyo-Afoji Road were identified under NDP III among the infrastructure required to facilitate connectivity for improved household incomes and quality of life. The National Development Plan III (NDP III) 2020/2021-2024/2025 developed under the theme “*Sustainable Industrialization for inclusive growth, employment and wealth creation*”, placed integrated Transport Infrastructure and Services among the development drivers. The project will play a major role in economic development of Moyo District by providing an essential link to markets and social services, industry, tourism, health and education and acting as a major export/import route to South Sudan (Plate 1).

¹Republic of Uganda, National Transport Master Plan Including a Transport Master Plan for the Greater Kampala Metropolitan Area (NTMP/GKMA); Ministry of Works and Transport, 2009, 23



Plate 1: Afoji Boarder Post, connecting Uganda (Moyo) to South Sudan

The feasibility study done for this project confirmed that the upgrading of project corridor to Class II Asphalt Concrete bituminous standard having a carriageway width of 7 meters and 2.0 m wide bituminous surfaced shoulders is technically feasible and economically viable. It will open the West Nile region and enhance regional integration and international trade by linking Uganda with South Sudan and DRC.

The study furthermore noted that given the assessment of future diverted traffic and the exogenous benefits involved, construction of the Laropi Bridge at the current Laropi Ferry Crossing over the River Nile will enhance the investment benefits and improve connectivity between Adjumani, Moyo and Sudan Border. It is therefore recommended that both the construction of the Laropi Bridge and the Laropi-Afoji road be undertaken at the same time.

1.3 The Environmental and Social Impact Assessment (ESIA)

1.3.1 Justification for the ESIA

In accordance with the *National Environment Act (NEA), 2019, National Environment (Impact Assessment) Regulations, 1998* and the *Guidelines for Environmental Impact Assessment in Uganda*, a screening exercise was conducted to determine if environmental and social impact assessment (ESIA) is required and if so, what level of assessment would be appropriate.

The requirement to undertake ESIA for Laropi-Afoji road development project falls under Sections 49(1) & (2), 113 (2) & (3), 176(1), 177(1), 126(2) & (3) and 181(2) of the NEA, 2019. Specifically, Schedule 5 section 1 (a) of the NEA, 2019 under **Transport, transportation equipment and related infrastructure**, highlights “Construction of public roads not being community access roads, including—(i) Enlargement or upgrade of existing public roads” among projects for which Environment and Social Impact assessments are Mandatory.

Furthermore, the proposed project is to be funded by the AfDB and therefore must comply with the Integrated Safeguards System (ISS) of AfDB especially the Operational Safeguards (OSs) which require assessment of environment, climate change and social risks and impacts as early as possible in the project cycle. Using the Screening guidelines of the AfDB, the proposed projects fall under “Category A” of projects that are associated with environmental and social impacts that trigger a full environmental assessment.

1.3.2 Aim of the ESIA

This ESIA provides an opportunity to determine potential negative and positive impacts of the project. It further provides opportunities to mitigate negative impacts, while enhancing the positive ones. More so, ESIA provides avenues to enable meaningful stakeholder consultations thus facilitating project social acceptability.

1.3.3 Specific objectives of the ESIA

The specific objectives of the ESIA include:

- i) To identify and assess potential environmental and social impacts and recommend appropriate mitigation strategies (avoid, minimize, restore and compensate);
- ii) To identify and analyse project alternatives with a view of avoiding and minimizing adverse impacts and risks, and to optimize the benefits to socio-economic development and other development activities in the region;
- iii) To undertake meaningful consultations with relevant stakeholders including potentially affected persons, government agencies, Non-Governmental Organizations (NGOs), private sector and the public in order to design and implement an inclusive project;
- iv) Prepare an Environmental and Social Management Plan that details required mitigation and monitoring actions.

1.3.4 ESIA Process

This ESIS is an update of the ESIS for Atiak-Moyo-Afoji project specifically looking at Laropi-Moyo-Afoji which is being planned for development. The ESIS for Atiak-Moyo-Afoji was submitted to NEMA in September 2017; an ESIA certificate was issued (Appendix 1). In order to thoroughly update the Environmental and Social aspects of Laropi-Moyo-Afoji road section additional assessments were conducted in Feb/March 2021.

According to the Environmental Impact Assessment (EIA) Reference Manual (UNEP, 2002), the EIA process is stated below and summarized in Figure 1.

- a) **Screening:** the proposed project for constructing Laropi-Moyo-Afoji Road was screened to determine the level of assessment required, its significant impacts on the environmental and social aspects, and existing opportunities. The Screening also analysed the possibilities to avoid impacts or develop mitigation measures. For such projects as detailed ESIA is mandatory since it is listed under the fifth Schedule of the National Environment Act 2019.
- b) **Scoping:** following confirmation that the proposed project required a detailed ESIA, Scoping was carried out to determine the scope of work to be undertaken in assessing the likely environmental and social impacts of the proposed development. In this regard, a site reconnaissance was conducted in the project area. This was followed by a scoping exercise, which identified the potential significant impacts that required detailed assessment while eliminating the insignificant ones. Consultative meetings were also held with various stakeholders, including local communities and officials of Moyo district, to determine the issues of most importance for consideration during detailed assessment. Analysis of alternatives to be considered was also done.

The Scoping exercise was conducted during the ESIA studies for Atiak-Moyo-Afoji road project in 2017 which resulted into development of a comprehensive Terms of Reference (TOR) for ESIA and was submitted to NEMA for review and consideration. Terms of Reference for the above study were approved by NEMA and hence forth guided detailed ESIA studies for Atiak –Moyo–Afoji project.

- c) **Impact analysis, mitigation and impact management:** basing on information from the scoping exercise and TORs for ESIA, a detailed environmental and social impact study was carried out. It involved literature review, collection of primary and secondary baseline data and meaningful stakeholder consultations. Potential impacts were analysed, and possible mitigation measures developed for proper management of impacts.

- d) **Decision-making:** Based on the findings of the ESIA, NEMA decided on the proposed Atiak-Moyo-Afoji Road development in consultation with the relevant stakeholders and issued a certificate to the project.

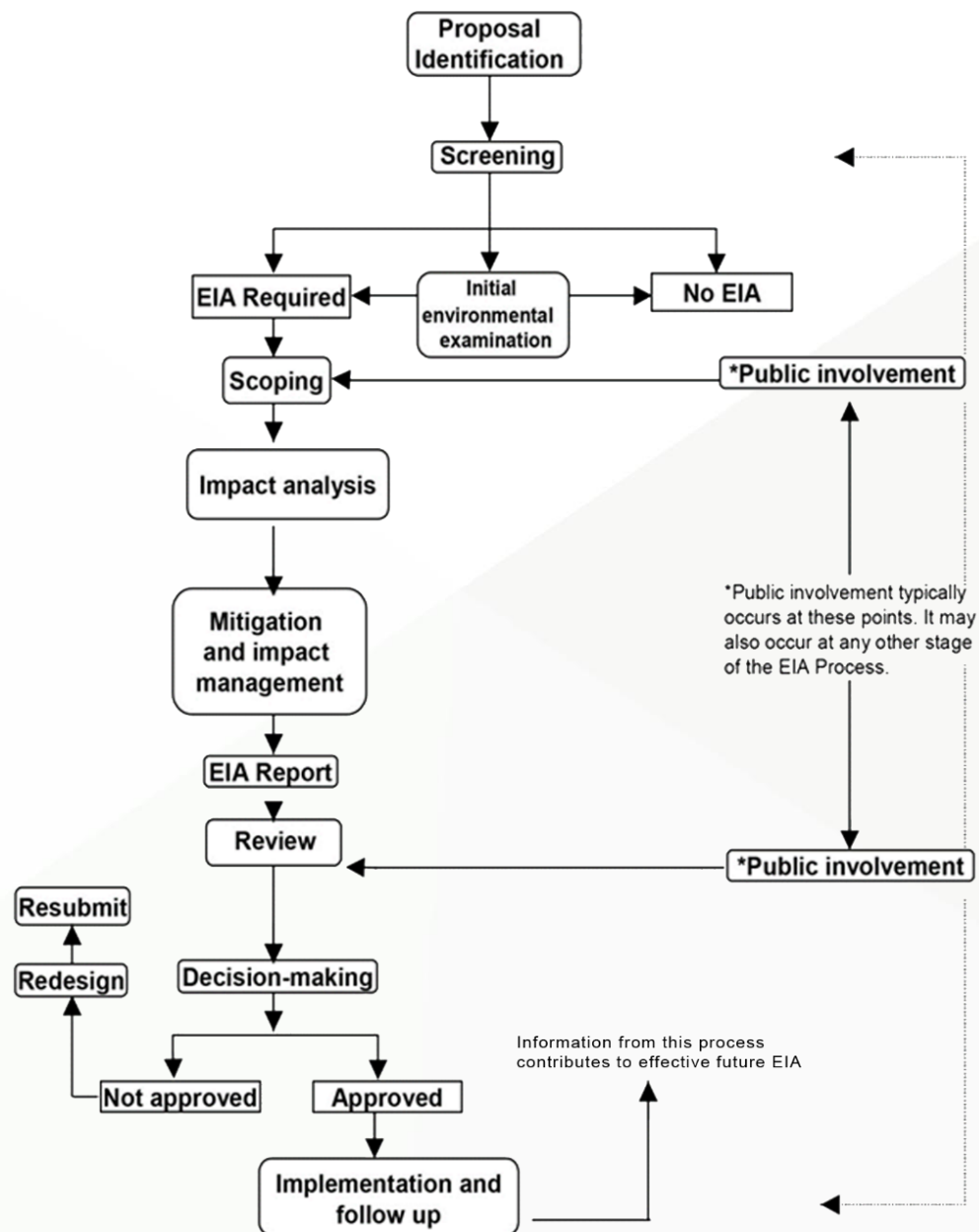


Figure 1: Summary of the EIA process (EIA Reference Manual; UNEP, 2002)

1.4 Report structure

This ESIS is composed of the following chapters:

- a) **Chapter 1** presents the introduction and it consists of the background of the project, justification for the project and the need for an EIA
- b) **Chapter 2** presents methodologies applied during ESIA to generate adequate information of relevance to the proposed project.
- c) **Chapter 3** consists of the Project Description. It describes the project location, the area of influence, the project components, and project technical designs;
- d) **Chapter 4** outlines the policy, legal and institutional framework relevant to the proposed project.
- e) **Chapter 5** presents Climate change, environmental and socio-economic baseline of the project area.
- f) **Chapter 6** provides an overview of public disclosure and stakeholder consultations undertaken during ESIA.
- g) **Chapter 7** has information on the project alternatives considered
- h) **Chapter 8** outlines anticipated impacts of the proposed project on environment and social settings of the area and their proposed mitigation measures to eliminate or reduce the negative impact to acceptable levels.
- i) **Chapter 9** presents the Environmental and Social Management and Monitoring Plan, which should be implemented throughout the lifetime of the project.
- j) **Chapter 10** consists of the conclusion and recommendations from the assessment

Generally, the structure of this ESIS is in conformity with that specified in the EIA Guidelines

CHAPTER TWO

2.0 STUDY METHODS

- 2.1 Literature review
- 2.2 Biological environment assessment
- 2.3 Physical Environment Assessments
- 2.4 Socio-economic surveys
- 2.5 Physical Cultural Resources Surveys
- 2.6 Impact Assessment
- 2.7 Public Disclosure



2.0 ESIA STUDY METHODS

Various methods were used to collect data for the update of the ESIA for Laropi-Moyo-Afoji Road project. This chapter describes the different methods employed, assembled in the reference chapter of this report.

2.1 Literature review

District Development Plan for Moyo District was reviewed. This provided useful information for the baseline conditions of the project area. In addition, relevant guidelines, policies and laws that guide environment Impact Assessment in Uganda were reviewed. The Integrated Safeguards System of the African Development Bank with its associated Operational Safeguards were reviewed to ensure that the assessment is in line with the set standards. Relevant international conventions where Uganda is party were also reviewed. Other literature included Climate change reports, UNRA's internal safeguards standards and literature on biodiversity of the area. A full list of literature that was reviewed is provided in the reference section.

2.2 Physical Environment Assessments

2.2.1 Air quality assessments

This assessment focused on the Criteria Air Contaminants (CAC) and Greenhouse Gases which reflect the project emissions of concern with respect to environmental health. Major sources of outdoor air emissions in the project area are from vehicular traffic activities. Different air pollutants that were assessed include;

- i) Particulate Matter (PM), including total suspended particulate (TSP). Inhalable particulate matter (PM10) and Sulphur dioxide (SO₂);
- ii) Sulphur Dioxide (SO₂)
- iii) Nitrogen Dioxide (NO₂)
- iv) Carbon Monoxide (CO)
- v) Greenhouse Gases: Carbon dioxide (CO₂), methane (CH₄).
- vi) Volatile Organic Carbon (VOC)

2.2.2 Noise/ Sound, Humidity and Temperature Assessment

Noise pollution contaminants are generally sound waves that interfere with naturally occurring waves of a similar type in the same environment. However, noise pollution is defined as unwanted sound or sound that is loud or unpleasant. Sounds are considered noise pollution if they adversely affect wildlife, human activity or are capable of damaging physical structures on a regular basis.

2.2.2.1 Sound, Humidity and temperature Level Measurement

The sound level was measured by Precision Integrating Sound Level Meter Type: 4 in one Digital Sound Level Meter, Model CEM DT 8820 (range 35 – 130 dBA) for noise, (-20 – 750oC) for temperature, (25% - 95%) relative humidity and (0 – 20000 LUX) for light intensity. The meter is equipped with the three frequency-weighting networks (A, B and C) that are used to estimate the response characteristic of the ear at various sound levels and frequency distribution of noise over the audible spectrum. The (A) frequency-weighting approximates the response characteristics of the ear for levels below (55dB). The (B) frequency weighing approximates the response characteristics of the

ear for levels between (55 and 85) dB and the (C) frequency weighing approximates the response characteristics of the ear for levels above 85dB.

It consists of the following main features:

- i. The Sensor or Microphone: The sensor is a high precision electrode condenser microphone, which must be protected from physical abuse, dirt, oil, water or ingress of any other such substance.
- ii. The Control Panel: The control panel comprises of the: Recorder for the maximum level of sound, and minimum level of sound, Range selector, Auto and manual rest switches, Hold on max and min level.
- iii. The Range Selector: These switches can be used for selecting the relevant range of the sound level.

2.2.2.2 Sound assessment procedure

The charged sound level meter (Plate 2) was adjusted for slow time response. The sound levels were measured at different sites with maximum and minimum recordings taken for the particular site and respective average sound levels calculated as the final readings. Readings were taken at 18 different points along proposed Laropi-Moyo-Afoji Road. The noise levels were compared with the minimum and maximum noise levels shown in the Table 1.

Table 1: Maximum permissible noise levels relevant to project

Facility	Noise limited B (A) (Leq)	
	Day	Night
Operation of the facility	75	65
Residential buildings	50	35
Mixed residential (with some commercial and entertainment)	55	45

Time frame: Day – 6.00a.m -10.00 pm. Night: 10.00 p.m. – 6.00 a.m. The time frame takes into consideration human activity.



Plate 2: Handheld Sound Level Meter, Light Meter, Humidity Meter, and Temperature Meter (CEM DT-8820 ENVIRONMENT METER)

2.2.2.3 Vibration assessment

Vibration often presents a threat to human life in the project areas where it is subjected. The sources of vibration can be transport and construction equipment among others. PCE-VM 5000 vibration meter

(Plate 3) was used to assess the vibration levels in the project area. The acceptable vibration levels include values of total vibration in their gross (cm/s) and relative (dB) and values of speed through the most developed in practice frequency spectrum (> 355 Hz), which include 6 octaves of frequency bands. Each octave band has their own permissible values of the average-squared wave velocity or amplitude induced by the operating mechanisms and machinery.



Plate 3: PCE-VM 5000 VIBRATION METER: for measuring vibration

2.2.3 Water quality assessments

The sources of water pollutants during construction include; Soil erosion, diesel and oil, other harmful chemicals, construction debris and dirt. Water samples were taken along River Nile, River Amua and other wetlands in the project area including boreholes.

The water quality samples were collected in 1.5 liters plastic sampling bottles and delivered to Directorate of Water Resources and Management (DWRM) Laboratories in Entebbe for analysis. Several characteristics of water were assessed and these included; physical characteristics (temperature, color, light, sediment suspended in the water), chemical characteristics (dissolved oxygen, acidity (pH), salinity, nutrients and other contaminants) and biological characteristics (bacteria and algae).

2.3 Biological Environment assessments

2.3.1 Vegetation surveys

Langdale-Brown et al. (1964) vegetation map was used to examine the range of vegetation types that covered the project area more than 50 years ago to account for land use changes. Site specific vegetation descriptions and classifications were determined based on species dominance and floral features such as; grass, herb, shrub, tree and land coverage at each selected sampling site.

Quadrant sampling

A quadrant sampling unit of (25 x 25) meters for woodlands & forest; (10 x 10) m for swampy & marshy vegetation; thickets and Bushy vegetation was adopted. Plant species were assessed using the

DAFOR scale where; D=Dominant, A=Abundant, F=Frequent, O=Occasional & R=Rare. Tree size classes were also determined through random sampling of selected habitats along the roads. The tree size classes ranged from (< 10cm), (10-25cm), (25-40cm), (40-55cm) and (>55cm) with size classes assigned scores of 1, 2, 3, 4 & 5 respectively.

Plant species of conservation concern and invasive species encountered were recorded, geo-referenced and their habitats noted. Photographic records of the vegetation types and ecologically sensitive features were taken. Ecologically sensitive features were noted, and their geographical coordinates were taken. Photographic records of the vegetation types/ habitats were taken.

2.3.2 Mammals (Small, medium and Large Mammals) Survey methods

Mammal surveys were conducted for both terrestrial and aquatic species during the months of August 2020 and February 2021. Surveys were conducted within Natural and semi-natural areas including rocky habitats along the proposed Road of Laropi-Moyo-Afoji.

Large and medium-sized mammal surveys involved looking for physical signs (fecal, prints, bones etc.) of mammal presence and actual mammal sightings especially ungulates and carnivores. Opportunistic data on the occurrence of smaller carnivores (genets and mongoose) was also collected based on sightings, spoors/prints or fecal material.

The bat surveys were conducted at the survey locations identified in the reconnaissance survey. Bats were surveyed using acoustic techniques. Acoustic techniques were employed at the survey locations using an SM2 Bat detector.

Small mammal surveys (rodents and shrews) concentrated on non-lethal trapping methods in order to count and characterize as much as possible the population structure of the different species along the project area.

2.3.3 Birds Survey Methods

Transects and Timed-Point Counts Method were used, as recommended by Nature Uganda based on the British Trust for Ornithology (BTO) method. Timed Point Count involved records all birds were seen and heard from a Point Count Station for a set period. While for transects, the observers walked along the proposed Road alignment, stopping as necessary to use binoculars, and all birds seen or heard are recorded.

Opportunistic surveys were conducted along Albert Nile, at Laropi to establish the ornithological picture of the project area.

2.3.4 Herptiles Survey Methods

Both reptiles and amphibians were surveyed using Visual Encounter Surveys (VES) as recommended by (Zweifel, 1955). VES was conducted by observers walking through a designated area for a prescribed period visually and systematically searching for animals. Other methods, such as; Acoustic (sound recordings) survey method, Dip netting in aquatic habitats and interviews with communities.

2.4 Socio-economic surveys

2.4.1 Study design

A cross-sectional descriptive method of data collection and analysis was employed. The main quantitative data collection method used was the questionnaire. Several variables were assessed within the questionnaire which were clustered under major themes that included; household income,

expenditure, access to water, health services, social networks, food and nutrition energy sources, housing conditions, transport, vulnerability and land ownership among others.

2.4.1.1 Selection of the sample size

The study population was randomly selected from households along the road and those within the direct zone of impact. Household heads were selected as the major respondents in this survey since they have sufficient and required information. In cases where the Household (HH) heads were absent other responsible adult household members were selected.

2.4.1.2 Sampling procedure for Qualitative data collection

Purposive sampling was used to select participants with relevant information to this study. The sample at the district level included; Chief Administrative Officers, LCV Chairperson, District Natural Resources Officers, District Environment Officers, District Community Development Officers, District Land Officers, District Engineers, District Physical Planners and District Water Officers. The sub-county sample included: Sub-county Chiefs, Community Development Officers, and LC III Chairpersons and area council representatives of parishes traversed by the road.

2.4.1.3 Methods of data collection

The following methods were used during data collection. Including;

a) *Key Informant Interviews*

Interviews were conducted to gather information from local government leaders at National, District, Sub-county levels and community. The sample at the district level included; Chief Administrative Officers, LCV Chairperson, District Natural Resources Officers, District Environment Officers, District Community Development Officers, District Land Officers, District Engineers, District Physical Planners and District Water Officers

b) *Focus Group Discussions*

This technique involved small group of respondents (usually 6-10 respondents) who were interviewed together in a common location. The interviewers led the discussions and ensured that every person had an opportunity to respond. Focus group discussions allowed deeper examination of complex issues than other forms of survey research. Focus group discussions were held with three sub counties of Laropi, Metu and Moyo.

c) *Informal discussions*

The ESIA team held discussions with project affected persons to try to explore and compare their respective perception of the proposed project.

d) *Photography and direct Observation*

This was used to capture scenarios important to the study that can sometimes best be explained through visual effects. For example, the quality of life of project affected persons can be explained by visually showing the kind of shelter in which they live. Observation was used by the sociologist to determine observable variations such as facial expressions

e) *House Hold Surveys*

Quantitative methods were used to capture the quantifiable socio-economic aspects within the households and community. Some of the aspects considered included the demographics of the respondents, livelihood aspects,

asset acquisition and management, general wellbeing in terms of health, access to social services, waste management, energy access and utilization, among others. The qualitative methods were used to understand collecting voices/ perceptions, concerns, fears, expectations regarding compensation and gender related issues such as Gender Based Violence that might impact on households and the community and to illuminate the complexities which influence the socio-economic phenomena within the community as well as understanding the community perspectives towards resettlement, among others.

2.5 Physical Cultural Resources Surveys

i). Paleontological and Archaeological surveys

The survey inspected archaeological record such as artifacts, eco-facts and features for example stone and bone tools, metallurgical implements, potsherds and others, bones, skeletons and storage pits, fire places (hearths), house foundations or even rock paintings and engravings on cave walls or boulders (Humphreys, 1986); along Laropi-Moyo-Afoji. To determine the cultural history of the area, test pit excavations were carried out. With pre-field information, only one test pit was done.

ii). Ethnographic surveys

Consultations with communities and other stakeholders were done so as to understand some interpretations on some sites as they regarded to be custodians of our recent past histories. Interviews were carried out to identify sites of cultural heritage importance. Focus Group Discussions and Individual Interviews with community members of the affected areas were conducted to obtain information about the cultural heritage resources and their significance. Stakeholders guided the survey team to some of the heritage sites and gave recommendations regarding the proposed development. Among those consulted were District leaders, cultural and religious leaders.

2.6 Impact Assessment

The pre-construction, construction and operation phases of the proposed Road development are anticipated to have potentially significant impacts on the communities and biophysical environment. Whereas positive impacts should be enhanced, negative impacts should be mitigated or eliminated. During establishment of impact significance, several impact parameters were evaluated using matrix method. The impact parameters that were assessed include; Type, Timing, extent, certainty, duration, magnitude and receptor sensitivity. Table 2 provides definition to assessed impact parameters.

Table 2: Definition of impact parameters assessed

Timing	:	time frame (phase) at which an impact occurs within a project area
Duration	:	the period of persistence of an impact on receiving environment
Extent	:	area of occurrence/influence by the impact on the subject environment
Magnitude	:	the strength of the impact on the environment
Certainty	:	the likelihood of occurrence of an impact
Significance	:	the overall change brought in the environment
Sensitivity	:	Level of change on the receptor environment

2.6.1 Determination of Impact Significance

Significance of an impact depends on magnitude and sensitivity. Magnitude is the strength of an impact on the environment. The significance of impacts associated with the proposed Road project was analyzed using Matrix method (Leopold et al, 1971 & HA, 2008) and later subjected to professional judgment (Canter, 1996, Morris & Therivel, 2001), during the project cycle including pre-construction, construction and Operation.

Table 3: A quantitative format for ranking impacts based on parameters summarized as magnitude and sensitivity.

Significance			Sensitivity			
			Very low	Low	Medium	High
			1	2	3	4
Magnitude	Very low	1	1 Negligible	2 Minor	3 Minor	4 Minor
	Low	2	2 Minor	4 Minor	6 Moderate	8 Moderate
	Medium	3	3 Minor	6 Moderate	9 Moderate	12 Moderate
	High	4	4 Minor	8 Moderate	12 Moderate	16 Severe

Table 4: Rating of impacts

Symbol	No	minor	Low	Moderate	High	Very High	No
M=Magnitude	0	2	4	6	8	10	0
P=Probability	0	1	2	3	4	5	0
E= Extent	0	1	2	3	4	5	0
S=Significance			< 30	40-50	> 60		

Where, D=DURATION: (0 to 1 years) –1. (2 to 5 years) –2. (5 to 15 years) –3. (> 15 years) – 4. Or permanent – 5, And **S= (E+D+M) P**

2.7 Public Disclosure

This ESIS will be accessible, at the Sub-counties of Moyo, Laropi and Metu; and at the District and National levels. The document will be disclosed at appropriate in-country websites of AfDB and UNRA.

CHAPTER THREE

3.0 PROJECT DESCRIPTION

- 3.1 Location and Nature of the project
- 3.2 Conditions of the existing Road
- 3.3 Classification of the Proposed Road Project
- 3.4 Elements of Design for Laropi-Moyo-Afoji
- 3.5 Proposed Road geometry
- 3.6 Key project activities



3.0 PROJECT DESCRIPTION

3.1 Location and Nature of the project

The Laropi-Moyo-Afoji project road is approximately 37km, located in Moyo District in the West Nile Region of Uganda (Figure 2). The District is bordered by South Sudan to the North and East, Adjumani District to the south, across the waters of the White Nile and Yumbe district to the west. The district headquarters at Moyo are located approximately 158 Kilometres by road northeast of Arua, the largest city in the Sub region and approximately 476 Kilometres by road Northwest of Kampala, Uganda’s largest capital city. The proposed Laropi-Moyo-Afoji road project starts at Laropi (UTM 36N, 367969.4E 392957.3N) and traverses through several villages before terminating at the Uganda-Sudan border in Afoji (UTM 36N 353050.9 E, 409442.6 N). The road’s current condition is poor characterized by surface corrugations, potholes, deformations and poor drainage facilities.

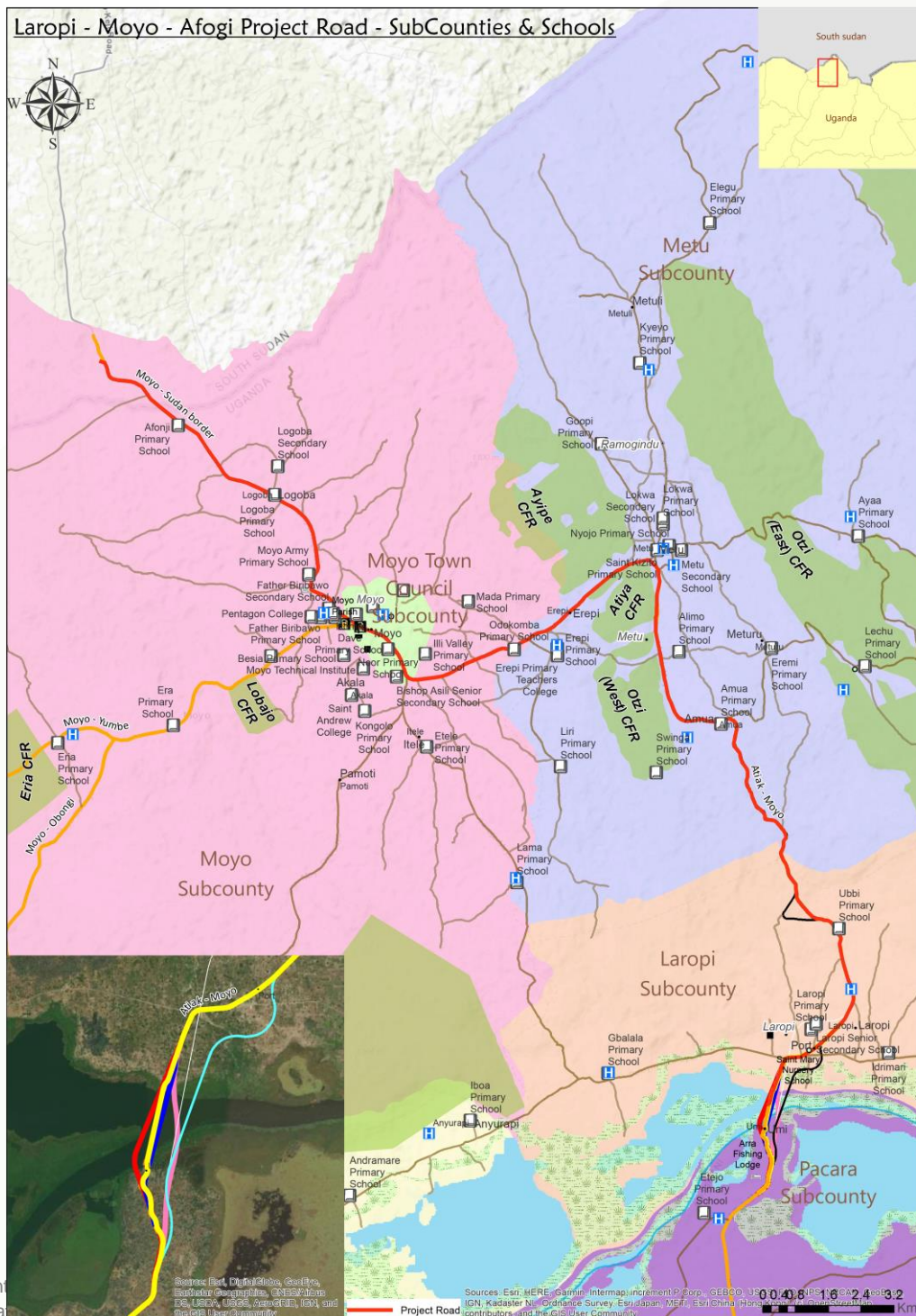


Figure 2: Location of Laropi-Moyo-Afoji Road in Uganda

The table 5 below highlights some of the major towns along the project area.

Table 5: Major points along the Project

Location	Coordinates (UTM 36N)		Elevation (m)
TOWNS	Easting	Northing	
Laropi	367969.4	392957.3	622
Metu	365222.7	405632.9	1001
Moyo	357917.5	404030.2	984
Pamoju	364679.2	317229	898
Afoji	353050.9	409442.63	959

3.2 Conditions of the existing Road

The Laropi-Moyo-Afoji (37Km) is currently a Class C gravel road. The road is divided into two main sections:

(a) Laropi - Moyo Section

This is 26.7 km long. The first stretch starts at Laropi from the current ferry landing and moves through Mountainous terrain (71+000 – 77+000) to Metu Trading centre. This road section goes through Otzi forest reserve and finally terminates in Moyo Town.



Laropi ferry landing site (start of the project)
(N03O33.148', E031O48.767')



Laropi trading center
(N03O33.158', E031O48.867')



Road section through Otzi Forest reserve
(N03O38.962', E03O47.261')



River Amua
(N03O39.454', E031O47.354')

Plate 4: Visual impression of Laropi-Moyo Section

(b) Moyo – Afoji section

This section is 8.7 km long; starting from Moyo town council about 1.2km of the Moyo – Yumbe road. It is generally flat to rolling until all through to Uganda – South-Sudan boarder in Afoji.



*Avenue planting of Melicia excelsa in Moyo town
(N03O38.924', E031O43.919')*



*The Afoji URA Border post
(N03O42.263', E031O40.574'_*



Nature of Housing in the Project area



Grazing activities within the project area near Metu

Plate 5: Visual impression of Moyo-Afoji Section

3.3 Classification of the proposed Project Road

In order to decide on the Design Criteria to be used for the project roads, the project road was classified accordingly as per the Geometric Design Standards stated in URDM.

3.3.1 Functional Classification

Functional Classification of highways is the predominant method of grouping highways since most roads have either a function of providing mobility between centers and areas or providing access to land and adjoining properties or connecting neighboring countries. In addition to providing mobility between major economic centers of Laropi, Metu and Moyo the road connects southern Sudan to Uganda via Afoji making it the shortest route to Juba from Kampala and therefore the functional class of the project road is Class A: International Trunk Road. Design features including the carriageway width, alignment continuity, frequency of access, grades, traffic controls and road reserves to meet intended purpose of the road were taken into due consideration.

3.3.2 Terrain Classification

The geometric design elements of a road depend on the transverse terrain of land through which the road passes. The project road traverses flat and rolling terrain as summarized in table 6 below.

Table 6: Terrain Classification

No.	Chainage	Terrain
Laropi-Moyo (26.7km)		
1	63+000 – 71+000	Gently rolling
2	71+000 – 77+000	Mountainous
3	77+000 – 91+720	Gently rolling
Moyo-Afoji (10km)		
1	0+000 – 10+000	Generally flat to rolling

3.4 Elements of Design for the Laropi-Moyo-Afoji

3.4.1 Average Daily Traffic (ADT)

The 12-hour daily traffic was converted to 24-hour daily traffic by using conversion factors estimated for the various vehicle classifications. Daily 24-hour traffic (for each vehicle classification) = Daily 12-hour traffic x Conversion factor for weekday/weekend. After converting the 12-hour daily traffic to 24-hour daily traffic using the conversion factors, an average 24-hour Average Daily Traffic (ADT) was obtained by finding the average of the 24-hour traffic flows obtained for the seven days.

The summary of the 24-hour (ADT) at the traffic count stations is presented in Table7.

Table 7: 24hr ADT summary at each of the count stations

Vehicle Classification	ADT SUMMARY					
	Metu Station		Pamoju Station		Logoba Station	
	Dir. A	Dir. B	Dir. A	Dir. B	Dir. A	Dir. B
Motorcycles	260	238	185	184	258	247
Saloon cars and taxis	48	25	8	11	3	4
Light goods (vans, pick-ups, 4WD)	41	41	6	12	8	4
Small Bus; Minibuses and matatu	23	4	1	1	0	0
Medium Bus; Coasters	0	1	0	0	0	0
Large Buses	9	5	1	1	0	0
Light Single Unit Truck; - Dynas & Tractor	24	9	4	19	3	2
Medium-Large Single Unit Trucks; - Lorries	21	10	1	3	3	1
Truck trailers and semi-trailers	6	1	0	1	1	1

* Dir. A (Direction A: Moyo – Laropi), Dir. B (Direction B: Laropi-Moyo)

* Dir. A (Direction A: Moyo – Afoji), Dir. B (Direction B: Afoji-Moyo) – Logoba Station

3.4.2 Design Traffic

The deterioration of paved roads caused by traffic results from both the magnitude of the individual wheel loads and the number of times these loads are applied. The design traffic considered was 7.15 MESA and 2.13 MESA for Laropi-Moyo and Moyo-Afoji road sections

3.4.3 Drainage

The road section has insufficient drainage with a lot of both seasonal and permanent wetland crossings. The existing cambers, culverts and bridges are in fairly good condition. Several drainage facilities will be provided in all areas that have been identified.



Plate 6: River Amua (N03039.454°, E031047.354) along Laropi – Moyo road section

3.4.3.1 Proposed pipe culvert widening-extension techniques

All existing pipe, metal or concrete, which diameter is less than 900mm will be replaced by new bigger pipes with minimum diameter of 900mm; on the contrary, for those pipes equal or bigger than 900 mm diameter, that will be evaluated in fair condition and not able to solve their hydraulic functions, will be extended and the following technique is proposed.

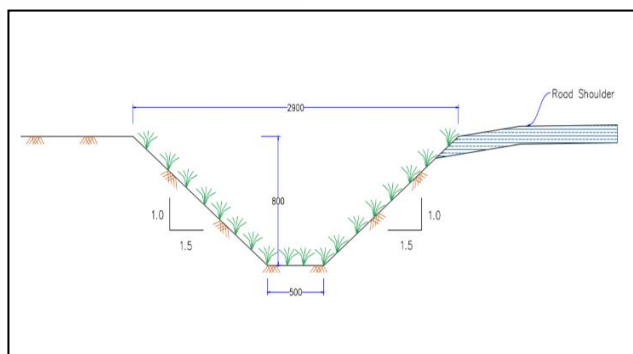
- Existing end structure demolition (2 in case of two sides widening)
- Existing soil removal under extension (2 m) and replacement with rock fill material
- Compaction to 97% and class A bedding (15 cm under the pipe)
- Jointing collar (60 cm) metal or concrete according to culvert material
- New culvert placement (metal or concrete)
- New end structure construction
- Class A bedding up to half diameter
- Concrete surrounding
- Normal backfill

3.4.3.2 Proposed Culvert Schedules

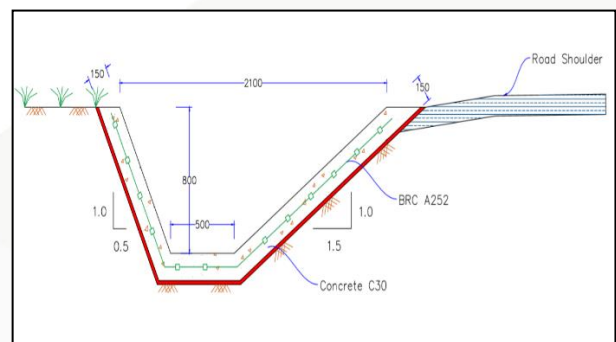
The summaries of the proposed cross drainage structures along Laropi – Moyo – Afoji road are shown in the tables 8 below.

Table 8: Summary of the Proposed Culverts along Laropi – Moyo – Afoji Road

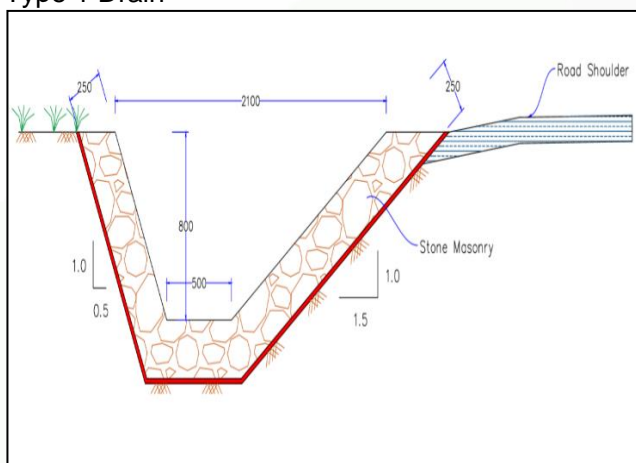
MATERIAL	SIZE (mm)	NO. OF CELLS	NO. OF LOCATIONS
Concrete Pipe Culverts	900	1	61
		2	26
		3	0
	1200	1	1
		2	2
		3	1
Box Culverts	3.0mL X 2.0mH	2	2
	3.0mL X 3.0mH	4	2 (Retained)
	3.0mL X 3.0mH	5	1 (Retain Existing 4 Cells & Add 1 Cell)
	4.0mL X 3.0mH	5	1
Viaduct Bridge (1000.0m total span), 14.0m above the High Flood Level			1
TOTAL			98.0



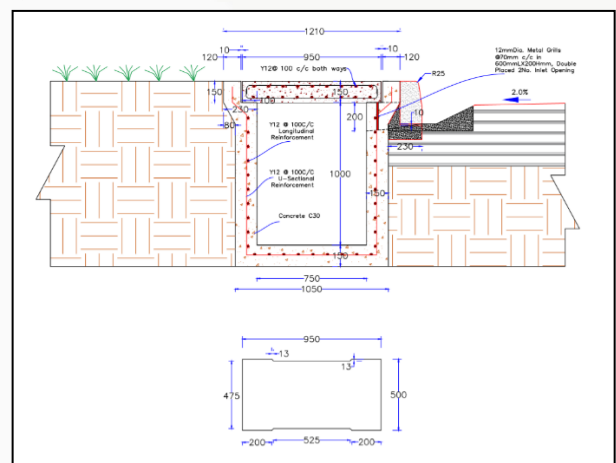
Type 1 Drain



Type 2 Drain



Type 3 Drain



Type 4 Drain

Figure 3: Cross drainage structures along Laropi – Moyo – Afoji Road

3.4.4 Proposed Hydraulic Structures

3.4.4.1 The Proposed Laropi Bridge Type and Configuration

The proposed Laropi-Moyo-Afoji Road starts from proposed Laropi Bridge; the bridge is Balanced Cantilever continuous concrete Box Girder Bridge having 11 spans (25+70+2@90+3@150+2@90+70+25) with variable depth. The superstructure consists of a single box girder having two cells with inclined webs monolithically connected to multiple RC Piers that act as supports. The total top slab width of the box girder is 15.0 m comprising of 7.0m carriageway, 1.0m median, 2.0m shoulders and 1.5m walkway on either side with crush barriers along the edges of walkways. The width of the bottom slab is 7.0m and the maximum height is 9.4m (L/16) at the pier head and 4.3 m at the mid-span (L/35).

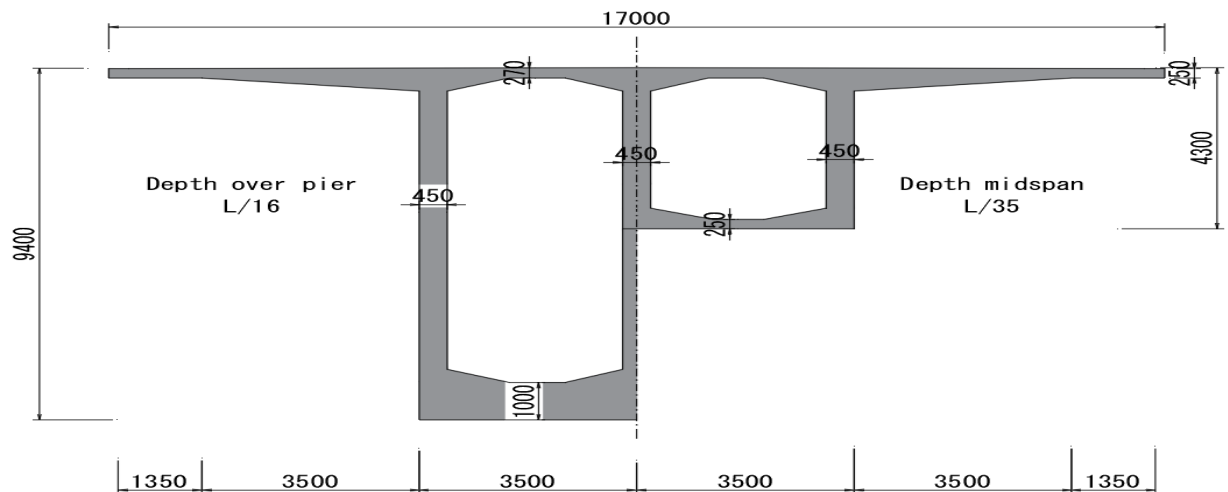


Figure 4: Typical Bridge Cross Section of proposed Laropi Bridge where the proposed Road project starts.

3.4.4.2 Proposed Culverts

Based on multi criteria analysis carried out, in-situ concrete box culvert is the most suitable due to its ease of construction, durability, technical knowhow and relatively lower initial cost of construction. The proposed culvert structures range from 5.0 x 4.0m – Single cell to 5.0 x 4.0m triple cell culverts. Figure 5 below shows typical cross-sectional elevation.

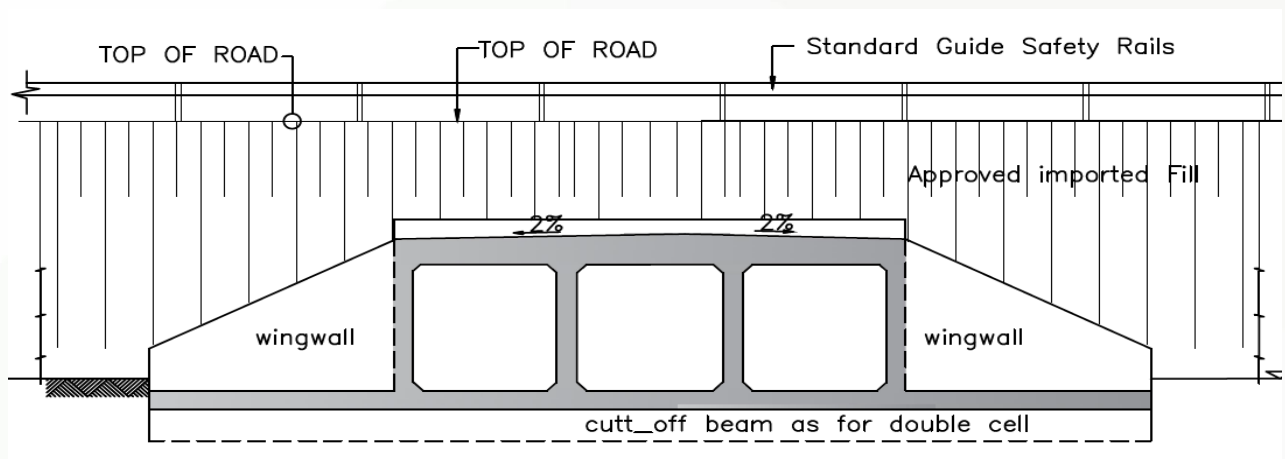


Figure 5: Typical Culvert Configuration

3.5 Road Geometry of the Proposed Project

The overall objective of this geometric design was to produce a sound, consistent, safe, and efficient design that will serve the traffic with its intended purpose. Needless to mention, there is no way to achieve this without making a proper selection of the alignment elements like Sight distances, Super elevation, Widening, grades, Horizontal and Vertical Alignment features. In order to establish the Road Design Class, the AADT in the design year was converted into equivalent passenger car units (PCU) in accordance with the PCU factors spelt out in Table 5-4 of the URDM (2010). The PCUs computed total to 5572 at 20-year design life which results in a Paved Class II road as presented in of the URDM (2010). The standard elements of a Paved Class II road are presented in the table 9 below.

Table 9: Geometric Design Parameters for Class II road

Design Element	Unit	Flat	Rolling	Urban/Peri-Urban
Design Speed	km/h	90	70	50
Min. Stopping Sight Distance	m	135	95	58
Min. Passing Sight Distance	m	605	485	345
Min. Horizontal Curve Radius	m	320	185	100
Max. Gradient (desirable)	%	3.5	5.5	6
Max. Gradient (absolute)	%	5.5	7.5	8
Minimum Gradient in cut	%	0.5	0.5	0.5
Maximum Super elevation	%	7	7	4
Crest Vertical Curve stopping	K _{min}	43	22	9
Crest Vertical Curve passing	K _{min}	307	246	126
Sag Vertical Curve stopping	K _{min}	30	20	11
Normal Cross fall	%	2.5	2.5	2.5
Shoulder Cross fall	%	4	4	4
Right of Way	m	50	50	30

3.5.1 Design Speed

The road was divided into sections based on its characteristic terrain and function within the area. Based on this, a design speed was defined from which all design parameters meeting requirements of safety, aesthetics, and economics were determined from the URDM. Table 10 below describes the various sections along the project road with corresponding design speeds.

Table 10: Design speeds along the project road

From	To	Length (km)	Area Traversed	Terrain /Transverse Slope	Design Speed km/hr
Laropi-Moyo (27km)					
63+000	65+300	2.3	Rural	Gently rolling	70
65+300	66+300	1	BRIDGE		
66+300	71+000	4.7	Rural	Gently rolling	70
71+000	77+000	7	Rural	Mountainous	50
77+000	82+780	5.8	Rural	Gently rolling	70
82+780	83+120	0.3	Urban	Gently rolling	50
83+120	90+000	6.9	Rural	Gently rolling	70
90+000	91+720	1.72	Urban	Gently rolling	50
Moyo-Afoji (10km)					
0+000	10+000	10	Rural	Flat to rolling	70

In Urban areas, a 50km/h design speed was adopted. Urban sections have been defined as in table 11.

Table 11: Urban Sections with Design Speed of 50Km/h

Town/ Village	Start Chainage (m)	End Chainage (m)	Length (m)
(a) Laropi-Moyo			
Laropi	67+000	67+940	940
Metu	82+930	83+480	550
Moyo	90+000	92+720	1887
(b) Moyo Town Link			
Moyo Town Link	0+000	0+800	800

The various road design features associated with these Design Speeds are summarized in Table 12.

Table 12: Road Design Features

Parameters	Value
Right of Way	50m
Lane width	2 x 3.5m
Shoulder width	2 x 2.0m
Normal Cross fall (%)	2.5
Shoulder Cross fall (%)	2.5

3.5.2 Design Vehicle

DV-4 as defined in the URDM Table 5-1 (URDM, 2010) was adopted as the design vehicle for purposes of turning radius at junctions. This was because it represented the largest vehicle likely to use the project road with considerable frequency. The characteristics of the Design Vehicle are presented in Table 13 below;

Table 13: Dimensions of the Design Vehicle

Design Vehicle Type	Symbol	Overall (m)			Wheel base (m)		Wheel Base (m)	Minimum design turning radius (m)	Minimum inside radius (m)
		Height	Width	Length	Front	Rear			
Semitrailer Combination large	DV4	4.1	2.6	16.7	0.9	0.6	6.1 & 9.1	13.7	5.8

3.5.3 Sight Distance

For a safe and efficient operation of all vehicles that are to use these project roads, it is important to ensure that all drivers under all normal operating conditions are able to see ahead of them to avoid striking any unexpected objects in the travelled way, and also avoid crashes with opposing vehicles when passing other vehicles.

3.5.3.1 Stopping Sight Distance (SSD)

While travelling, a vehicle at or near the design speed of the road should be able to come to a stop before reaching a stationary object in its path. Thus, this Stopping Sight Distance involves a combination of the distance that a vehicle would travel from the instant the driver realizes the object ahead and applies brakes together with the distance travelled by the vehicle from the moment these brakes are applied until it comes to rest. Stopping sight distance was assessed using civil 3D and deemed adequate as per the proposed design speed.

3.5.3.2 Passing Sight Distance

On these two-lane roads, we expect faster moving vehicles to overtake the slow-moving vehicles. In order to accomplish the passing safely, the overtaking driver should be able to see a sufficiently long distance ahead which is clear of traffic before meeting the opposing vehicle that appears during the manoeuvre. Thus, this is the distance required to enable the driver of one vehicle to safely pass another vehicle without interfering with the speed of an oncoming vehicle travelling at design speed. In computing this passing sight distance (Table 14 and 15), there are assumptions made, the driver's eye taken as 1.07m above the road surface, and the height of object as 1.3m.

Table 14: Limitation of passing sight distance along Laropi-Moyo (27km)

Laropi-Moyo (27km)					
From	To	Length	Road Marking	LHS	RHS
63+000	63+440	440.0	M01		
63+440	63+820	380.0	M04	M01	M03
63+820	65+460	1640.0	M01		
65+460	65+740	280.0	M04	M03	M01
65+740	66+020	280.0	M01		
66+020	66+620	600.0	M04	M03	M01
66+620	66+700	80.0	M04	M03	M01
66+700	67+630	930.0	M01		
67+630	67+980	350.0	M04	M03	M01
67+980	68+180	200.0	M01		
68+180	68+600	420.0	M04	M01	M03
68+600	69+320	720.0	M01		
69+320	69+600	280.0	M04	M03	M01
69+600	69+820	220.0	M01		
69+820	70+140	320.0	M04	M01	M03
70+140	85+120	14980.0	M01		
85+120	85+160	40.0	M04	M01	M03
85+160	85+320	160.0	M03		
85+320	85+500	180.0	M04	M03	M01
85+500	85+740	240.0	M01		
85+740	86+000	260.0	M04	M01	M03
86+000	87+400	1400.0	M01		
87+400	87+680	280.0	M04	M03	M01
87+680	87+940	260.0	M01		
87+940	88+280	340.0	M04	M01	M03
88+280	89+540	1260.0	M01		
89+540	89+860	320.0	M04	M03	M01
89+860	91+720	1860.0	M01		

Table 15: Limitation of passing sight distance along Moyo-Afoji (10km)

FROM MOYO			FROM AFOJI		
From	To	Length	From	To	Length
0+000	0+680	680.0	10+000	9+280	720.0
0+940	1+600	660.0	8+940	8+660	280.0
2+180	3+180	1000.0	7+840	7+420	420.0
3+520	4+520	1000.0	6+680	6+300	380.0
4+920	5+280	360.0	5+860	5+400	460.0
5+760	6+620	860.0	5+060	4+120	940.0
6+880	7+220	340.0	3+780	2+800	980.0
8+100	8+500	400.0	2+060	1+500	560.0
8+880	10+095	1214.5	1+300	0+000	1300.0

3.5.4 Cross sectional Elements

The design cross-section is determined from Table 4-2 of the URDM (2010) which defines the minimum cross section elements for various Road Design Classes. Whereas the manual specifies 6.0m carriageway width for Paved Class II roads, 7.0m carriageway has been adopted for the Project road. This is in line with UNRA's minimum design guidelines for National Roads. The designed cross-sectional elements are presented in Table 16 below;

Table 16: Designed Cross-Section Elements

Typical Cross Section		Cross-section Elements				
Type	Description	Carriageway	Parking/ Service Lane	Shoulders	Rounding Strip	Drain Type
Type 1	Rural Cross-section	2 Lanes 3.5m wide each		2 No. 2.0m wide Paved	0.45m wide	Open drain lined/ unlined
Type 2	Laropi & Metu Town	2 Lanes 3.5m wide each	3.0m wide lane each side	2 No. 2.5m wide Raised Ped Walkways	None	Lined covered drain
Type 3	Moyo Town 90+000 – 91+200	2 Lanes 3.5m wide each	3.0m wide lane & 3.0m service lane	2 No. 2.5m wide Raised Ped Walkways	None	Lined covered drain
Type 4	Moyo Town 91+200– 91+720	2 Lanes 3.5m wide each	3.0m wide lane & 3.0m service lane	2 No. 2.5m wide Raised Ped Walkways	None	Lined covered drain
Type 5	Moyo Town Link	2 Lanes 3.5m wide each	3.0m wide lane & 3.0m service lane	2 No. 2.5m wide Raised Ped Walkways	None	Lined covered drain

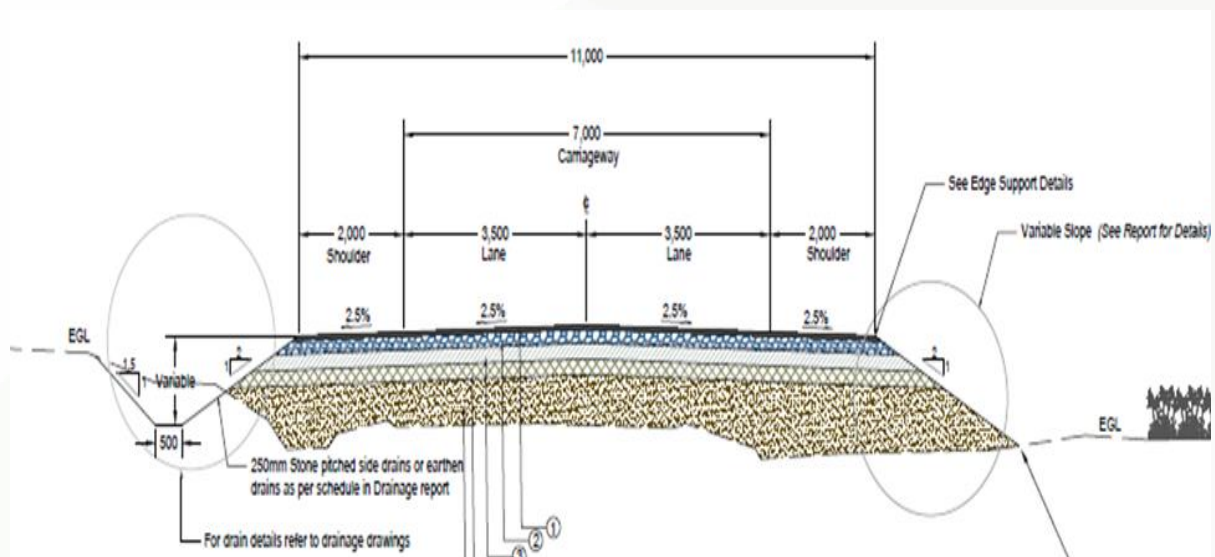


Figure 6: Rural Cross Section (Type 1; as shown in Table 16)

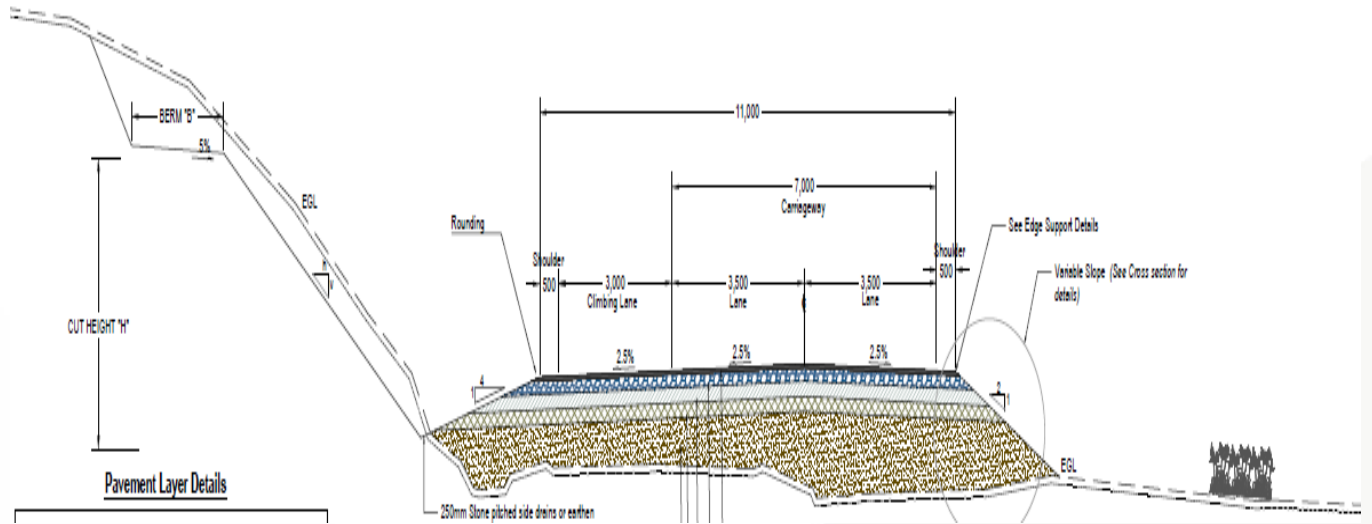


Figure 7: Rural Cross Section (Climbing Lane; as shown in Table 16)

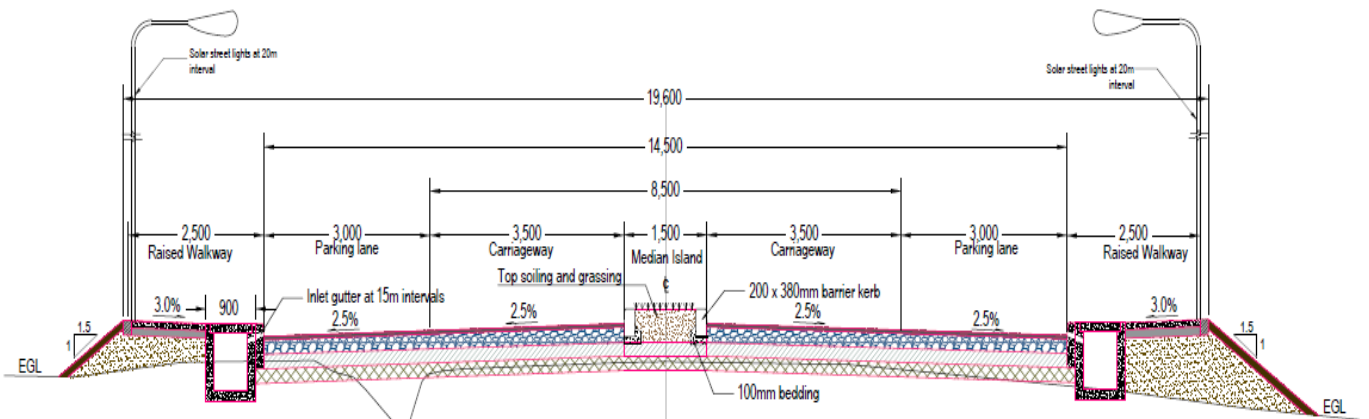


Figure 8: Urban Cross Section (Type 2; as shown in Table 16)

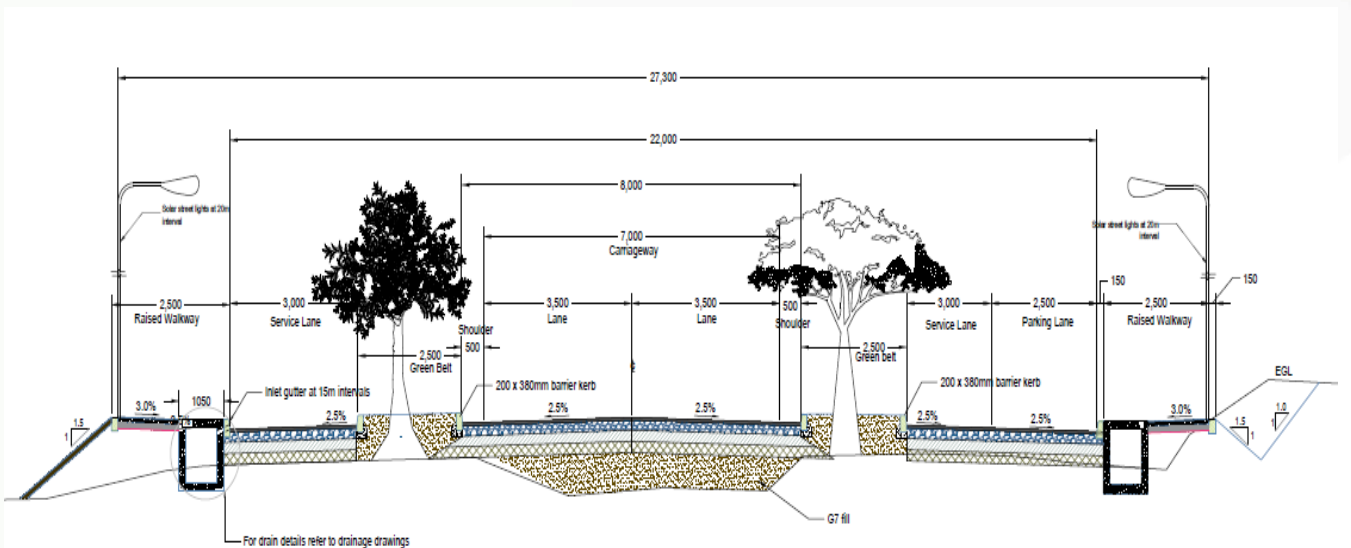


Figure 9: Urban Cross Section (Type 3; as shown in Table 16)

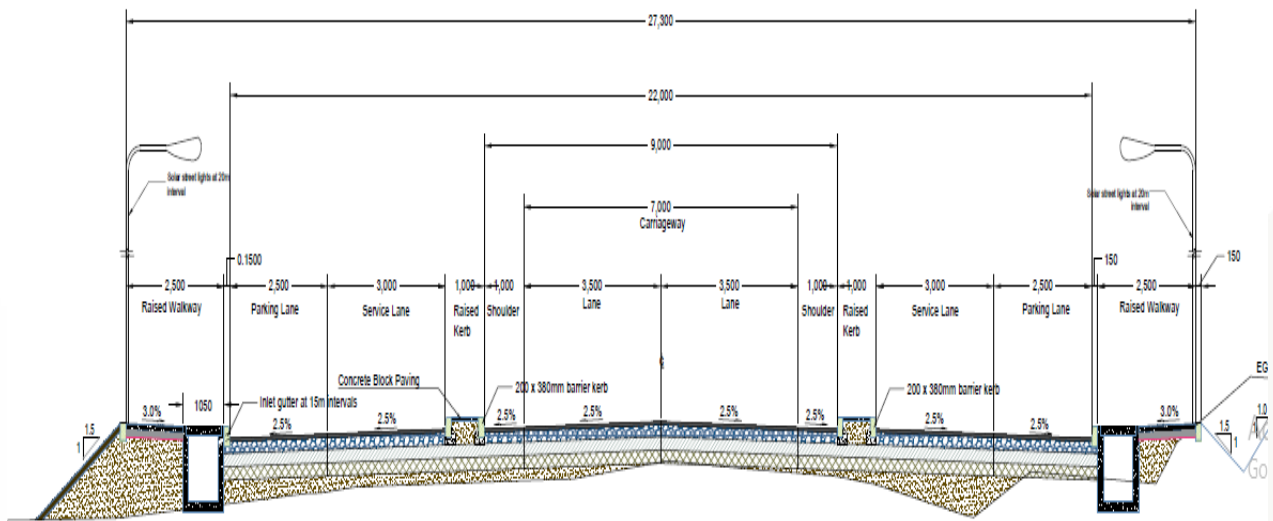


Figure 10: Urban Cross Section (Type 4; as shown in Table 16)

3.5.4.1 Material specifications for Recommended Pavement layers

- i) **Asphalt Concrete Surfacing (AC14):** This comprises of Aggregates and bitumen PG50/70. The quality of aggregates used shall be in accordance to Section 4202 Part C of the General specifications for Roads and Bridges while the bitumen shall meet requirements of Table 4202/1 of the same specification.
- ii) **Base Layer:** This comprises a dense graded crushed stone of max size 37.5mm, 100-120% modified AASHTO or 85% bulk relative density: fines of PI<6
- iii) **Sub-base Layer:** This layer comprises a mechanically modified gravel material from the borrow area with 40% CRR to achieve a CBR strength of at least 45%. PI < 10: swell, 0.5@ 100% mod. AASHTO or a chemically stabilized layer with cement to a UCS between 0.75-1.5Mpa.
- iv) **Selected Layer:** This layer comprises of scarification of the existing wearing course and addition of G15 material where necessary to form a 200mm layer compacted to at least 95% of MDD.

3.5.5 Construction Material Sources

3.5.5.1 Gravel sites

The Laropi-Moyo-Afoji road section is heavily underlain by granitic rocks making it almost impossible to have gravel borrow areas in the section. A few borrow pits located along the project road have a haulage distance between 5 -18km. Two borrow areas were identified along Moyo-Yumbe road between km 15-25 from Moyo town. These are likely to serve the last section of the road project. The materials investigations also included verification/estimation of quantities available for the different types of materials found along the road project.

Plate 7 shows investigations ongoing and Table 18, gives details of the potential borrow pits identified during the investigation.



Plate 7: Borrow Area Test Pit Investigation and Sampling in the project area

Table 17: Location of potential Borrow areas and their Estimated Quantities

BPT No.	Chainage	offset (km)	Side	Village	Coordinates		Est Dmns (m)	Est Qty M ³	REMARKS
					Eastings	Northings			
BP1	0+000	5	LHS	Gbalala Central	353914	394478	200*200*1	48,000	Existing and can be expanded
BP2	6+200	0.9	RHS	Angudu Hill	354169	403473	300*300*1	90,000	Located at a hill slopes
BP3	26+000	22.5	LHS	Moyo-Yumbe Road	339378	396602	200*200*2	80,000	RHS of Moyo – Yumbe road offset 0.3m. Can be expanded
BP4	26+000	24.8	LHS	Moyo-Yumbe Road	338020	398356	200*200*2	80,000	RHS of Moyo – Yumbe road offset 0.1m. Can be expanded
								298,000	

Sufficient quantity of borrow materials (80-100 Kg) was sampled and taken to the laboratory for testing. All Test Pits were back filled and reinstated to an acceptable condition. The representative samples were subjected to the following tests:

- Sieve Analysis
- Atterberg Limits
- Linear Shrinkage
- Heavy compaction
- Point CBR

The summary of results is presented in Table 18 below

Table 18: Summary of borrow pit Test results

BP	Location	Percentage passing 0.075	LL	PI (%)	LS (%)	GM	Swell	CBR 95%
BP1	66+000 LHS	23	33	18	8	1.9	0.7	21
BP2	77+200 RHS	22	42	23	8	1.9	1	25
BP3	92+000 / 22.5km Offset	21	43	25	12	2.1	0.5	33
BP4	92+000 / 24.8km Offset	27	44	23	12	1.9	0.6	21

From the laboratory test results all borrow pit identified material is suitable for G15 quality material for fill as they meet the specifications as highlighted in table 3602/1 General Specifications for Road and Bridge Works series 3000. BP1 and BP2 can be modified to reduce the PI to get G30 material. BP3 and BP4 can only be used for G15 fill material as they have a high LS of greater than 9.

Table 19: Suitability of Borrow pit materials according to the Ugandan General Specifications for Road and Bridge Works series 3000

BP	Location	Suitability in Road Construction
BP1	66+000 LHS	G15 Fill material, mechanically modified to a G30
BP2	77+200 RHS	G15 Fill material, mechanically modified to a G30
BP3	92+000 / 22.5km Offset	G15 Fill material
BP4	92+000 / 24.8km Offset	G15 Fill material

The conclusion above is based on test results from the borrow pits, however, stabilization tests need to be conducted to get more solid results

3.5.5.2 Water Sources

During the construction of the road about a total of 150m³ of water per day will be required. Field studies showed that River Nile is the most appropriate source for water abstraction. Water will be pumped from the River via a conduit of pipes up to the water bourses and camp(s). The River can be accessed at Laropi. Other water points along the Moyo – Afoji road section shall be identified. The contractor will be required to obtain water abstraction permits from the directorate of water resources development of the Ministry of Water and Environment for both surface and ground water abstraction.

3.5.5.3 Rock (Aggregate) Material Sites

The project area is endowed with rocks that, if found suitable, can provide stone materials for the Road construction. Most of rocks, especially near the Nile are in the exiting alignment. The contractor will however test the quality of these rocks to ascertain suitability. The contractor will be required to undertake separate ESIA in conformity with national and AfDB Safeguards requirements, for the identified site for quarry operations.

3.6 Key Project Activities

The project activities include those during the pre-construction, construction and operational phases of the proposed upgrading of Laropi-Moyo-Afoji road project. Each activity has likely adverse impacts on the environment. The following works will form part of the activities that will have to be carried out:

- i. widening of the road;
- ii. improvements to alignments;
- iii. improvements to the road and Bridge quality;
- iv. Improvement to drainage.

The Implementation period has been provided in Table 20 below in three phases with their time framework.

Table 20: Tentative Implementation Framework

Activity	Time frame
Design and tendering	2021
Construction	2022 - 2025
Post construction (operation and maintenance) and Defect Liability Period (DLP)	2023 - 2025

3.6.1 Pre-Construction Phase

3.6.1.1 Acquisition of the Right of Way.

UNRA will have to acquire the Right of way of about (50 meters in rural areas and 30 meters in urban centres) before the upgrading the road. This will be determined practically using the existing road as a benchmark for most sections of the route. The number of property and land to be acquired and affected will be in the Valuation Report for locations and details. These include residential, commercial, mixed use properties, fence walls and utility facilities.

- Demarcation of the road reserve (50 meters in rural area and 30 meters in urban area including servitudes);
- Surveying: all sections of the proposed route have been surveyed in detail;
- Markings and Chainage have been done along the entire proposed route; and
- Identification of sources of materials and testing is complete.
- Identification of project affected persons and Resettlement Action Plan
Implementation of the Resettlement Action Plan

3.6.2 Construction Phase

3.6.2.1 Recruitment, Earthworks, Clearing, Grubbing and Material Excavation and Transportation

The main type of works involved during the construction of the road is provided under the Ministry of Works and Transport General Specifications for Road and Bridge Works, 2005. The existing road is to remain in use for through traffic. The road construction will be in half widths to allow traffic to use half of the road not under construction. The length of the half width construction shall be kept to a minimum, with provision for traffic travelling in opposite directions to pass at frequent intervals. Where it will be necessary then a diversion road will be provided. Access to properties that are close or within adjoining areas of road construction will be maintained and provided for as necessary. The following activities will be undertaken:

- a) Recruiting of workers (about 180-250 un-skilled, 100-150 semi-skilled and skilled) in the project area. The projected approximate total numbers of employees on the project are 350 people during the construction phase. At the operational phase the number is estimated between 60-70 people for maintenance purposes (de-silting, slashing etc.). During recruitment, the Contractor shall prioritize local local labour as well as give priority to qualified women who will apply for jobs.

- b) Clearing and grubbing: the removal of all vegetation and topsoil in preparation of stable foundations for new construction works as well as along proposed access routes and in areas set aside for construction camps.
- c) Topsoil stripping: topsoil within the servitudes will be stripped and stockpiled or removed.
- d) Access road construction: this will involve the construction of the various roads required to access the construction areas, construction camps and other surface infrastructure sites.
- e) Quarry Establishment. The Contractor shall identify suitable site and establish quarry in line with existing laws of Uganda
- f) Transport of material to site sourced outside of the study area will be transported to the servitude by road. The existing Laropi-Moyo-Afoji road and access roads within the project area of influence will be utilised as a means of delivering these materials to the site, with potential impacts on the transport infrastructure and road users in the project area.
- g) Earthworks for subbase and base for the carriage way, cut and fill etc.,
- h) The construction of pavement layers,
- i) Surfacing,
- j) Drainage structures and bridge structures and ancillary works and
- k) Asphalt plant operations

3.6.2.2 Establishment of Temporary Camps

During implementation, the project shall be divided into different contract packages with the potential of each having a Contractor's Camp. The exact location of these camps has not been determined yet. However, the establishment of temporary construction camps will be done by each contractor, and will involve clearing of the vegetation, fencing of camps and the construction of houses, workshops, fuel storage, car washing, storerooms and vehicle parking areas. The Contractor will provide their own water either by constructing bore holes or connecting to existing water supply within easy reach.

A standalone Environmental Social Impact Study shall be conducted by the Contractor and reviewed by UNRA before submission to NEMA for approval. The Contractor shall ensure that they acquire all the required approvals and consents required for establishment of support infrastructure.

3.6.2.3 Quarry, borrow areas and Crusher Plant Establishment

A standalone national and AfDB compliant Environmental Social Impact Study and Resettlement Action Plan for establishment of the quarry and crusher plant shall be conducted by the Contractor and reviewed by UNRA before submission to NEMA and CGV respectively for approval. The Contractor shall ensure that they acquire all the required approvals and consents as specified in the laws of Uganda. Regarding borrow pits that will be used during the construction exercise, the following will be considered:

- Existing borrow/hard stone sites along the route will be used.
- New borrow pit have been identified and they will be subject to an environmental Project Brief to be approved by NEMA after review by UNRA.
- There is possible need for a crusher plant to crush rock to be used for the construction of the road and pavement layers. The inclusion of crusher plants will form part of each contractor's financial proposal during the tender stage. The responsibility for the establishment and operation of crusher plants will lie with the contractor, who will be required to follow the environmental and mining guidelines and regulations.
- During this stage, vegetation along the route will be cleared and grubbed; cuttings will be initiated using bulldozers and back actors to remove the softer material

- Drilling and blasting will occur where rock is encountered that cannot be ripped. These activities will be strictly controlled.

During the asphalt plant operation, the road works will generate largely wastes relating to the activities and use of the items in the construction work. The anticipated wastes to be generated will include the following:

- a) Waste oils and spillages;
- b) Other waste consumables such as filters;
- c) Bitumen spill and contaminants;
- d) Waste asphalt containers;
- e) Construction debris and boulders among others

3.6.2.4 Key aspects to consider during project implementation

3.6.2.4.1 *Gender Mainstreaming and Responsibility to other vulnerable groups*

Gender mainstreaming within all operations of the contractor during construction activities will be undertaken. The purpose of the mainstreaming process will be to address injustice and imbalances among women, children, the elderly and the sick in road development projects. The actions of this plan will seek to guarantee fair and equitable access to employment opportunities by women and other vulnerable groups, improve access and safety to homes and social facilities for vulnerable people in the course of construction works. The Contractor will be required to implement affirmative action for qualified women during recruitment of skilled and unskilled labour.

The following measures will be pursued:

- Design a gender policy
- Implement Affirmative Action in job allocation to road construction workers whereby women will be given priority for the tasks they do best, based on their capabilities.
- Workplace environment including tools and fixtures will be gender friendly.
- Construction labor will be inducted on sexual harassments
- Separate water borne toilets for men and women to be constructed for all quarry workers, a similar arrangement will be made for work sites.
- Children below 18 years will not be recruited, where age cannot be ascertained, a Letter from LCs shall be requested.

3.6.2.4.2 *Managing Community Relations*

These projects are intended to benefit the immediate neighboring communities. Construction operations will be designed in such a way to positively benefit people in these communities. The project will work towards a harmonious relationship with all groups of people in the communities. The following actions will be actively followed to enhance social relations with all groups within the communities.

- Employ local Labour from the project area
- The construction contractor will undertake community sensitization forums in communities surrounding the institutes.
- Contractor shall put out Job adverts in the public and encourage qualified men and women to apply.
- Employ Affirmative action where qualified women are given preference.
- An information office will be commissioned within the project area
- Regular interface with Local community Leaders will be maintained spearheaded by the Environmental Management Team;

- A complaint register will be maintained at all site offices.
- Regular radio talk shows and bulletins will be made to inform communities on current operations.

3.6.2.4.3 Stakeholder Participation Plan during project implementation

During project implementation activities, it is imperative that different key stakeholders continue actively participating in the project. These Multi-Stakeholder Engagement Plans are important due to the following reasons:²

- Produce solutions to complex situations;
- Keep the public aware of the ongoing construction activities; and
- Collect possible complaints from the affected persons and produce possible solutions
- Promote participation in decision making.

All the stakeholders that participated at the consultation stage shall be maintained during both construction and operation such that continuous monitoring among other reasons is achieved.

3.6.2.4.4 Climate Change mitigation and Biodiversity Restoration

The most frequent climate change impacts experienced in the project area include Domestic water shortage; displacement of people due to Severe flooding along the Nile; food shortages and disruption of transport activities due to Severe flooding. Among the climate change mitigation that shall be implemented include;

- Tree planting along finished sections;
- Retaining most existing trees as much as possible especially Mvule trees;
- Building resilient pavement and drainage structures; and
- Encouraging communities to re-afforest and restoration of dilapidated ecosystems;

These have been explored more in Chapter 8 and 9 of this report

3.6.3 Post – Construction (Site Closure and Reinstatement)

During site closure, environmental standards must be followed including the demolition and rehabilitation of:

- Storage structures;
- All construction material, including concrete slabs and rail areas;
- Accommodation structures;
- Workshop structures;
- Waste material generated by the workforce and during construction;
- Extra construction material not used or required on site;
- Stripped vegetation;
- Stockpiled topsoil; and
- Rock and other material generated during construction (e.g. during blasting and excavations), which cannot be utilized on site.

² UNDP, November 2006, Multi – Stakeholder Engagement Processes, A UNDP Capacity Development Resources.

A decommissioning and site reinstatement Plan shall be prepared and submitted to UNRA for review before submitted to NEMA for approval as stipulated by NEMA EIA Regulations 2020 during closure of the work.

3.6.4 Operational and Maintenance Phase

The removal of all construction debris should be done. Building materials, temporary structures and any other waste material generated during construction must be removed from site and disposed of appropriately once construction is complete. The following will be removed from site where necessary (infrastructure such as storage structures, accommodation structures and workshops maybe left on site for the benefit of the landowner concerned, if requested and agreed upon). The post-construction phase covers issues relating to the operation and maintenance of the road as well as aesthetics. The following will be implemented:

- Installation of road furniture to enhance road safety (including the use of speed control devices, appropriate road signage, rumble strips, edge to edge, humps);
- Bus and taxi bays;
- Traffic police monitoring and compliance;
- Maintenance programme; and
- Tree planting and landscaping.

CHAPTER FOUR

4.0 POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

- 4.1 African Development Bank Safeguard Policies
- 4.2 National Policy Framework
- 4.3 National Legal Framework
- 4.4 Environmental Regulations and Standards
- 4.5 International Conventions
- 4.6 Institutional Framework
- 4.7 Required Licenses and Permits



4.0 POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

This section sets out the institutional, legislative, regulatory, policy and framework in which the proposed Laropi-Moyo-Afoji Road project was planned. It further discusses policy, legal and institutional framework within which the ESIA was conducted.

4.1 Integrated Safeguards System (ISS) of African Development Bank

The African Development Bank views economic and social rights as an integral part of human rights in accordance with the rights set out in the UN Charter and African Charter for Human and People's rights. The Bank developed an Integrated Safeguards System (ISS) to promote growth that is socially inclusive and environmentally sustainable. The ISS recognises that environmental and social sustainability is key to economic growth and poverty reduction in Africa. The Bank's ISS further emphasizes the need to assist regional member countries in their efforts to promote growth and development while enhancing environmental sustainability and social justice. In doing so, the Bank encourages member countries to adopt and implement Operational Safeguards, from the ISS (AfDB, 2013).

Furthermore, the Bank requires that project evaluation meets host country's guidelines and the provisions stipulated in the Operational Safeguards (OS), in order to achieve environmental and social sustainability. Safeguards are a powerful tool for identifying risks, reducing development costs and improving project sustainability, thus benefiting affected communities and helping to preserve the environment. The ISS not only promotes best practices in these areas but also encourages greater transparency and accountability

The Bank's ISS has adopted five (5) Operational Safeguard Standards (OSs) and requires that borrowers/clients comply with these Safeguards' requirements during the project cycle.

The Operational Safeguards of the Bank are:

- (i) Operational Safeguard 1 (OS1): Environmental and Social Assessment
- (ii) Operational Safeguard 2 (OS2): Involuntary resettlement land acquisition, population displacement and compensation
- (iii) Operational Safeguard 3 (OS3): Biodiversity and ecosystem services
- (iv) Operational Safeguard 4 (OS4): Pollution prevention and control, hazardous materials and resource efficiency
- (v) Operational Safeguard 5 (OS5): Labour conditions, health and safety

The environmental and social planning of the proposed project has been undertaken in compliance with OSs as highlighted in Table 21.

Table 21: Summary Operational Safeguards and Project Environmental and Social Planning

S/N	Operational Safeguards	Project Environmental and Social Planning
	<p>OS1: Environmental and Social Assessment</p> <p>This safeguard gives guidance to the overall process of ESIA and sets the scope of the ESIA process for AfDB funded projects including project categorization based on the receiving environment, its level of sensitivity and nature of potential impacts.</p>	<p>This ESIA was guided by this safeguard with an objective of defining the receiving environment, the proposed project activities and the design in order to predict potential impacts such that opportunities to avoid, mitigate and offset negative impacts are determined and subsequently implemented while enhancing the positive impacts.</p> <p>Important to note is that ESIA's for Project Associated Facilities such as Quarries, camps and gravel borrow areas</p>

S/N	Operational Safeguards	Project Environmental and Social Planning
		<p>among others are yet to be undertaken since the precise locations for these facilities are yet to be determined.</p> <p>Following procurement of a Works Contractor, locations for the facilities will be confirmed and respective ESIA's undertaken in compliance with the standard requirements under this safeguard and national requirements</p>
	<p>OS2: <i>Involuntary resettlement land acquisition, population displacement and compensation</i></p> <p>This safeguard makes provisions for ensuring that in the process of acquiring land for the project, the affected persons are not left worse-off than before the project. It seeks to ensure that when people are to be displaced, they are treated fairly, equitably, and in a socially and culturally sensitive manner; that they receive compensation and resettlement assistance so that their standards of living, income-earning capacity, production levels and overall means of livelihood are improved; and that they share in the benefits of the project.</p>	<p>The proposed project will involve construction of the road which will lead to displacement of people and change of land uses especially where there are business communities and agricultural activities leading to potential loss of livelihoods. Therefore, this OS has been triggered.</p> <p>A Resettlement Action Plan (RAP) has been prepared following a meaningful stakeholder consultative process as guided by this OS. The RAP outlines measures to avoid and minimise adverse impacts during the process of land acquisition and involuntary resettlement.</p>
	<p>OS3: <i>Biodiversity and ecosystem services</i></p> <p>The relevance of this OS is in the need to conserve biological diversity and the respective habitats.</p>	<p>The proposed construction of project and approach roads is a greenfield project. However, the proposed site has no biological species of international importance. Therefore, it has limited impacts to trigger this OS. Nonetheless, the development of Project Associated Facilities to support implementation of the project will observe provisions of this OS such that biological diversity and the respective habitats are as much as possible conserved.</p>
	<p>OS4: <i>Pollution prevention and control, hazardous materials and resource efficiency</i></p> <p>This Operational Safeguard outlines the main pollution prevention and control requirements for borrowers to achieve high environmental quality performance.</p>	<p>The relevance of this OS to the proposed project is reflected in the construction phase where there will be a need for environment management systems designed for:</p> <ul style="list-style-type: none"> • Air emissions control • Greenhouse gas emissions minimisation • Hazardous waste management • Noise pollution abatement • Mitigation of cumulative impacts associated with pollutants • Emergence preparedness and response • Resource efficiency especially in choice of construction materials <p>The OS has guided development of mitigation measures to prevent and control pollution and enhance resource efficiency among others. Importantly also, as part of the Environmental and Social Implementation Plan ESIP/ESMP which the Works Contractor will be required to develop, fresh environmental baseline conditions will be established to guide development of appropriate Management Plans for pollution prevention and control, Occupational Health and Safety,</p>

S/N	Operational Safeguards	Project Environmental and Social Planning
		<p>Waste Management among others for the approval of the Supervising Consultant.</p> <p>Preparation of these key project plans will be guided by this OS.</p>
	<p>OS5: Labour conditions, health and safety</p> <p>This OS requires Protection of workers' rights; Establish, maintain, and improve the employee– employer relationship; Promote compliance with national legal requirements and provide supplemental due diligence requirements where national laws are silent or inconsistent with the OS; Align Bank requirements with the ILO Core Labour Standards, and the UNICEF Convention on the Rights of the Child, where national laws do not provide equivalent protection; Protect the workforce from inequality, social exclusion, child labour, and forced labour; Establish requirements to provide safe and healthy working conditions.</p>	<p>This OS is triggered because a lot of labour will be required during the construction phase, to implement the project.</p> <p>The provisions of OS5 will be enforced in tandem with national labour and safety provisions as stipulated in the Employment Act, Labour Act and Public Health Act as per Uganda's legislation.</p> <p>Key in the provisions will be providing equal opportunity, collective bargaining and mass retrenchment.</p> <p>This OS shall be used in conjunction with the above-mentioned national legislation to further enhance workers' conditions, protect their rights, and to avoid their abuse and exploitation.</p>

4.2 National Policy Framework

4.2.1 Draft National Environment Management Policy, 2014

The overall policy goal of the Policy is sustainable development which maintains and promotes environmental quality and resource productivity for socio-economic transformation to promote sustainable economic and social development, mindful of the needs of future generations. Under the key principles, it's stated there in that full environmental and social costs and Benefits foregone as a result of environmental damage or degradation should be incorporated in public and private sector planning and minimised where possible.

The policy calls for integration of environmental concerns into development policies, plans and projects at national, district and local levels, using ESIA as one of the vital tools. Thus, the policy requires that projects or policies likely to have significant adverse environmental and social impacts to undertake an ESIA before their implementation. This ESIA have been carried in full compliance with the provisions of this policy and has ensured that aspects for environmental and social sustainability are integrated in the project cycle.

Relevance: The policy provides guidance on how projects (such as the proposed Laropi-Moyo-Afoji development) likely to have significant adverse ecological or social impacts should undertake an ESIA before their implementation.

4.2.2 National Environmental Health Policy, 2005

The main objective of this policy is to create an enabling environment for the achievement and maintenance of healthy living conditions in rural and urban areas. It actively promotes and supports the adoption of a national sanitation, ensure that an environmental health community at national and local government level is suitably skilled and equipped to meet current environmental health challenges.

Relevance: Significant adverse sanitation challenges especially in riverbanks of the Nile are likely to rise due to construction works. The proposed project involves construction of access roads, disposal of waste and pollutants hence the requirement for observation of this policy.

4.2.3 National Policy for Conservation and Management of Wetlands, 1995

The overall aim of this policy is to promote the conservation of Uganda's wetlands in order to sustain their ecological and socio-economic functions for the present and future wellbeing of the people. It aims at curtailing loss of wetland resources and ensuring that benefits from wetlands are equitably distributed to all people of Uganda. The policy specifically calls for application of environmental impact assessment procedures on all activities to be carried out in a wetland to ensure that the development in wetlands are well planned and managed

Relevance: The project starts from River Nile at Laropi, and traverses' seasonal wetlands and flood plains towards Moyo. Therefore, project management should ensure that construction and operation activities do not lead to a decline of wetland productivity.

4.2.4 Wildlife Policy, 2014

The main objective of this Policy is to conserve wildlife resources of Uganda in a manner that contributes to the sustainable development of the nation and the well-being of its people. With specific objectives of:

- i. Promoting sustainable management of Uganda's wildlife Protected Areas, sustainably manage wildlife populations in and outside Protected Areas.
- ii. Promoting sustainable and equitable utilization of wildlife resources as a viable form of land use for national economic development.
- iii. Effectively mitigate human wildlife conflicts.
- iv. Promoting wildlife research and training.
- v. Promoting conservation education and awareness across the nation.
- vi. To ensure net positive impacts of exploration and development of extractive industries and other forms of development in wildlife conservation areas.
- vii. To effectively combat wildlife related crime and to promote and support local, regional and global partnerships for conservation of wildlife.

Relevance: The project area falls within areas of unique consisting of wetlands and rocky areas in Savannah woodlands. The project should promote sustainable management of wildlife habitats as well as avoid/minimize/mitigate impacts on protected area.

4.2.5 National Water Policy, 1999

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

Relevance: The project area has prominent water bodies of National importance specifically the Albert Nile. Sound measures shall be devised to avoid/minimize/mitigate the impact of construction on these water bodies.

4.2.6 Uganda's Vision 2040

The Uganda Vision 2040 aims at transforming Uganda from its present Least Developed Country (LDC) status to, a competitive and upper middle-income country by 2040. Road infrastructure is identified as one of the priority economic growth drivers to enhance the quality of life as it facilitates movement of

goods and services and general industrialization process among others. The proposed Road development provides a permanent connectivity Moyo, west Nile region and to parts of South Sudan and Democratic Republic Congo. This is anticipated to enhance trade and boost socioeconomic growth in the region.

Relevance: The proposed Laropi-Moyo-Afoji will link the West Nile Region to South Sudan hence proving a more sustainable connectivity to enhance trade and socio-economic transformation in the region.

4.2.7 National Development Plan III 2020/2021-2024/2025

The National Development Plan III (NDP III) 2020/2021-2024/2025 developed under the theme “Sustainable Industrialization for inclusive growth, employment and wealth creation”, placed integrated Transport Infrastructure and Services among the development drivers. Development of the Laropi-Moyo-Afoji road was identified under NDP III among the infrastructure required to facilitate connectivity for improved household incomes and quality of life.

Relevance: Proposed project meets the objectives of National Development Plan III 2020/2021-2024/2025

4.2.8 Gender Policy, 2007

The Goal is to achieve gender equality and women’s empowerment as an integral part of Uganda’s socio-economic development. The purpose of the Uganda gender policy is to establish a clear framework for identification, implementation and coordination of interventions designed to achieve gender equality and Women’s empowerment in Uganda. The policy is a guide to all stakeholders in planning, resource allocation, implementation and monitoring and evaluation of programme with a gender perspective.

Relevance: Planning for gender equality shall be integrated into pre-construction, construction and post construction activities. The project developer shall ensure that gender specific needs are well articulated and implemented to avoid and minimize socio-economic impacts.

4.2.9 National Policy on Elimination of Gender Based violence, 2016

The policy seeks to promote, prevent and respond and end impunity of gender-based violation in the country. The highest prevalence of gender-based violence is among women aged between 15 and 45; and generally, involves sexual violence.

Relevance: The proposed project shall have specific policy on eliminating of gender-based violence throughout project phases. In addition, the project will be required to work with community members, police, teachers, parents and all stakeholders to specifically address gender issues.

4.2.10 National Policy for Older Persons, 2009

The policy seeks to achieve equal treatment, social inclusion and empowerment of older persons. The values of the policy are:

- i. Equity. Fairness, fair play, impartiality and justice in the distribution of benefits and responsibilities in society.
- ii. Respect. Views, opinions and rights of older persons will be upheld while they are also expected to exhibit high sense of self- respect. Commitment. The willingness to work hard and give all the energy and time to meet the vision.
- iii. Accountability. All stakeholders are expected to fulfill their obligations towards one another.

iv. Equality. All older persons will be accorded same opportunity and rights as other individuals.

Relevance: All project affected persons above 65 years shall be incorporated in the compensation process and shall be treated with equity and respect.

4.2.11 National Policy on Disability, 2006

The vision of the policy is a society where people with disabilities (PWDs) fully participate in all spheres of development. The mission is to provide a framework to the empowerment of PWDs in the development process.

Relevance: The project shall ensure participation of PWDs in the planning, implementation, monitoring and evaluation for all the project phases.

4.2.12 National Orphans and other Vulnerable Children's Policy, 2004

The vision of the policy is a society where all orphans and other vulnerable children live to their full potential and their rights and aspirations are fulfilled. The mission of the policy is to provide a framework for the enjoyment of the rights and fulfilment of responsibilities of the orphans and other vulnerable children.

The policy objectives are:

- i. To ensure that the legal, policy, and institutional framework for child protection is developed and strengthened at all levels.
- ii. To ensure that orphans, vulnerable children and their families access basic essential services package. National Orphans and another vulnerable children Policy
- iii. To ensure that resources for interventions that benefit orphans and other vulnerable children are mobilized and efficiently utilized. and
- iv. To ensure that the capacity of duty-bearers for orphans and other vulnerable children to provide essential services is enhanced.

4.2.13 National Youth Policy, 2001

The goal is to provide an appropriate framework for enabling youth to develop social, economic, cultural and political skills to enhance their participation in the overall development process and improve their quality of life.

The objectives of the policy are;

- i. To initiate, strengthen and streamline all programmes and services targeting the youth.
- ii. To promote social and economic empowerment of the youth.
- iii. To build capacity and provide relevant training and information to the stakeholders.
- iv. To promote growth in the development of the youth through actions that protect empower and prepare them for adulthood.
- v. To provide psycho-social support and other services to youth in conflict situations, difficult circumstances and to the disadvantaged groups.
- vi. To increase youth involvement in decision--making, leadership, community based and other development programs.
- vii. To mobilise resources for youth programmes and projects at all levels.

Relevance: The project should include all youth in all phases of the project execution, including planning, construction and operations. Priority for employment should be given to youth from the project area.

4.2.14 Uganda National Culture Policy, 2006

The Policy provides a framework for the promotion of culture for development and complies with international and regional instruments on culture. The core principles underlying the Policy are; Promoting Unity in Diversity, respecting one another's' culture, ensuring social inclusion (Children, youth, women, PWDs, elderly, People living with HIV/AIDS and indigenous minorities), promoting cultural change, promoting environmental protection and strengthening partnerships.

Relevance: The project shall ensure harmony with efforts to promote and enhance the contribution of culture to community empowerment.

4.2.15 National Equal Opportunities Policy, 2006

The National Equal Opportunities Policy provides a framework for re-dressing imbalances, which exist against marginalized groups while promoting equality and fairness for all, with a goal of. Providing avenues where individuals and groups' potentials are put to maximum use by availing equal opportunities and affirmative action.

Relevance: construction comes along with a lot of opportunities including service delivery, trainings and employment. The project will avail equal opportunities and affirmative action.

4.2.16 National Child Labour Policy, 2007

The overall objective of the policy is to guide and promote sustainable actions aimed at the progressive elimination of child labour starting with the worst forms. The vision of the policy is a society free of exploitative child labour in which all working children enjoy their right to childhood, education, dignity and the full development of their potential.

Relevance: The project shall actively participate in efforts to eliminate child labour during pre-construction, construction and post construction.

4.2.17 National HIV/AIDS and the World of Work Policy, 2007

The goal of this National policy is to provide a framework for prevention of further spread of HIV and mitigation of the socio-economic impact of the epidemic within the world of work in Uganda. The policy recognizes HIV/AIDS as a workplace issue, which should be treated like any other serious illnesses / conditions in the workplace. It emphasizes the importance of promoting and protecting human rights, participation of people living with HIV/AIDS, gender equality as well as prevention, care, support and treatment as the major tools to be used in addressing the impact of HIV/AIDS in the world of work. It guides the overall response to HIV/AIDS in the world of work in Uganda.

Relevance: The project shall endeavor to promote human rights, participation of people living with HIV/AIDS, gender equality as well as prevention, care, support and treatment as the major tools to be used in addressing the impact of HIV/AIDS on the project.

4.2.18 The National Tourism Policy, 2002

This policy is aimed at ensuring that tourism is a medium for poverty reduction. The development of Laropi-Moyo-Afoji Road has potential to enhance or stimulate tourism in the region. The proposed Road lies within an area endowed with considerable gorgeous landscape and wildlife.

Relevance: Appropriate management and monitoring plans shall be put in place to mitigate adverse impacts and also enhance positive benefits of the project to any tourism activities throughout all stages of the project.

4.2.19 Ministry of Works & Transport Policies (Gender, HIV/AIDS, OHS) 2008

The Ministry of Works and Transport developed sectoral policies to mainstream Gender, HIV/AIDS and Occupational Health and Safety (OHS) in the sector.

a) Gender policy

Overall objective of this Policy is to strengthen contribution of roads to poverty eradication through providing an enabling environment where women and men participate in, and benefit from developments in the sub-sector in an equitable manner. The purpose of the Policy is to institutionalize a gender perspective in road institutions and their operational and regulatory frameworks.

The specific objectives of the Gender Policy are to:

- (i) Promote gender-responsive sub-sector policies, programmes and plans;
- (ii) Promote gender-responsive service delivery;
- (iii) Enhance equality of opportunities between women/girls and men/boys in the sub-sector;
- (iv) Strengthen capacities of sub-sector institutions, partners and service providers to mainstream gender.

b) HIV/AIDS Policy

MoWT developed the HIV/AIDS policy for the road sector based on the premise that whereas some road sector activities have been proved to be major conduits for transmission of HIV/AIDS, others directly and indirectly contribute to the fight against the pandemic. For instance, good roads and transport services can be used to enhance access to HIV/AIDS prevention services and care. On the other hand, some sector activities and good road networks have proved to be a good conduit for increased spread of the pandemic and examples include prostitution associated with long-distance truck drivers and road construction works.

The goal of this is to guide mainstreaming of HIV/AIDS activities so as to reduce prevalence of HIV infection, provide care and support to infected and affected persons and to mitigate effects of HIV/AIDS in the sub-sector. Specific objectives of the policy are to:

- (i) Reduce vulnerability and risk of HIV transmission in the roads sub-sector;
- (ii) Mitigate effects of HIV/AIDS in the roads sub-sector; and
- (iii) Improve road sector's capacity to respond to HIV/AIDS pandemic.

(c) OHS Policy

The policy seeks to:

- (i) Provide and maintain a healthy working environment.
- (ii) Institutionalize OHS in the road-sector policies, programmes and plans.
- (iii) Promote efficient road safety management practices.
- (iv) Contribute towards safeguarding the physical environment.

UNRA will ensure adequate plans for management of the risks associated with gender, HIV/AIDS and OHS are developed prior to project construction, and implemented in accordance with the requirements of this policy.

4.2.20 National Land Policy, 2013

The Policy is in tandem with the provisions of Uganda's Constitution which empowers the Central and local Governments to acquire land in public interest provided the acquisition is necessary for public use or is in the interest of defence, public safety, public order, public morality or public health and is subject to prompt payment of a fair and adequate compensation, prior to the taking of possession or acquisition of the property.

Relevance: Construction of Laropi-Moyo-Afoji Road will require acquisition of land from landowners. In accordance to the provisions in this policy, resettlement action plan will provide measures to ensure the affect landowners are compensated.

4.2.21 National Climate Change Policy, 2015

The overarching objective of this multi-sector national climate change policy is to ensure that stakeholders, including the transport sector, address climate change. This is because the predicted impacts of climate change threaten people and their livelihoods. Uganda's vital transport infrastructure such as roads and bridges are also threatened by the predicted changes in climate. In order to adapt to climate change, transport plans and infrastructure management must reflect climate predictions.

Relevance: Construction of Laropi-Moyo-Afoji road needs to adapt climate resilient designs that can mitigate impacts arising from increased peak flows and floods.

4.2.22 The National Policy on Elimination of Gender Based Violence (GBV), 2016

The policy provides a framework for the implementation of comprehensive GBV prevention measures and provision of multi-sectoral support services for survivors. Under these provisions, the project will be required to prepare a gender action plan to support the project workers and the community during project implementation.

Relevance: the general environment and social management system for the project shall include anti-sexual harassment policy, workers code of conduct, anti-retaliation policy among others.

4.2.23 UNRA Environment and Social Safeguards Policy, 2016

The UNRA Environment and Social Safeguards Policy was approved in March 2016. The policy statements include; Assessment and management of Environmental and Social impacts, Occupational and community Health and Safety, Gender, Vulnerable people, HIV/AIDs awareness and prevention, Stakeholder engagement and disclosure of information, Grievance Redress Mechanism, Labour and working conditions, sensitive ecosystems and sustainable management of environment, Climate change, Land acquisition and involuntary resettlement and Cultural resources.

Relevance: All the provisions of the Policy will be observed and implemented throughout the project cycle.

4.2.24 The UNRA Land Acquisition and Resettlement Management System (LARMS), 2019

The LARMS lays down the procedures and standards for land acquisition for UNRA projects. It provides for meaningful stakeholder consultations and engagement, fair, adequate and timely compensation prior to expropriation of land.

Relevance: The land acquisition process for the proposed project shall follow standards of LARMS.

4.3 The Legislative Framework

4.3.3 Constitution of Republic of Uganda, 1995

The Constitution is the supreme law of Uganda and it provides for protection of the environment. It provides for:

- i. Promotion of sustainable development and public awareness on the need to manage land, air, water resources in a balanced and sustainable manner for the present and future generations.
- ii. Take possible measures to prevent or minimize damage and destruction to land, air and water resources resulting from pollution or other causes.
- iii. Promote the rational use of natural resources so as to safeguard and project biodiversity of Uganda.

Under Article 39, the Constitution guarantees the right of every Ugandan to a clean and healthy environment. The constitution, therefore, requires that the project to be implemented without endangering human health and the environment.

4.3.4 National Environment Act, No.5, 2019

This is the key legislation that provides the landscape for environmental management for Uganda. The Act provides for the management of the environment for sustainable development. Schedule 5 of the Act lists projects for which Environmental and social impact assessment is mandatory. The Laropi-Moyo-Afoji Road was considered for a full ESIA since is a Road development project as stipulated in schedule 5.

Relevance: This ESIA has been carried out in compliance with this Act. In addition, appropriate assessments shall be undertaken for all project support structures during the implementation phase.

4.3.5 Local Government Act, Cap 243

Local Governments Act, 1997 establishes a form of government based on district as the main unit of administration. Districts are given legislative and planning powers under this Act. (Sections 36- 45) They are also enjoined to plan for conservation of the environment within their local areas. District Environmental Committees established under section 15 of the National Environment Act Cap 153 are supposed to guide district authorities in that regard.

Relevance: The project management should plan closely with the Local government to ensure mutual understanding and fruitful achievements.

4.3.6 Land Act, Cap 227

Part III Sections 43, 44 and 45 addresses the utilization of land in accordance with the Various Statutes and Acts of environmental concern, which include; the Forest Act, The Mining Act, The National Environment Act, and The Water Act. In addition, section 45 addresses the control of environmentally sensitive areas. Besides relevant environmental sections of the Land Act, 1998 (Sections 42, 43, 44, 45, 70, 71, and 72) specific attention will be taken of section 40 of the Land Act which deals with Conditions on Transfer of Land by family. Subsection (1) states that No person shall enter into any contract for or actually sell the land on which that person usually lives with a spouse or dependent children of the age of 18 or above except with prior written consent of either the spouse or the children. The developer should seek to enter into mutual agreement with the occupier or owner of the land upon payment of compensation.

Relevance: This Act applies to land acquisition process for access roads to the proposed Road construction.

4.3.7 Land Acquisition Act, Cap 226

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.

Relevance: All land acquisitions for access roads and auxiliary facilities regarding this project will be guided by this Act.

4.3.1 Roads Act, 2019

The Act empowers the Minister of Works and Transport to provide for different widths for road reserves for the different classes of public roads. In addition, the Act designates road authorities responsible for construction, alteration, rehabilitation, maintenance, protection and supervision of roads. UNRA is responsible for the development and maintenance of the national road network. It further provides that acquisition of land, excavation and taking of materials required for road construction be done in accordance with the Constitution. It also creates offences including destroying roads, obstruction and interference on roads such as the improper erection of billboards among others.

Relevance: The proposed project Laropi-Moyo-Afoji is a National Road. Construction should be undertaken while observing Standard road reserve requirements as stipulated by this Act.

4.3.2 Water Act, Cap 152

The objective of the Act is to enable equitable and sustainable management, use, and protection of water resources of Uganda through supervision and coordination of public and private activities that may impact water quantity and quality. Section 18 requires that before constructing or operation of any water works, a person should obtain a permit from Water Resources Management Directorate (WRMD). Construction is herein defined to include alteration and improvement of bridges.

The Act also aims to control pollution of water resources (Sections 20 and 31). The foregoing notwithstanding, Section 19 provides that subject to guidelines established by the Minister from time to time, the Director (of water resources management) may exempt a public authority or a class of persons or works from requirements in Section 18 on such conditions as he or she may deem fit. Since this decision is reached upon evaluation of an application submitted to the Directorate, Section 19 does not automatically preclude works by public agencies from applying for permits prescribed by this Act.

Relevance: This Act will specifically be applicable to two aspects of the proposed road project:

- i. Water abstraction for road construction and camp use
- ii. Activities associated with construction near the River Nile.

4.3.3 Mining Act, 9/2003

Several auxiliary activities are associated with road construction and include stone quarrying and borrow materials extraction. Such activities especially stone quarrying involves excavations or working where any operations are connected with mining including erections and appliance used in connection with such operations. These activities, therefore, are a subject of this Act. Requirements under Part XI for the Protection of the environment under the Act are therefore, relevant. Such requirements include Environmental Impact Assessment and Audits and Environmental standards for the prevention and minimization of pollution of the environment and waste management. Under section 110 (2b) gives guidance on restoration activities.

It provides that the environmental restoration plan shall include a detailed timetable for accomplishment of each major step to be carried out under the restoration plan which may include reinstatement, levelling, re-vegetation, reforestation and contouring of disturbed land, the filling in, sealing, or fencing off of excavations, shafts and tunnels.

Relevance: The project should ensure that relevant assessment/ studies are conducted for all auxiliary sites and will be restored basing on the guidance on restoration activities.

4.3.4 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 OSH Act covers not just the 'factory' but also any workplace where persons are employed and its provisions extend not just to employees but to the self-employed and any other persons that may be legitimately present in the workplace who may be exposed to injury or disease. Employers must provide for the protection of workers from adverse weather, provision of a clean and healthy work environment, sanitary conveniences, washing facilities, First Aid and facilities for meals. The Act provides for safe access to the workplaces and safe work practices. In Section 95, the Act requires employers to take preventive measures including administrative and technical actions to prevent or reduce contamination of working environment.

Section 34 empowers on Government Chemist and any other authority mandated by law to give special authority to manufacture, supply, transport, use or dispose of a chemical substance in a working environment which is highly toxic or dangerous, or capable of causing grave harm to health and the environment or undertaking. Section 95 provides for administrative and technical preventive measures by the employer to prevent or reduce contamination in the workplace to the lowest level and within the prescribed exposure limits.

Section 96 requires provision of material safety datasheets (MSDS) containing essential information regarding identity of chemicals, their hazards, safety precautions and emergency procedures. In section 97 an employer is required to ensure that containers of hazardous chemicals are labelled, and appropriate chemical data sheets are available in the workplace.

Relevance: This law clearly applies to occupational health and fire safety risks associated with management of fuel at storage sites, camp operations and bitumen.

4.3.5 Workers' Compensation Act, Cap 225

This Act shall apply to all employment within Uganda. and shall apply to workers employed by or under the Government of Uganda in the same way and to the same extent as if the employer were a private person, but the Act shall not apply to active members of the armed forces of Uganda. If personal injury by accident arises out of and in the course of a worker's employment, the injured worker's employer shall be liable to pay compensation in accordance with this Act. The employer shall not be liable in respect of an injury which does not either result in permanent incapacity or incapacitate the worker for at least three consecutive days from earning full wages at the work at which he or she was employed.

Relevance: This law should be applied in case of any injuries arising to any of the workers in the due course of construction activities.

4.3.6 Uganda Wildlife Act, Cap 200, 2019

The Wildlife Act established the Uganda Wildlife Authority and has several sections on the management of wildlife in Uganda. The purpose of the Act among others is to: -

- i) Provide for; the conservation of wildlife throughout Uganda so that the abundance and diversity of species are maintained at optimum levels commensurate with other forms of land use, in order to support sustainable utilization of wildlife for the benefit of the people of Uganda;
- ii) the implementation of relevant international treaties, conventions, agreements or other arrangement to which Uganda is a party; and
- iii) Public participation in wildlife management.

Section 23 makes EIA mandatory for any developer of a project which may have significant effect on any wildlife species or community, to undertaken in accordance with the National Environment Act of 2019. Section 24 mandates UWA in consultation with the National Environment Management Authority to carry out audits and monitoring or cause audits and monitoring of projects to be carried out in accordance with the National Environment Act of 2019 and any regulations made there under.

Relevance: The Act reinforces other Acts which require the conduct of ESIA's and environmental audits for purposes of environmental conservation and in this case wildlife conservation.

4.3.7 National Forestry and Tree Planting Act, 2003

This Act provides for the protection of forests through the creation of forest reserves in which human activity is strictly controlled. It seeks to control commercial harvesting of forest products using licenses and promotes afforestation.

Relevance: The project traverses several forest reserves including Otzi Forest reserve. The project will as well promote tree planting in the Road reserves to mitigate climate change.

4.3.8 Physical Planning Act, 2010

The infrastructural developments are likely to traverse areas of special characteristics. The areas have special physical, social economic and development potential and considerations. Section 3 of the Physical Planning Act 2010 declares the whole country a planning area and brings it under the planning control. Provisions under the Act will have to be invoked by the mandated institutions to control developments in urban and rural areas in the proximities of the proposed Road development to control unplanned developments.

Relevance: The project designs will incorporate the long-term district physical development plans

4.3.9 Tobacco Control Act, 2015

Under Section 11, the Act guarantees every person to a tobacco smoke free environment. A person smoking a tobacco product is obliged to ensure that another person is not exposed to tobacco smoke. Section 12 prohibits smoking in public places, workplaces and means of public transport. Under Section 13, smokers are prohibited from smoking in outdoor space that is;

- i. Within 50 meters of a public place.
- ii. 50 meters of any window, door or any intake mechanism of a public pace including places of service or consumption of food or drink. and
- iii. Designated not smoking area.

Relevance: It is also a requirement that persons responsible for premises where smoking is prohibited display in a conspicuous place clear and prominent notices in a language commonly used in the area, that smoking is prohibited.

4.3.10 Explosives Act, Cap 298

The state owns all the rights to importation and storage of quarrying explosives and exercises this right through The Explosives Act (Cap 309 of the Laws of Uganda). It is mandatory for quarry operators to comply with this law. This Act regulates use and management of explosives for civil purposes. Under this Act, explosives are kept at a site approved by the Ministry of Internal Affairs (MoIA) and can only be transported to the blast site under Police escort. Charging of explosives and blasting are carried out under Police supervision.

Relevance: For stone quarrying where explosives will be used, provisions of this Act will be relevant to this project.

4.3.11 Public Health Act, cap 281

This Act aims at avoiding pollution of environmental resources that support health and livelihoods of communities. The Act gives local administrative units authority (Section 103) to prevent pollution of watercourses in interest of public good.

Relevance: This Act will not only be relevant regarding the main watercourse River Amua and Nile but also land where workers camps, equipment yards and quarries will be located.

4.3.12 Children's Act, Cap 59

Consolidates the laws relating to children and provides inter alia for the care, protection and maintenance of children. Establishes a family and children court, Section 8 prohibits the employment or engagement of children in any activity that may be harmful to his or her health, education or mental, physical or moral development.

Relevance: During execution of the project, no persons of age under 18 years will be engaged in any of the project activities.

4.3.13 NSSF Act, Cap 222

The National Social Security Fund is a mandatory pure defined contribution provident fund which pays lump sums at retirement. The contribution rate to NSSF is 15% shared at 5% and 10% between the employee and employer respectively. The scheme was created by the National Social Security Fund Act (Cap 222) Laws of Uganda and its core objective is to protect formal employees against uncertainties of social and economic life.

Relevance: All permanent employees should be subject to NSSF registration

4.3.14 Historical Monuments Act, Cap 46

This Act provides for the preservation and protection of historical monuments and objects of archaeological, paleontological, ethnographical and traditional interest. The historical monuments act, Cap 46 gives mandate to the Department of Museums and Monuments in the ministry of Tourism Wildlife and Antiquities to collect document and preserve cultural relics that have values to the community, the nation and the international community. Sections 10 and 11 of the Act provide for conservators of antiquities to maintain and inspect and preserved or protected objects. Regarding chance findings, clause 17-11 of the general specification of Road and Bridge Works of 2005 require the contractor to immediately notify the Engineer evidence of possible scientific historical, pre-historical or archeological data, giving the location data and nature of findings.

A Chance Finds Procedure shall be adopted and implemented in case of any Chance Finds during the works on the project. This will involve reporting to the Department of Museums and Monuments for

advice and any other necessary action. The Act provides for the preservation and protection of historical monuments and objects of archaeological, paleontological, ethnographical, and traditional interest. Under this Act the Minister responsible may cause any of the aforesaid objects to be declared as preserved objects. The Act prohibits any person from carrying out activities on or in relation to any object declared to be preserved or protected. Section 10 of this Act spells out the procedures and requirement to declare and inspect newly discovered sites that may have archaeological, paleontological, ethnographical, historical and traditional significance for purposes of protection.

Relevance: All cultural sites within the project area should be preserved during execution of the road project. Additionally, a chance find procedure shall be developed and implemented during execution of the project.

4.3.15 Immigrations Act, Cap 63

An Act to consolidate and amend the law regulating immigration into Uganda and for other purposes incidental to and connected therewith. All foreign (non-Ugandan) employees and workers connected with this project should seek clearance from the Directorate of Citizenship and Immigration Control of Uganda before engaging into any project activities.

Relevance: Road works will attract expatriate experience from foreign countries. All foreign (non-Ugandan) employees and workers connected with this project should seek clearance from the Directorate of Citizenship and Immigration Control of Uganda.

4.3.16 Public Holiday Act

The days specified in the Schedule to this Act are declared to be public holidays, which, subject to this Act, shall in every year be kept and observed as public holidays throughout Uganda. All public holidays will be observed

4.3.17 Rivers Act, Cap 357

Section 4 of this Act requires that any dredging in a river be licensed. It states that it shall not be lawful to dredge in any river without a license from the Minister. Section 6(1) stipulates that the Regulations set forth in the Third Schedule of this Act shall be endorsed on every license to dredge.

Relevance: The proponent should acquire the dredging license before the implementation of the proposed project across all rivers in relation to activities.

4.3.18 Traditional ruler's Act, Cap 247

Under the Reinstitution of Traditional Rulers statute of 1993, confirmed by the constitution of Uganda in 1995, kings and chieftdom were given right to own their cultural property. In the area of the project, chiefs are recognized, and they are the custodians of cultural sites and traditional belief systems hence key stakeholders in that regard.

4.3.19 Traffic Act, 2002

The traffic Act 2002 consolidates law relating to traffic on all public roads. The Act also prohibits encroachment on and damage to roads including road reserves.

Relevance: During the construction phase of the project, temporary road signs shall be installed following an approved traffic management plan. Upon completion of the project, appropriate road furniture including traffic signage shall be installed and the right of way protected from encroachment.

4.3.20 Employment Act, 2006

The Act defines the relationship between employers and employees. It is the umbrella law that governs labour management in Uganda. The Act provides clear terms and conditions of employment including; appointments, contracts, leave management, remunerations, conflict resolution among others. The Act empowers the district labour officers to undertake labour inspections and prosecute any offences related to non-compliance to the labour laws of Uganda.

Under Section 3 the Act applies to all employee in employment by the employer under the contract of service. Under Section 4, any provision in an agreement or contract of service is void where it excludes or limits the operation of any provision of the Act to the detriment of the employee. Section 12 empowers the labor officer to receive grievances where an employer neglects or refuses to fulfil the terms of the contract or employment or where a complaint or labor dispute arises to the rights or liabilities of either Party under a contract of employment or under the Act. Section 59 entitles an employee to receive from the employer a notice in writing of written particulars of employment. Section 66 provides for notice and hearing before the termination.

Relevance: The project shall develop and implement a comprehensive Labor Management Plan in consultation with the district labour offices of Moyo.

4.4 Regulatory Framework

4.4.1 The National Environment (Environmental and Social Assessment) Regulations, S.I No.143 of 2020

The regulations provide a framework within which ESIA for projects are undertaken. It also emphasizes that an environmental and social impact study for relevant projects be undertaken in accordance with section 113 of the National Environment Act and Schedule 5 of the same Act. The regulations emphasize the adoption of the mitigation hierarchy during project planning. The regulations also introduce penalties for noncompliance to the Act.

Relevance: This ESIA has been prepared in compliance with these regulations.

4.4.2 National Environment (Waste Management) Regulations S.I. No. 49 of 2020,

These regulations categories the different types of waste including hazardous waste. The regulations provide that only licensed handlers can collect, store, transport and dispose of hazardous waste. An adequate waste management plan for the project shall be developed and implemented in conformance with these regulations. More so, a licensed handler shall be procured to handle any hazardous waste generated by the project activities. The practices emphasized under these regulations are aimed at preventing the contamination of water, air, soil and other components of the environment.

Relevance: the regulations promote cleaner production methods that enable the recovery and reuse of wastes, reclamation and recycling. Further the regulations would influence management of solid waste at workers camps, equipment yards and road construction site.

4.4.3 National Environment (Wetlands, Riverbanks and lakeshores Management) regulation S.I No. 2/2000

These regulations provide principles for sustainable use and conservation of wetlands, and riverbanks. The regulations provide for; Mandatory ESIA for all major activities on riverbanks and lakeshores, and Development and implementation of measures to prevent soil erosion, siltation and water pollution. This

ESIA has been undertaken in compliance with these regulations and the required mitigations for prevention of soil erosion, silting shall be developed and implemented. A soil erosion control plan shall be developed and implemented during construction of the proposed Road Development.

Relevance: These regulations are important considering the major rivers, streams and wetlands

4.4.4 The National Environment (Standards for Discharge of Effluent into water or land) Regulations, 2020

These regulations require that a permit is acquired before a developer discharges wastewater into water bodies or on land. Maximum permissible levels for discharge of waste have been provided under Schedules 2, 3 and 4 of these regulations as shown in Tables 22 and 23.

Table 22: Standards for general chemicals and micro-biological discharge

No.	Parameter or Pollutant	Unit	Maximum Permissible Limit
1	Temperature increase	°C	≤5
2	Odour		Not detectable
3	Color	TCU	50
4	pH	Units	5.0-8.5
5	Electrical Conductivity	µS/cm	1000
6	Total Dissolved Solids	mg/L	750
7	Total Suspended Solids	mg/L	50
8	Biological Oxygen Demand (Unfiltered)	mg/L	50
9	Chemical Oxygen Demand	mg/L	70
10	Cyanide (Free)	mg/L	0.1
11	Cyanide (AD)	mg/L	0.5
12	Cyanide (Total)	mg/L	0.1
13	Nitrogen (Total)	mg/L	10
14	Nitrogen (Ammonia)	mg/L	10
15	Nitrogen (Nitrates)	mg/L	10
16	Total Kjeldahl Nitrogen	mg/L	10
17	Phosphorus (Total)	mg/L	5
18	Sulphates	mg/L	500
19	Chlorides	mg/L	250
20	Chlorine (Residual)	mg/L	0.2
21	Total Coliforms	CFU/100ml	400
22	Fluorides	mg/L	2
23	Sulphides	mg/L	1
24	Urea	mg/L	1

Table 23: Standards for inorganic substances effluent discharge Effluent requirements are for direct discharge into surface water, land or sewer

No.	Parameter or Pollutant	Unit	Maximum Permissible Limit
1	Aluminium	mg/L	0.5
2	Antimony	mg/L	0.5
3	Arsenic	mg/L	0.1
4	Barium	mg/L	10
5	Beryllium	mg/L	0.1
6	Cadmium	mg/L	0.01
	Calcium	mg/L	100
7	Chromium (Hexavalent)	mg/L	0.05
8	Chromium (Total)	mg/L	0.5
9	Cobalt	mg/L	0.1
10	Copper	mg/L	0.5
11	Iron (Total)	mg/L	3.5
12	Lead	mg/L	0.1

No.	Parameter or Pollutant	Unit	Maximum Permissible Limit
13	Magnesium	mg/L	100
14	Manganese	mg/L	1
15	Mercury	mg/L	0.01
16	Nickel	mg/L	0.5
17	Selenium	mg/L	0.02
18	Silver	mg/L	0.5
19	Tin	mg/L	2
20	Total Metal	mg/L	10
21	Vanadium	CFU/100ml	1
22	Zinc	mg/L	2

The regulations require that facilities to install pollution control equipment for onsite management of effluent before it can be discharged into water or land. In compliance with these regulations, the project will develop a Waste Management Plan and will provide for installation of appropriate equipment and measures for effluent management including monitoring of effluent.

4.4.5 National Environment (Noise Standards and Control) Regulations, 2003

Part III Section 8 (1) requires machinery operators, to use the best practicable means to ensure that the emission of noise does not exceed the permissible noise levels. The regulations require that persons to be exposed to occupational noise exceeding 85 dBA for 8 hours should be provided with requisite ear protection. The regulatory noise limits at construction sites are presented Table 24.

Table 24: Permissible Noise Levels

Facility	Noise limits dB(A) (Leq)	
	Day*	Night*
Construction	75	65
Time frame: Day 6.00 a.m -10.00 p.m.; Night 10.00 p.m. - 6.00 a.m.		

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

Appropriate Personal Protective Equipment (PPE) shall be given to all workers and especially those in areas where noise generation could exceed the permissible levels. In addition, regular maintenance of equipment including machinery shall be undertaken throughout the project. As a requirement, generators shall be installed with silencers to minimise emission of noise.

4.4.6 Draft National Air Quality Standards, 2006

Considering that construction equipment and machinery are powered by diesel/ gasoline engines, pollutants such as CO₂, NO_x, SO_x, VOC and particulates are expected to be emitted. The draft national air quality standards provide the regulatory limits for these emissions as in Table 25. These standards shall be observed at worksites including equipment yards and workers' camps to ensure minimal impact on local air quality.

Table 25: National air quality standards

Pollutants	Averaging time for ambient air	Standard for ambient air
Carbon dioxide (CO ₂)	8 hr	9.0 ppm
Carbon monoxide (CO)	8 hr	9.0 ppm
Hydrocarbons	24 hr	5 mgm-3
Nitrogen oxides (NO _x)	24 hr 1-year arithmetic mean	0.10 ppm
Smoke	Not to exceed 5 minutes in any one hour	Ringlemann scale No.2 or 40% observed at 6m or more
Soot	24 hr	500 µg/Nm-3
Sulphur dioxide (SO ₂)	24 hr	0.15 ppm

Pollutants	Averaging time for ambient air	Standard for ambient air
Sulphur trioxide (SO ₃)	24 hr	200 µg/Nm ⁻³

Note: ppm = parts per million; "N" in µg/Nm⁻³ connotes normal atmospheric conditions of pressure and temperature (25°C and 1 atmosphere).

Relevance: These standards shall be important at worksites, quarries, equipment yards and workers' camps to ensure minimal impact on local air quality.

4.4.7 Water Resources Regulations, 1998

The regulations apply to motorized water abstraction from boreholes or surface watercourses or diverting, impounding or using more than 400 cubic meters of water within a period of 24 hours. Part II, Regulation 3 requires a water permit for operation of motorized water pump from a borehole or waterway. Under Regulation 6, application for permit may be granted on conditions of projected availability of water in the area, existing and projected quality of water in the area and any adverse effect which the facility may cause among other considerations. As such, the project shall acquire water abstraction permits in compliance with these regulations.

Relevance: The contractor should abide by provisions of this law in regard to drilling and operation of a borehole proposed at the workers camp and abstraction of water to be used for construction.

4.4.8 National Environment (Audit) Regulation, 2020

Schedule 3 to these Regulations provide projects for which an annual environmental compliance audit must be carried out by the respective developer. The regulations also provide for voluntary compliance audits for projects not listed in Schedule 3. All projects listed in Schedule 5 of National Environment Act are among those listed in Schedule 3 of the Regulations and require a mandatory annual environmental compliance audit.

Relevance: Following approval of the ESIA by NEMA, the proposed project will undergo mandatory annual environmental compliance audit.

4.5 International Conventions and/or Agreements to which Uganda is Party

4.5.1 The Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and Their Disposal

The Basel Convention is a global treaty aimed at protecting human health and the environment from risks posed by hazardous wastes and their transboundary movement. The treaty was adopted in 1989, came into force in 1992 and Uganda acceded to it on 11th March 1999. The overall goal of the Basel Convention is to protect, by strictly controlling, human health and the environment against the adverse effects which may result from the generation, transboundary movement and management of hazardous and other wastes. When hazardous wastes are dumped indiscriminately, spilled accidentally or managed improperly, they can cause severe health problems, or even death, and poison water and land for decades.

The Basel Convention started initiatives to manage e-waste in an environmentally sound management in 2002. In May 2019, the Convention was amended to include plastic waste in the legally binding framework. All chemicals waste including electronic waste and plastics used on the road constructions project will have to be managed in an environmentally sound manner.

All chemicals used in road constructions will be managed in accordance to this convention

4.5.2 Stockholm Convention on Persistent Organic Pollutants, 2001

The Stockholm Convention is a global treaty designed to protect human health and the environment from Persistent Organic Pollutants (POPs). The Convention was adopted in May 2001 and entered into force in May 2004. Uganda acceded to the convention on the 20th July 2004. Its aim is to eliminate the intentional production and use of POPs and minimize releases from unintentional production of POPs, such as dioxins and furans, which are produced by incomplete combustion. Unintentional production and release of POPs on the project through activities such as open burning is undesirable.

4.5.3 The Strategic Approach to International Chemicals Management (SAICM)

The Strategic Approach to International Chemicals Management (SAICM) was adopted in Dubai in February 2006. SAICM represent the first internationally agreed umbrella agreement for sound management of chemicals across all sectors. It provides a framework policy for achieving the Johannesburg Plan of implementation goal that chemicals will be produced and used in ways that minimize impacts to human health and the environment.

It is a non-legally binding policy framework that aims to facilitate the elimination and reduction of risks of chemicals throughout their life-cycle. It is desirable that chemicals on the project are managed in an environmentally sound manner.

4.5.4 The Convention on Biological Diversity (CBD)

Uganda signed the Convention on Biological Diversity (CBD) in 1992 and ratified it in 1993. The CBD requires Contracting Parties to conserve their biological diversity and promote sustainable use of biological resources. Of specific relevance to future development projects in the area is Article 14 of the CBD which requires its Contracting Parties to introduce appropriate procedures for ESIA of proposals that might have effects on biological diversity, and to provide mechanisms for taking the biodiversity impacts of programme and policies into account. Emphasis is given to in situ conservation in Protected Areas where rehabilitation of degraded ecosystems, recovery of threatened species, and protection of natural habitats and maintenance of viable populations of species in natural surroundings is carried out (CBD, Article 8). Therefore, as part of the decision-making process, the ESIA outcomes will need to be considered in the context of the responsibility of the Ugandan government to protect and conserve threatened species and natural habitats.

4.5.5 The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

CITES recognizes that there exist many endangered species whose vulnerability is increased due to trade. The convention's main aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.

4.5.6 The Ramsar Convention on Wetlands, 1971

The Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention) is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. Uganda is a Contracting Party to the Ramsar Convention.

4.5.7 African Convention on the Conservation of Nature and Natural Resources, 1982

The African Convention on the Conservation of Nature and Natural Resources (Organization of African Unity - OAU) notes that soil, water, flora and fauna constitute valuable capital, and that these are currently under threat. The convention notes that these resources have economic, nutritional, scientific, educational, cultural and aesthetic value. The main principle of the convention is that measures

necessary to ensure conservation, utilization and development of these resources are undertaken in accordance with scientific principles and with due regard to the best interests of the people.

4.5.8 The United Nations Framework Convention on Climate change (UNFCCC), 1992

The United Nations Framework Convention on Climate Change (UNFCCC) is an international environmental treaty negotiated at the Earth Summit in Rio de Janeiro from 3 to 14 June 1992, then entered into force on 21 March 1994. UNFCCC has 197 parties as of December 2015 of which Uganda is a member. Its sister Rio Conventions are the UN Convention on Biological Diversity and the Convention to Combat Desertification. Preventing “dangerous” human interference with the climate system is the ultimate aim of the UNFCCC.

Therefore, all road works should maintain the ecological integrity of the habitat by avoiding activities that could enhance climate change especially massive tree cutting.

4.5.9 Convention for the Safeguarding of the Intangible Cultural Heritage, 2003

Unlike other UNESCO conventions, this convention begins with stating its purposes, which are to safeguard the intangible cultural heritage to ensure respect for the tangible cultural heritage of the communities, groups and individuals concerned to raise awareness at the local, national and international levels of the importance of the intangible cultural heritage, and of ensuring mutual appreciation thereof; to provide for international cooperation and assistance.

All intangible cultural and values within the project area will be respected during construction works

4.5.10 International Convention on Economical Social and Cultural Rights

The International Covenant on Economic, Social and Cultural Rights (ICESCR) is a multilateral treaty (of which Uganda is a member) adopted by the United Nations General Assembly on 16 December 1966, and in force from 3 January 1976. It commits its parties to work toward the granting of economic, social, and cultural rights (ESCR) to the Non-Self-Governing and Trust Territories and individuals, including labour rights and the right to health, the right to education, and the right to an adequate standard of living. As of 2015, the Covenant has 164 parties.

4.5.11 Convention on the Conservation of Migratory species of Wild animals

The Convention on the Conservation of Migratory Species of Wild Animals aims at conserving terrestrial, marine and avian migratory species throughout their range. It is an inter-governmental treaty, concluded under the aegis of the United Nations Environment Programme, concerned with the conservation of wildlife and habitats on a global scale.

There is a possibility of recording migratory bird species within the project area in the due course of construction activities, because the project area lies in a possible migratory route to Murchison Falls National Park in the South. All habitats within Laropi-Moyo-Afoji will be protected through sound mitigation measures

4.5.12 Convention on Protection of Migrant Workers

The International Convention on the Protection of the Rights of All Migrant Workers and Members of their Families is a United Nations multilateral treaty governing the protection of migrant workers and families. Signed on 18 December 1990, it entered into force on 1 July 2003 after the threshold of 20 ratifying States was reached in March 2003. The Committee on Migrant Workers (CMW) monitors implementation of the convention, and is one of the seven UN-linked human rights treaty bodies.

Implementing Contractors of this project may have foreign workers whose rights need to be protected. Additionally, the project area is characterized by numerous refugee settlements who might work on the project.

4.5.13 Convention on Elimination of All Forms of Discrimination against Women

The Convention on the Elimination of all Forms of Discrimination against Women (CEDAW) is an international treaty adopted in 1979 by the United Nations General Assembly. Described as an international bill of rights for women, it was instituted on 3 September 1981 and has been ratified by 189 states including Uganda. Article 1 defines discrimination against women as; any distinction, exclusion or restriction made on the basis of sex which has the effect or purpose of impairing or nullifying the recognition, enjoyment or exercise by women, irrespective of their marital status, on a basis of equality of men and women, of human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field. Therefore, all forms of discrimination against women during implementation of all road project activities shall be condemned.

4.5.14 United Nations Conventions on the Rights of the Child and its Optional Protocols and Declarations on Children

The United Nations Convention on the Rights of the Child (commonly abbreviated as the CRC or UNCRC) is a human rights treaty which sets out the civil, political, economic, social, health and cultural rights of children. The Convention defines a child as any human being under the age of eighteen, unless the age of majority is attained earlier under national legislation.

Two optional protocols were adopted on 25 May 2000. The First Optional Protocol restricts the involvement of children in military conflicts, and the Second Optional Protocol prohibits the sale of children, child prostitution and child pornography. Both protocols have been ratified by more than 160 states including Uganda.

4.5.15 The UN Conventions on the Rights of Persons with Disabilities, 2008

The Convention on the Rights of Persons with Disabilities is an international human rights treaty of the United Nations intended to protect the rights and dignity of persons with disabilities. Parties to the Convention are required to promote, protect, and ensure the full enjoyment of human rights by persons with disabilities and ensure that they enjoy full equality under the law. The Convention has served as the major catalyst in the global movement from viewing persons with disabilities as objects of charity, medical treatment and social protection towards viewing them as full and equal members of society, with human rights. It is also the only UN human rights instrument with an explicit sustainable development dimension. The Convention was the first human rights treaty of the third millennium.

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4.5.16 World Heritage Conventions

4.5.16.1 International Human Rights Instruments

Uganda is signatory to the Universal Declaration of Human Rights (UDHR) and therefore has a moral obligation to advance the Rights spelt therein. Under Article 17 of the UDHR, everyone has the right to own property alone as well as in association with others and no one shall be arbitrarily deprived of his property. This includes cultural property. In addition, the International Covenant on Economic, Social and Cultural Rights (ICESCR), which it ratified in 1987, binds Uganda. Article 27 of UDHR and Article 15 of ICESCR recognize everyone's right to freely participate in cultural life.

4.5.16.2 The UNESCO Convention on the Protection of the World Cultural and Natural Heritage (1972)

Uganda is a signatory to the Convention on the Protection of the World Cultural and Natural Heritage in 1987 and is thus obliged among other things, to:

- i). Ensure the identification, protection, conservation, preservation and transmission to future generations of the cultural and natural heritage (Article 4).
- ii). Ensure that effective and active measures are taken for the protection, conservation and preservation of the cultural and natural heritage situated on its territory, each State Party to this Convention shall endeavor, in so far as possible, and as appropriate for each country (Article 4). and
- iii). Adopt a general policy which aims to give the cultural and natural heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programme.

4.5.16.3 World Bank Operational Policy on Physical Cultural Resources, OP4.11

- i. It defines Physical Cultural Resources 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.
- ii. Physical cultural resources may be located in urban or rural settings, and may be above or below ground, or under water.
- iii. Their cultural interest may be at the local, provincial or national level, or within the international community.
- iv. Physical cultural resources are important as sources of valuable scientific and historical information, as assets for economic and social development, and as integral parts of a people's cultural identity and practices.

4.5.16.4 Physical Cultural Resources (PCRs) Preservation the AfDB.

The OS 1 of the Bank requires the developer to ensure siting, design, construction of the project avoid significant damage to physical and intangible cultural heritage. Physical cultural heritage cannot be removed unless stipulated conditions are met. PCRs can be identified during the assessment process and in most cases can be identified during construction. The OS requires that the assessment process established the risk of existence of PCRs at the project site and the procedure to be followed if any cultural heritage resource is discovered during construction.

4.5.16.5 The UNESCO convention for safeguarding of intangible cultural heritage, 2003

The UNESCO convention for safeguarding of intangible cultural heritage 2003 recognizes the importance of intangible cultural heritage as a mainspring of humanity and a guarantee for sustainable development. The communities, cultural groups, individuals play important role in the production,

4.5.16.6 International Finance Corporation (IFC) Performance Standard 8: Cultural Heritage

The requirements of this Performance Standard 8 on a project's use of cultural heritage are based in part on standards set by the Convention on Biological Diversity. The objectives of Standard 8 are to protect cultural heritage from the adverse impacts of project activities and support its preservation and to promote the equitable sharing of benefits from the use of cultural heritage

4.6 Institutional Framework

4.6.1 Ministry of Works and Transport (MoWT)

MoWT is responsible for policy formulation in the transport sector in Uganda and therefore sets standards in the sector. Among the policies is the Gender Policy whose objective is to strengthen contribution of roads to poverty eradication through providing an enabling environment where women and men participate in, and benefit from, developments in the sub-sector in an equitable manner.

4.6.2 Uganda National Roads Authority (UNRA)

UNRA was established by The Uganda National Authority Act, No. 15 of 2006 and became operational on 1st July 2008. The mandate of UNRA is to develop and maintain national road system, advise Government on general roads policy and contribute to addressing transport concerns. In this project UNRA is both a developer and lead agency. As a lead agency, UNRA manages national roads infrastructure and is responsible for mitigation of impacts associated with road development. As a developer on the other hand, UNRA is required to comply with national environmental laws including undertaking ESIA for project.

4.6.3 Ministry of Water and Environment (MoWE)

Through its technical arm (Water Resources Management Directorate - WRMD), MoWE has a responsibility to regulate quality and quantity of water resources in the country. The Directorate is responsible for the full range of integrated water resources management (IWRM) activities including monitoring, assessing, planning, allocating and regulating water resources. Specifically, the Water Resources Planning Department is responsible for water regulation through issuance of permits for water abstraction and wastewater discharge. The Wetlands Management Department in this Ministry is responsible for monitoring of wetland conservation in Uganda including projects through wetlands of conservation value. The MoWE will be instrument in monitoring to ensure that the project is in full compliance with the relevant laws and requirements.

4.6.4 National Environmental Management Authority (NEMA)

The National Environmental Act provides for the establishment of NEMA as the principal agency responsible for coordination, monitoring and supervision of environmental management activities. NEMA is under the Ministry of Water and Environment (MoWE) but has a cross- sectoral mandate to oversee the conduct of ESIA through issuance of ESIA guidelines, regulations and registration of practitioners. It reviews and approves environmental and social impact statements (ESISs) in consultation with relevant lead agencies.

4.6.5 Ministry of Gender Labour & Social Development

The Ministry has the overall mandate to mobilize and empower communities to harness their potential through Skills Developments, labor productivity and Cultural Growth for Sustainable and Gender Responsive Development of all Ugandan citizens. MGLSD works through its Directorate of Gender and Community Development, Department of Gender and Women Affairs, Department of Culture and Family Affairs, Department of Community Development, Directorate of Social Protection (Specifically the Department of Youth and Children Affairs, Department of Disability and Elderly, and Department of Equity and Rights).

The Ministry promotes cultural growth, non- formal skills development, labour productivity and gender responsive development, while focusing on reducing vulnerability associated to being or becoming poor. In addition, the Ministry rectifies imbalances to eliminate discrimination and inequalities against any individual or group of persons and takes affirmative action in favor of the marginalized.

The Ministry works with other stakeholders including the National Women's Council, National Youth Council, National Council for Children, and National Council for Disability, Industrial Court and the Equal Opportunities Commission. These councils are also decentralized from the district to the sub-county levels. Non-state actors include the Civil Society Organizations (NGOs and Faith Based Organizations), Cultural institutions and Development Partners.

The Ministry will supervise the project to ensure Gender aspects, child protection and workers health and safety, among others are adhered to.

4.6.6 Ministry of Agriculture, Animal Industry and Fisheries

The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) through the Fisheries Department is responsible for promoting sustainable management of fish and fisheries resources in Uganda. Given that construction near water, at the start of the project may compromise the quality of the aquatic ecosystem to support fish breeding and fish stocks, MAAIF will play a key monitoring role.

4.6.7 Directorate of Geological Survey and Mines

Geological survey and mines is a directorate under ministry of Energy and Mineral Development whose mandate is to control all forms of mining in Uganda through the Mining Act. Stone quarrying, sand mining and gravel excavation are key to providing materials for construction of the proposed Road. Quarrying and sand mining shall require an appropriate mining license issued by the Department.

4.6.8 Ministry of Local Government Local

The Ministry of Local Government (MOLG) is a cabinet-level government ministry responsible for the "creation, supervision and guidance of sustainable, efficient and effective service delivery in the decentralized system of governance. The ministry is responsible for the harmonization and support of all local government functions, to cause positive socio-economic transformation of Uganda".

District and Local Council administration of Moyo will be vital in implementation of the project by mobilizing political goodwill and sensitizing communities. In addition, the Department of Community Services, Department of Public Health, Department of Natural Resources of respective districts shall be fundamental in monitoring for compliance with the laws and regulatory.

4.6.9 The Department of Petroleum Supply (DPS)

The Department of Petroleum Supply (DPS) is mandated under the Petroleum Supply Act 2003 to supervise and monitor the importation, exportation, transportation, processing, supply, storage, distribution and marketing of petroleum products. The Department ensures public safety and protection of public health and environment in all petroleum operations and installations.

4.6.10 Department of Museums and Monuments (DMM)

The Department of Museums and Monuments (DMM) in the Ministry of Tourism, Wildlife and Antiquities (MTWA) is the technical department mandated to oversee the implementation of the Historical Monuments Act Cap 46 of 1968. The Act mandates the Department to collect, document and preserve cultural relics that have value to the community, nation and international community. Under Sections 10 & 11 of the Historical Monuments Act, Conservators of Antiquities are mandated to maintain and inspect preserved or protected objects.

4.7 Required Licenses and Permits

Development of the proposed Laropi-Moyo-Afoji Road project will require several licenses, consents and permits from relevant authorities. Table 26 presents some of the required permits.

Table 26: List of permits and licenses required

S/N	Permit	Issuing agency	Use	responsibility
1	Environmental approval ESIA Certificate	NEMA	Approval for beginning of the actual work	UNRA
2	EIA approval certificates	NEMA	Approval for beginning of the actual work	Contractor
3	Water abstraction permit.	Water Resources Management Directorate, (WRMD)	Abstraction of water for road construction as well as camp use	Contractor
4	Waste water/Effluent discharge permit	DWRM & NEMA	Authorize release of waste water/ effluent into the environment	Contractor
5	License for storage of hazardous waste	NEMA	Authorizes onsite storage of hazardous waste before dispensing during road construction.	Contractor
6	Permission to construct a bridge across rivers.	Water Resources Management Directorate, (WRMD)	Authorizes construction works across rivers	Contractor
7	Petroleum construction permit and petroleum operating license.	Petroleum Supply Department, Ministry of Energy & Mineral Development.	Transport, onsite storage and dispensing petroleum fuel during road construction.	Contractor
9	Magazine license (explosives)	Ministry of internal affairs,	Authorizes storage of explosives for blasting of rocks in the carriage way and at quarry sites.	Contractor
10	Blasters License	Ministry of internal affairs,	Authorizes persons to conduct blasting.	Contractor
11	Workplace Registration-Camp and quarry sites.	Ministry of Gender, Labor and Social Development, OSH	Authorizes establishment of Workers' Camps and set conditions for the camp.	Contractor
12	Statutory certification of Lifting equipment	Ministry of Gender and Social development	Authorize the use of lifting equipment that meets safety requirements	Contractor
13	Consent for entry and work through or within protected areas of Forest Reverses	NFA,	Permit to work within protected area	Contractor
14	Approval of layout and physical plans for campsites	Districts, Municipal councils	Approval of physical plans and structures	Contractor
19	Work permits for foreign workers	Ministry of Internal Affairs, Directorate of Citizenship and Immigration Control	Authorizes foreign individuals to worker within Uganda Antic	Immigrant workers

CHAPTER FIVE

5.0 ENVIRONMENT AND SOCIO-ECONOMIC BASELINE

5.1 Physical environment

Climate Change, Climate, Geology and Soils, Hydrology and water quality baseline, Water volumes and Potential of floods, Noise and Vibration, Air Quality Baseline and Seismic

5.2 Biological environment

Vegetation, Birds, Mammals, Amphibians, Reptiles

5.3 Socio-economic settings

Political and Administrative units, Population and Demographics, Livelihood sources, Dependency on natural resources, Land Tenure, Health, HIV/AIDS, Water sources, Fishing, Tourism and revenues, Agriculture and farming practices, Energy source, Transport and

5.4 Physical cultural resources



5.0 CLIMATE CHANGE, ENVIRONMENTAL AND SOCIO-ECONOMIC BASELINE

This baseline information is established from verifiable hard data (such as geology and soils, Climate, topography among others), intermediate data (vegetation conditions, fauna distribution among others), and soft data (occupation, employment, Safety). The baseline information also identified the prevailing ecological challenges in the project area as well as monitoring indicators alongside the proposed Road development.

5.1 Physical Environment

5.1.1 Climate

a) Rainfall

The project lies in the West Nile region which receives a bi-modal rainfall pattern with average total rainfall of 1250-1267mm. The area experiences two seasonal rainfall periods, light rains between April and October. The wettest months are usually July-November with >120mm/month (Figure 10). The period December-March is dry with less than 60mm/month. The rain is associated with the northern and southern movements of the intertropical front.

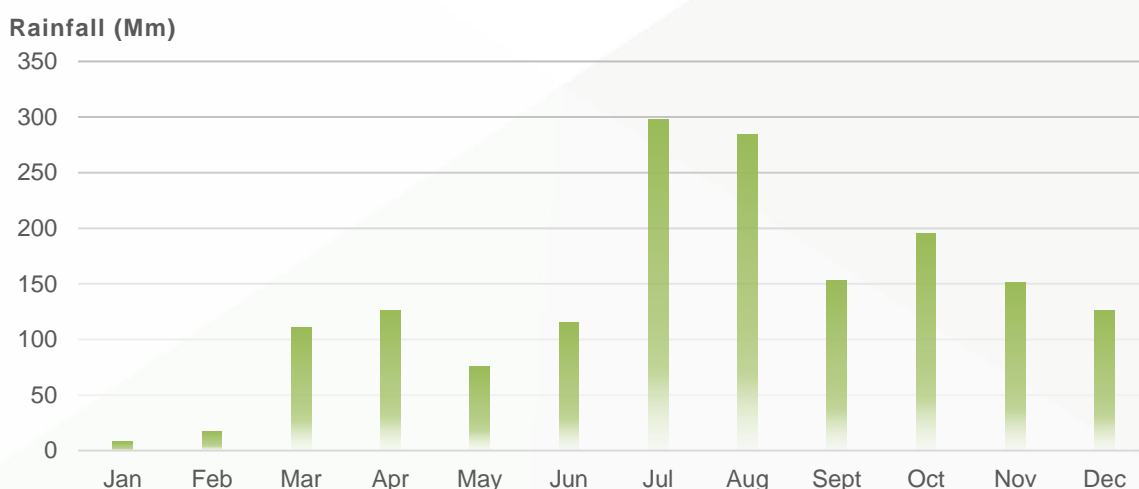


Figure 11: Monthly Rainfall Totals (mm) for 2013

The prevailing wind is from the east to the west with frequent windstorms during the dry season. Mean monthly evaporation ranges from 130mm-180mm. Areas along the Nile receive lesser rain (860mm) than the rest of the region (Arua, Yumbe, Moyo, and Koboko Local Governments). Long rains (March–May) and short rains (September–November) account for approximately 40 and 25 % of annual rainfall respectively. The latter rainfalls are particularly influenced by the El Niño–Southern Oscillation (ENSO) and the Indian Ocean Dipole (IOD).

b) Temperature and humidity

The annual mean temperature ranges from 19°C to 36°C. Whereas the area has humidity levels of over 80% in most months, this reduces to below 50% during the dry season afternoons especially from December to February. (source: Adjuman district statistical Abstract report, 2012). Data and information from the project area District Development Plans (DDPs) indicate that in the dry season (December -March) temperatures remain high (above 450 C) in most parts of the region. While during the wet season especially in July-November, temperatures only fall up to 290C.

5.1.2 Climate change

Uganda like the rest of the world and more particularly the Least Developed Countries with the least capacity to adapt, is vulnerable to the negative impacts of climate change. It is a threat to its fragile

ecosystems, people's livelihoods and ultimately the national economic development efforts (MWE,2021).

Models of future impacts of climate change agree on an increase of mean annual temperature of 1–3.1°C by the 2060s and 1.4–4.9°C by the 2090s. There is a broad consensus that annual rainfall will increase by about 7 to 11 percent in the 2090s (Beyene, et.al, 2010). Highest increases in rainfall will be in the “short rain” season (October to December), possibly leading to a shift in the seasonality of rainfall, with a more pronounced rain period in the autumn and the rest of the year being hotter and drier. This will most likely lead to an increased lack of reliability in water availability, even if total precipitation increases.

Agriculture, which especially in the bimodal rainfall zone (McSweeney, et.al., 2010); is dependent on stable rainfall seasons, will become more difficult, with higher risks of losing harvests due to too much or too little rain. This is exacerbated by failures of traditional weather-forecasting systems and lack of access to modern ones (Hepworth & Goulden, 2008). In addition, a higher percentage of rain will fall in heavy events, and extreme events such as floods and droughts will increase in severity and frequency (Hepworth & Goulden, 2008).

5.1.2.1 Most frequent climate change impacts in the project area

(a) Domestic water shortage

Climate change is disrupting weather patterns, leading to extreme weather events, unpredictable water availability, exacerbating water scarcity and contaminating water supplies. Such impacts have drastically affected the quantity and quality of water needed by communities along Laropi-Moyo-Afogi to survive. Several water sources especially shallow wells and spring wells in the area have either dried up due to the dry season or contaminated by livestock. Some of the available community boreholes are also broken down and require repair.

(b) Displacement of people due to Severe flooding along the Nile

On 09 November 2020, local media reported flooding from the Albert Nile river had prompted evacuations in Obongi, Moyo and Adjuman Districts. Quoting local officials, media in Uganda reported that, as of 16 November of the same year, more than 23,000 residents of the region had been displaced from their homes as the sub-region experiences severe flooding caused by rising River Nile waters. Almost all structures within the proximities of Nile river were destroyed.

(c) Food shortages

Increase in average temperatures, change in rainfall patterns and total annual rainfall amounts are the most critical climate change issues in Uganda. Unpredictable rainfall patterns have resulted in changing growing seasons and reduced water availability. This has several knock on effects. Many Ugandans depend on rain-fed agriculture and less rain means less food availability, accessibility and utilization. With a majority depending on agriculture for jobs, it has an effect on income levels too.

(d) Disruption of transport services due to severe flooding along the Nile

Flooding disrupts the only existing route connectivity along the River Nile, connecting Adjumani in Northern Uganda to Moyo in West Nile, through Laropi-Umi Ferry crossing. This comes as a result of destruction of ferry docking sites hence limiting ferry operations.

5.1.3 Geology and Soils

The West Nile region is underlain by rocks of the basement complex of Precambrian age which are composed largely of granite fascia grade rocks, which generally form enclaves in the gneiss

complex (BIMCO, 2017). The project area is composed of largely sandy alluvial sediments, which are easily eroded, the soils in this area are characterized as Vertisols-Arenosols complexes (FAO, 2018) towards Albert Nile. Soil fertility in the project area is classified as low-moderate and is declining due to nutrient mining and little or no replenishment of nutrients. They are mainly hydromorphic soils characterised by undifferentiated river alluvium dominated by grey and yellow sandy clays of Mirian gneiss and Mobilized and intrusive granites (Figure 12).

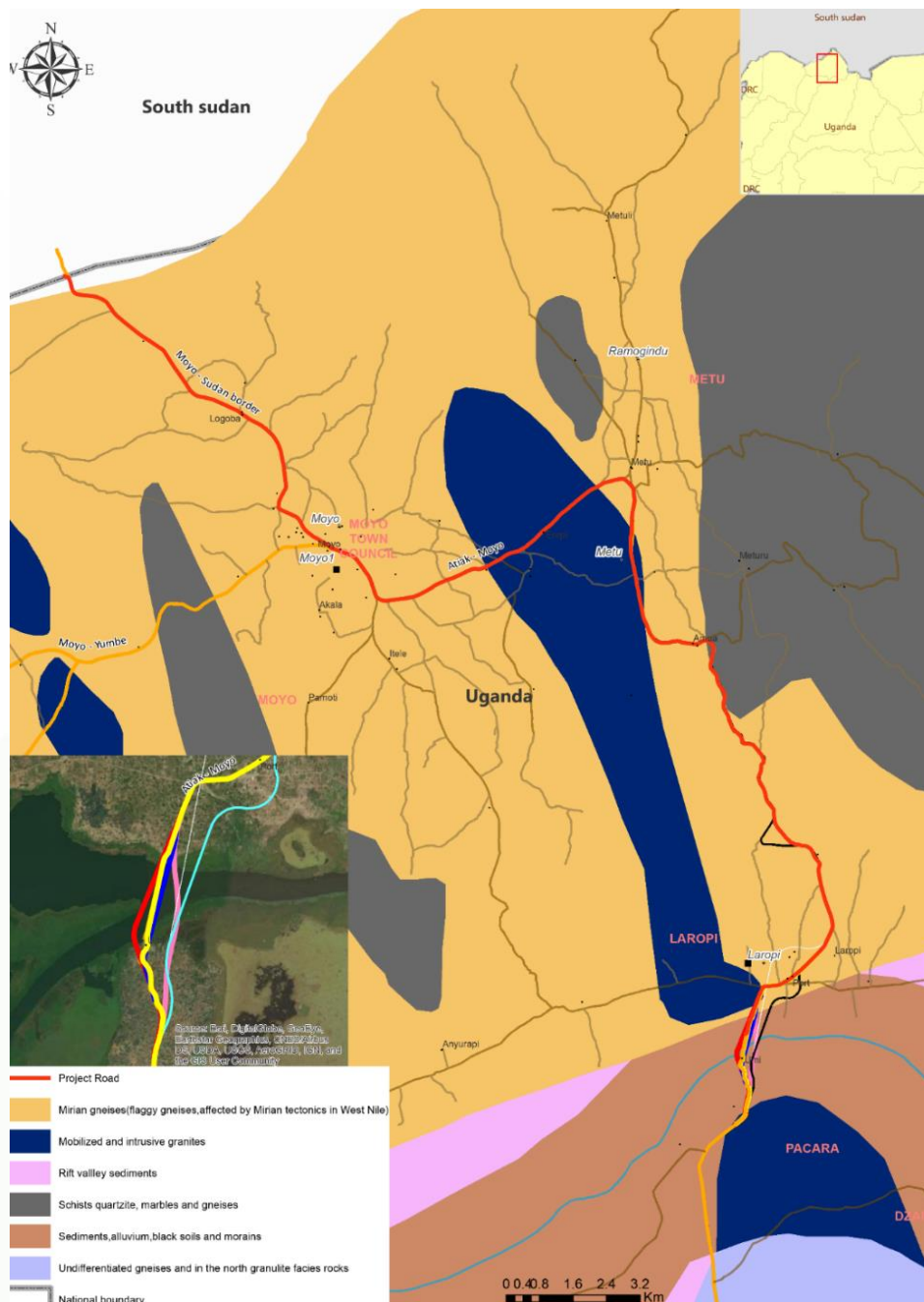


Figure 12: Geology of the project area (Source: UNRA survey Department)

5.1.4 Hydrology

The most prominent water bodies within the project area is Albert Nile, that flows from Lake Albert northwards towards the Mediterranean Sea. One permanent River (River Amau) was recorded after Ortiz Central Forest Reserve. A lot of seasonal rivers and flood plains were encountered within the project area (Figure 13).

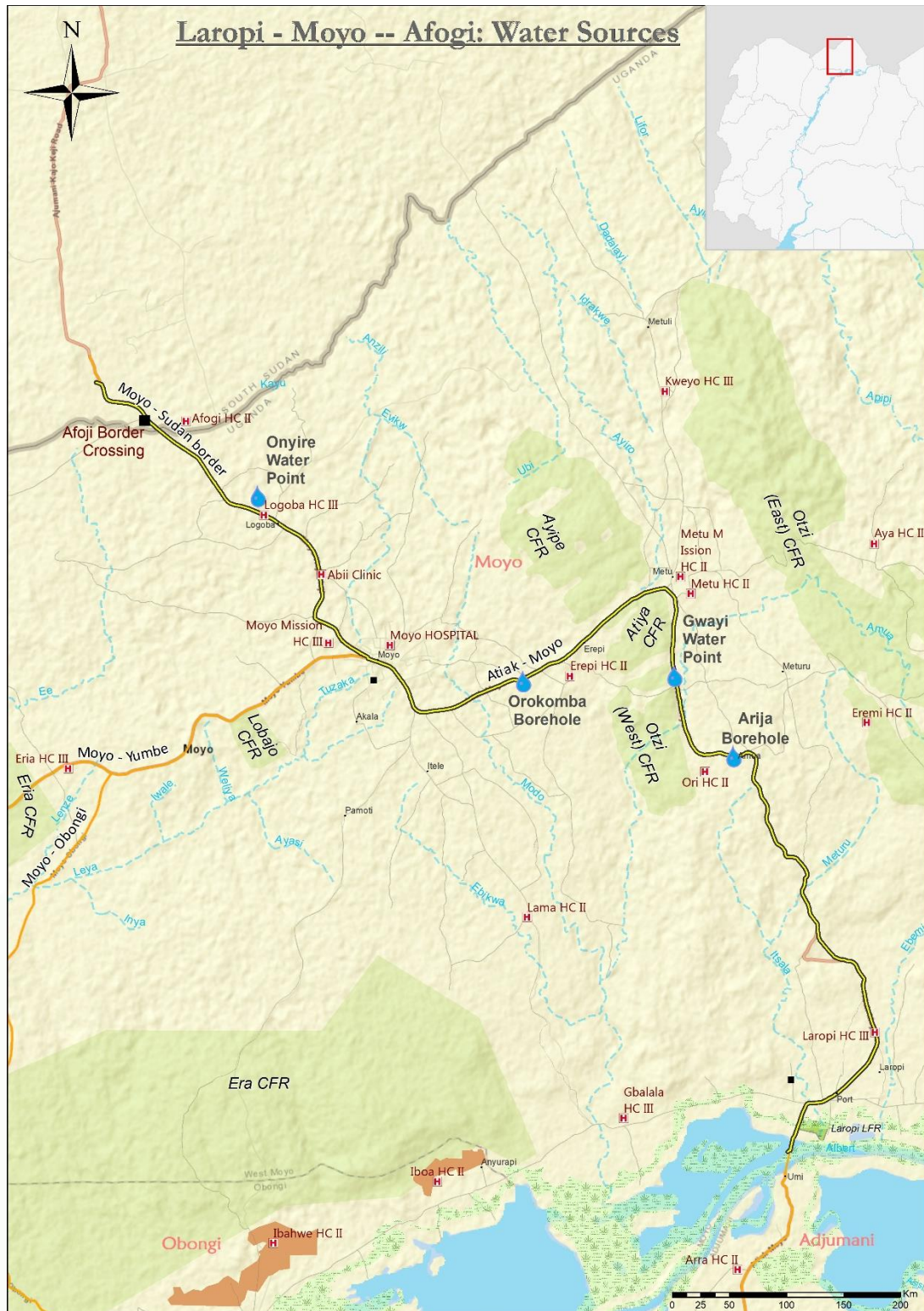


Figure 13: Water resources within the project area

5.1.5 Water quality

5.1.5.1 Surface Waters

The surface water flows for these rivers correspond to the general rainfall pattern with almost peak river discharges corresponding to the peak rainfall pattern. Peak river outflows are experienced during the first rainy season between the months of June and October. Though wetlands are an important part of an ecosystem and provide buffers for area rivers, many wetland ecosystems in the project area are seasonal flood plains and have already been encroached on for agricultural purposes.

5.1.5.2 Physical-chemical properties

Groundwater potential in the project area, whose recharge is mainly from rainfall, varies with location and degree of development. Compared to the National Ground Water Resource, Uganda as a whole has a good potential of groundwater resources. Except for a few project areas, groundwater development has mainly concentrated on shallow wells for domestic purposes. Due to varying geological formations across the project area, the groundwater mineralization process in these geological formations has resulted in differences in chemical water quality along the project area. Ground water quality in the project area as presented in the laboratory analytical results was generally of acceptable quality and less impacted by pollution (Appendix 2).

5.1.5.3 Microbiological quality

Bacteriological quality of deep groundwater in the area is generally better than that of shallow wells and surface water. In most cases, the water does not need to be disinfected unless it has been contaminated, mostly with fecal matter possibly from nearby constructed pit latrines (Appendix 2).

5.1.6 Magnetic Field Radiation

Non-ionizing radiation includes a spectrum of ultraviolet light (UV), visible light, infrared (IR), microwave (MW), Radio Frequency (RF) and Extremely Low Frequency (ELF). Electron magnetic fields radiations are transferred through electric and magnetic fields as flow of electricity. The International Commission on Non-Ionizing Radiation Protection (ICNIRP) has set 200 μ T (200,000 nT) as the exposure limit to magnetic fields. For Chronic exposure, the limit is set at 0.4 μ T (400 nT). The magnetic field radiation in the project area is presented as in Table 27, below

Table 27: Readings (taken in March 2021) for Magnetic Field Radiation in Laropi-Moyo-Afoji Project area

S/N	LOCATION	nT	(EASTING)(36N)	(NORTHING) (36N)
1	Afoji Border	23	352991	409555
2	Afoji Health Centre	34	353843	408852
3	Near Borehole	29	354393	408480
4	Afoji Primary School	18	353688	408995
5	Afoji Town	10	354691	406858
6	Logoba Health Centre Iii	0	355654	407372
7	Pentecostal Assemblies Of God	0	356996	405625
8	Central Village Near Water Source	1	356735	404285
9	Vuraopi Village Moyo Town	5	358097	404026
10	Near Nwsc Offices	5		
11	Celecelea East Village	3	359238	402801
12	Orokomba Primary School	0	361807	403539
13	Ori Health Centre	0	365726	401931
14	Amua Primary School	1	366990	401770
15	Ubbi Primary School	0	369692	396606
16	Laropi Health Centre Iii	1	370076	395046
17	Laropi Town Council	1	368996	393639
18	Laropi Ferry Operating Station	1	368160	392678

Table 25 shows that all sampled points had Extremely Low Frequency (ELF) in the frequency range of $R < 30$ nT, below the exposure limit of 200,000 nT set by ICNIRP as the exposure limit to low frequent magnetic fields. During construction of the project, regular monitoring shall be undertaken to ensure that magnetic field radiation is within the permissible levels to protect the health of workers and communities.

5.1.7 Vibration level assessment

Vibration is the mechanical oscillations of an object about an equilibrium point. Vibration effects are dependent on the intensity of the oscillations and nature of structure or object in which it is transmitted.

Such vibrations can affect both physical structures and human health depending on proximity to the source. In the United Kingdom, the Control of Vibration at Work Regulations 2005 specify daily exposure levels as follows;

- i. For hand-arm vibration (HAV), the daily ELV is 5 m/s² and the daily EAV is 2.5 m/s².
- ii. For whole-body vibration (WBV), the daily ELV is 1.15 m/s² and the daily EAV is 0.5 m/s².

vibration assessment was taken along selected sampling points in March 2021 and readings are detailed in Table 28.

Table 28: Readings for Vibration: Acceleration (m/s²) taken in March 2021

S/N	LOCATION	Vibration Acceleration (m/s ²)	(EASTING)(36N)	NORTHING) (36N)
1	Afoji Border	0.00	352991	409555
2	Afoji Health Centre	0.00	353843	408852
3	Near Borehole	0.00	354393	408480
4	Afoji Primary School	0.00	353688	408995
5	Afoji Town	0.00	354691	406858
6	Logoba Health Centre Iii	0.00	355654	407372
7	Pentecostal Assemblies of God	0.00	356996	405625
8	Central Village Near Water Source	0.00	356735	404285
9	Vuraopi Village Moyo Town	0.00	358097	404026
10	Near Nwsc Offices	0.00		
11	Celecelea East Village	0.00	359238	402801
12	Orokomba Primary School	0.00	361807	403539
13	Ori Health Centre	0.00	365726	401931
14	Amua Primary School	0.00	366990	401770
15	Ubbi Primary School	0.00	369692	396606
16	Laropi Health Centre Iii	0.00	370076	395046
17	Laropi Town Council	0.00	368996	393639
18	Laropi Ferry Operating Station	0.00	368160	392678

From table 26 above, it is indicated that sampled points had readings being less than the equipment detection limit at 0 as the minimum level for acceleration for this respective equipment. Some construction activities are likely to present risks associated with vibration especially compacting and material excavations. Measures shall be devised to protect the workers most susceptible to vibration by providing appropriate PPE. Continuous monitoring will also be undertaken against these baseline conditions.

5.1.8 Noise

Noise measurements taken in the selected sampled points are tabulated in Table 29; indicating that, the average day time readings per location is 39.78 dB(A) with the minimum and maximum sound levels as 57.8 dB(A) and 29.2 dB(A) respectively. Due to the limited activity in proposed project area, majority 77.8% (n=18) of sampled points had their average sound levels below daytime threshold level of 55 dB(A) for mixed locations with commercial and residential activities. Construction activities are associated with noise generation and will increase the noise levels within the project area. Measures shall be incorporated in the environment management plans and implemented to ensure the noise does not cause adverse impacts to the workers and the surrounding communities.

Unregulated or uncontrolled noise often interrupts performance or communication thus predisposing a person to a risk of accidents, injuries, dangerous occurrences, stress, anxiety, illnesses such as noise induced hearing loss (which could be permanent or temporary loss), tinnitus and physical damage among others. Onset of outcomes due to exposure (effects) are dependent on the threshold, time of exposure to the noise, biological, physical and emotional factors surrounding the person at risk.

Table 29: Measurements of Noise level, dB(A) taken in March 2021

S/N	LOCATION	Noise, dB(A)	(EASTING)(36N)	NORTHING) (36N)
1	Afoji Border	38.40	352991	409555
2	Afoji Health Centre	29.95	353843	408852
3	Near Borehole	54.05	354393	408480
4	Afoji Primary School	59.75	353688	408995
5	Afoji Town	43.60	354691	406858
6	Logoba Health Centre Iii	29.65	355654	407372
7	Pentecostal Assemblies Of God	32.30	356996	405625
8	Central Village Near Water Source	30.90	356735	404285
9	Vuraopi Village Moyo Town	56.15	358097	404026
10	Near Nwsc Offices	55.80		
11	Celecelea East Village	57.80	359238	402801
12	Orokomba Primary School	29.25	361807	403539
13	Ori Health Centre	29.90	365726	401931
14	Amua Primary School	29.95	366990	401770
15	Ubbi Primary School	31.90	369692	396606
16	Laropi Health Centre Iii	29.20	370076	395046
17	Laropi Town Council	31.05	368996	393639
18	Laropi Ferry Operating Station	46.50	368160	392678

5.1.9 Particulate Matter

The project area has low particulate matter of respirable granule sizes and none was detected exceeding the standard as set by WHO. Construction and operational activities usually generate Particulate matter of granule sizes PM10 and PM2.5 that may get logged into the respiratory tract once inhaled. During this baseline assessment, average particles in a cubic volume of air were detected through filter sizes of 0.3 µm filter, 0.5 µm filter and 5 µm filter and results of their concentration levels are presented in Table 30.

Table 30: Readings for Particulate matter measured

S/N	Location	0.3 µm Filter	0.5 µm Filter	5 µm Filter	(Easting)	Northing))
1	Afoji Border	7.54E+07	1.03E+07	2.28E+05	352991	409555
2	Afoji Health Centre	5.40E+07	1.15E+07	1.98E+05	353843	408852
3	Near Borehole	5.86E+07	1.33E+07	5.00E+05	354393	408480
4	Afoji Primary School	5.88E+07	1.55E+07	7.48E+05	353688	408995
5	Afoji Town	5.95E+07	1.55E+07	4.04E+05	354691	406858
6	Logoba Health Centre Iii	6.04E+07	1.52E+07	2.65E+05	355654	407372
7	Pentecostal Assemblies of God	5.93E+07	1.54E+07	2.86E+05	356996	405625
8	Central Village Near Water Source	5.94E+07	1.46E+07	2.75E+05	356735	404285
9	Vuraopi Village Moyo Town	5.96E+07	1.99E+07	1.10E+06	358097	404026
10	Near Nwsc Offices	6.02E+07	3.99E+07	5.32E+06		
11	Celecelea East Village	6.44E+07	2.10E+07	3.98E+05	359238	402801
12	Orokomba Primary School	6.21E+07	2.86E+07	2.28E+06	361807	403539
13	Ori Health Centre	5.94E+07	3.27E+07	2.43E+06	365726	401931
14	Amua Primary School	6.15E+07	1.73E+07	3.96E+05	366990	401770
15	Ubbi Primary School	6.36E+07	2.58E+07	1.41E+06	369692	396606
16	Laropi Health Centre Iii	9.10E+07	6.56E+07	1.69E+07	370076	395046
17	Laropi Town Council	6.41E+07	2.11E+07	5.24E+05	368996	393639
18	Laropi Ferry Operating Station			46.50	368160	392678

5.1.10 Air quality

All sampled sites indicated that the levels of Hydrogen Sulfide, Nitrogen Dioxide and Methane were less than the detection limit at 0 as the minimum level for this equipment (Table 31). However, though levels of at the Carbon dioxide were detected, none was above the PEL. This is attributed to the limited number of potential sources within the project. It is anticipated that the gaseous emission levels will

increase during construction and operation of the Laropi-Moyo-Afoji Road. Regular monitoring will be undertaken, and appropriate measures adopted to ensure the emissions are kept to the permissible levels.

Table 31: Baseline air quality conducted in March 2021

		NO ₂	H ₂ S	CO	CO ₂	VOCS	CH ₄
S/N	LOCATION	ppm					% VOL
1	Afoji Border	0	0	0	487.75	0	0
2	Afoji Health Centre	0	0	0	497.50	0	0
3	Near Borehole in Afoji	0	0	0	498.50	0	0
4	Afoji Primary School	0	0	0	487.50	0	0
5	Afoji Town	0	0	0	492.00	0	0
6	Logoba Health Centre Iii	0	0	0	490.50	0	0
7	Pentecostal Assemblies of God	0	0	0	490.00	0	0
8	Central Village, Water Source	0	0	0	491.00	0	0
9	Vuraopi Village Moyo Town	0	0	0	498.00	0	0
10	Near Nwsc Offices	0	0	0	489.50	0	0
11	Celecelelea East Village	0	0	0	498.00	0	0
12	Orokomba Primary School	0	0	0	489.50	0	0
13	Ori Health Centre	0	0	0	486.50	0	0
14	Amua Primary School	0	0	0	493.50	0	0
15	Ubbi Primary School	0	0	0	500.50	0	0
16	Laropi Health Centre Iii	0	0	0	513.00	0	0
17	Laropi Town Council	0	0	0	518.00	0	0
18	Laropi Ferry Operating Station	0	0	0	508.00	0	0

5.2 Biological environment

5.2.1 Vegetation of the project area

The landscape setting of the 37km Laropi-Moyo-Afoji road network is defined by modified landscape with extensive subsistence croplands, bushland/grassland fallow mosaics, built up area, Towns and plantation agriculture; and transition natural vegetation within the hilly rocky grounds of Awaole village and neighboring villages about 3-4km stretch and one kilometer stretch towards the south Sudan boarder in Afoji. In general, the natural vegetation cover within the project corridor had been reduced by human presence leaving small patches of natural transitional vegetation amidst vast degraded habitats. Subsistence farming, plantation agriculture, urban development and trading centres characterize the great part of the project landscape.

Natural transitional savanna vegetation is common within Central forest reserves of Atiya, West Otzi and Ayipe and within the rocky hilly grounds of Awaole village and the recently secured (2018) South Sudan- Uganda boarder with Savanna woodland on gentle hilly ground (Figure 14). Other sites of natural vegetation are the fallow lands and seasonal riverbeds like river Amua. Most of the dry lands and small water courses comprised of settlements, agricultural farms, trading centers and urban centers with a dense network of tree cover especially *Milicia excelsa*, *Mangifera indica*, *Azadirachta indica*, *Senna siamea*, *Tectona grandis*, *Vitellaria paradoxa*, *Khaya senegalensis*, *Ficus* spp and other trees. Plantation agriculture is characterized by *Tectona grandis* woodlots. Most of the tree cover are within homesteads and along the road.

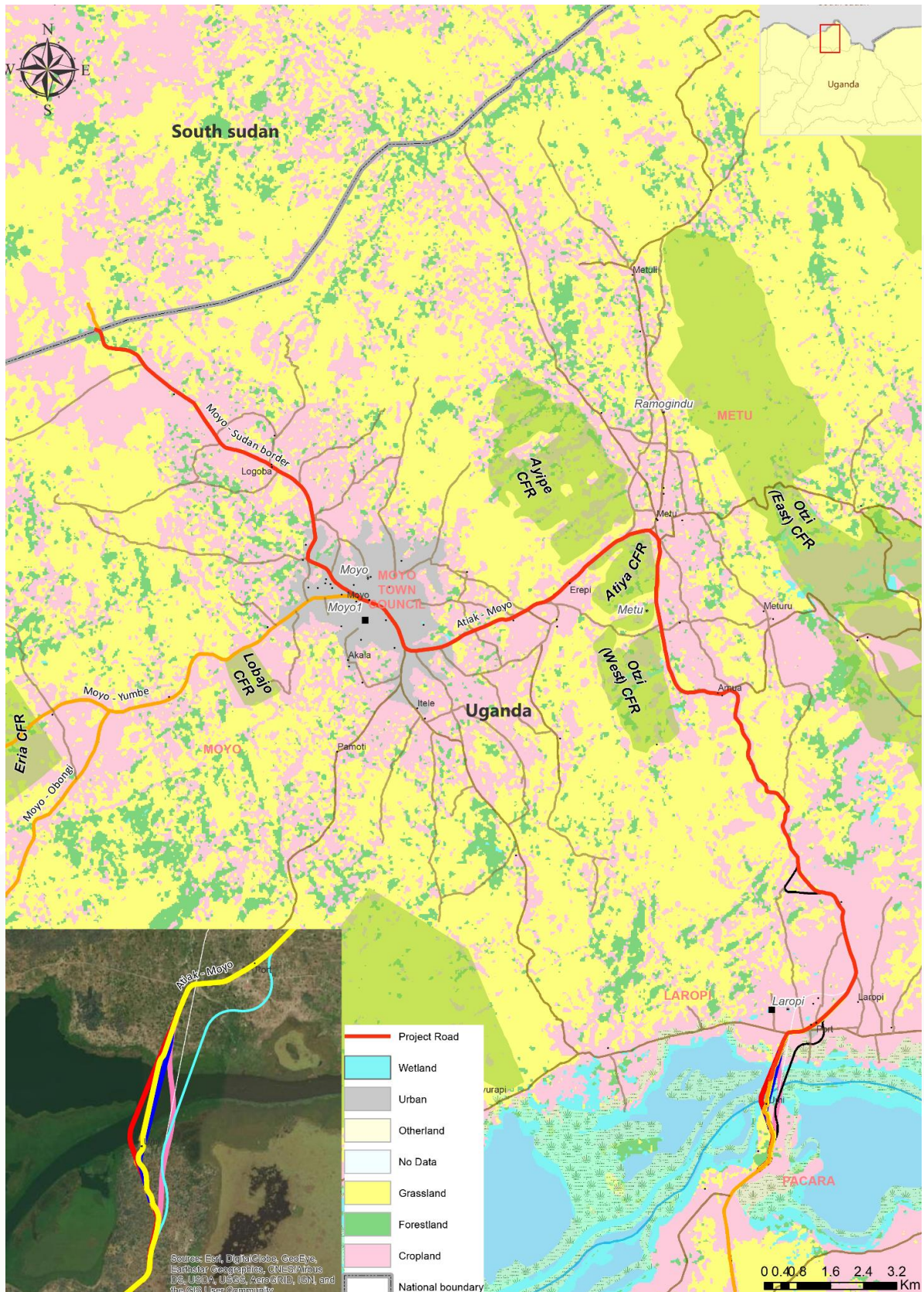


Figure 14: Land cover and vegetation assemblages along Laropi-Afoji Road

5.2.1.1 Vegetation species diversity and distribution

A total of 200 plant species in 148 genera and 47 families (see Appendix 3) were recorded from the Laropi-Moyo-Afoji road corridor. The number of plants recorded from the project corridor were majorly influenced by seasons and increased pressure on the natural site due to increasing demand to meet

the needs of the increasing human population and the economic development concerns. There was high conversion of natural vegetation into settlements and agricultural croplands. The most species rich sites are the savanna bushlands and woodlands as well as the fallow lands along the road. The less species rich sites were gardens and settlements. In terms of growth form, out of the 200 plant species encountered along the proposed road network, 59 species were trees, 55 species were herbaceous, 41 species were shrubs, 29 grass herbs and 13 species were climbers (Figure 15).

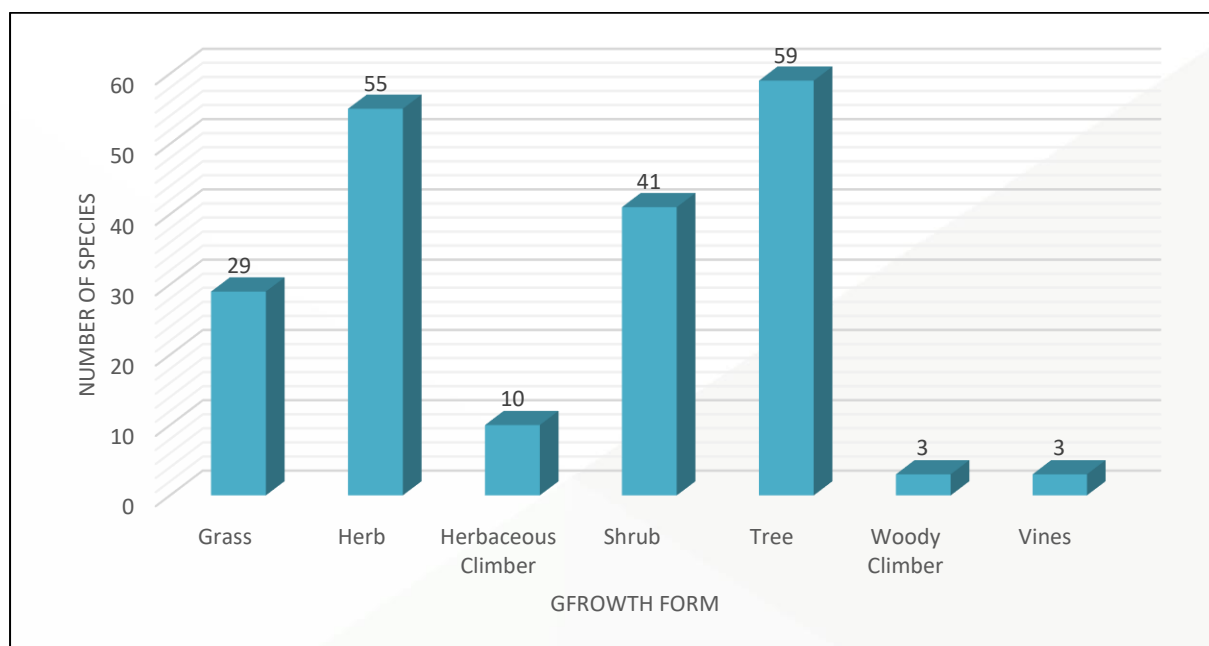


Figure 15: Life form of vegetation distribution along Laropi-Moyo-Afoji road

The most dominant woody species along the Laropi-Moyo-Afoji road were *Milicia excelsa*, *Tectona grandis*, *Vitellaria paradoxa*, *Khaya senegalensis*, *Azadirachta indica*, *Combretum collinum*, *Combretum molle*, *Viex doniana*, *Pserospermum*, *Acacia hoockii*, *Albizia grandibracteata*, *Sclerocarya birrea*, *Gardenia terniflora*, *Maytenus senegalensis*, *Harrisonia abyssinica*, *Philenoptera laxiflora* and *Ziziphus pubescens*, *Cajanus cajan* and *Manihot esculenta*. The most dominant herbaceous plant species along this route were *Hyparrhenia fillipendula*, *Hyperthelia dissoluta*, *Panicum maximum*, *Chloris gayana*, *Cynodon dactylon*, *Imperata cylindrica*, *zea mays*, *Brachiaria brizantha*, *Pennisetum polystarchion*, and *Eragrostis spp.*

5.2.1.2 Distribution of species by family

In terms family distribution, family Fabaceae had the highest number of species (36 species) recorded from the proposed road corridor, these range from herbaceous form to big trees such as *Albizia*. Family fabaceae was followed by poaceae with 29 species and then Asteraceae with 10 species, then family Acanthaceae and Malvaceae with 9 species each, Euphorbaiceae with 8 species, Lamiaceae, Moraceae and Combretaceae with 7 species each, and Anacardiaceae with 6 species (Table 32). Family Meliaceae and Combretaceae though had fewer species, it was evenly distributed within the savannas that appear as transitional vegetation within the corridor. *Milicia*, *Tectona*, *Mangifera* and *Vitellaria* families were also evenly distributed within modified landscape of the road corridor especially in settlement and agriculture farms.

Table 32: Distribution of recorded plant species per family

Family	Number of Species	Family	Number of Species	Family	Number of Species
Acanthaceae	9	Commelinaceae	2	Myrtaceae	3
Amaranthaceae	3	Convolvulaceae	3	Olacaceae	2
Amaryllidaceae	1	Cucurbitaceae	3	Orobanchaceae	1
Anacardiaceae	6	Cyperaceae	2	Phyllanthaceae	5
Annonaceae	2	Ebenaceae	2	Poaceae	29

Family	Number of Species	Family	Number of Species	Family	Number of Species
Apiaceae	1	Euphorbiaceae	8	Rhamnaceae	2
Apocynaceae	2	Fabaceae	36	Rubiaceae	3
Arecaceae	1	Hymenocardiaceae	1	Rutaceae	3
Asparagaceae	1	Hypericaceae	1	Salicaceae	1
Asteraceae	10	Lamiaceae	7	Sapindaceae	3
Bignoniaceae	2	Lauraceae	1	Sapotaceae	1
Boraginaceae	1	Malvaceae	9	Solanaceae	3
Capparaceae	1	Meliaceae	4	Strychnaceae	1
Caricaceae	1	Menispermaceae	1	Verbenaceae	2
Celestraceae	2	Moraceae	7	Vitaceae	1
Combretaceae	7	Musaceae	2	Zygophyllaceous	1



Plate 8: *Milicia excelsa* trees in Moyo town

5.2.1.3 Exotic and Highly valuable tree species

There were several highly valuable tree species within the landscape on both modified and transitional natural vegetation sites. Among those recorded in built up areas include *Milicia excelsa* – a highly valuable timber and shade tree, this is common in Moyo town. Other highly valuable species within the corridor include *Tectona grandis* – hard wood tree, *Vitellaria paradoxa*, *Mangifera indica*, and *Tamarindus indica* – both fruit trees; Mahogany species (*Khaya senegalensis*, *Azadirachta indica*) highly timber species, *Albizia* spp are also known to provide valuable timber. Depending on the position of the tree within the corridor, *Milicia*, *Tectona*, *Mangifera*, *Khaya* and *Azadirachta*, *Azadirachta* and *Senna siamea* will be affected more than any other tree along the road.

5.2.1.4 Species of Conservation Significance

Some tree species recovered along the road corridor include those that are nearly threatened and Vulnerable at global scale as per IUCN Redlist data, and those are vulnerable and endangered at national level as per MTWA (2018). Table 33 provides a list of those plants that are threatened along the road.

Table 33: List of threatened plant species within the road corridor

Family	Species	Growth form	National Redlist	IUCN Redlist
Fabaceae	<i>Dalbergia melanoxylon</i>	Tree	NT	VU
Fabaceae	<i>Delonix baccal</i>	Tree	NT	NA
Moraceae	<i>Milicia excelsa</i>	Tree	NT	EN
Malvaceae	<i>Gossypium hirsutum</i>	Shrub	VU	NA
Meliaceae	<i>Azelia africana</i>	Tree	VU	EN
Meliaceae	<i>Khaya senegalensis</i>	Tree	VU	EN
Sapotaceae	<i>Vitellaria paradoxa</i>	Tree	VU	EN

5.2.1.5 Plant species Reserved under National Forestry and Tree Planting regulation 2016

Like the threatened species there was quite a number of plant species within the proposed corridor. Table 32; provides a list of plant species listed under schedule 8 of the national forestry and tree planting regulation 2016 as reserved/protected species. One requires a permit from NFA or district forest office as provided in schedule 9 of the same forestry and tree planting regulation 2016. These species are usually harvested for poles, timber and fuel wood due to high quality timber and poles they produce. Some of these species are threatened and listed under the IUCN red list, therefore require protection against any form of destruction due to its economic value and increased threats from human given their high-quality value. The list of these protected plants is given under table 34 below

Table 34: Plant species found on site which is listed under schedule 8 of the national forest and tree planting regulation 2016 as reserved tree species

Family	Species	Growth Form	IUCN 2020	MTWA 2018
Anacardiaceae	<i>Mangifera indica</i>	Tree	DD	NA
Fabaceae	<i>Dalbergia melanoxylon</i>	Tree	NT	VU
Fabaceae	<i>Delonix baccal</i>	Tree	NT	NA
Fabaceae	<i>Tamarindus indica</i>	Tree	LC	VU
Fabaceae	<i>Albizia coriaria</i>	Tree	LC	NA
Fabaceae	<i>Albizia grandibracteata</i>	Tree	LC	NA
Malvaceae	<i>Gossypium hirsutum</i>	Shrub	VU	NA
Meliaceae	<i>Azelia africana</i>	Tree	VU	EN
Meliaceae	<i>Khaya senegalensis</i>	Tree	VU	EN
Moraceae	<i>Milicia excelsa</i>	Tree	NT	EN
Moraceae	<i>Ficus glumosa</i>	Tree	NA	NA
Moraceae	<i>Ficus platyphylla</i>	Tree	NA	NA
Moraceae	<i>Ficus sur</i>	Tree	NA	NA
Moraceae	<i>Ficus sycomorus</i>	Tree	NA	NA
Moraceae	<i>Ficus natalensis</i>	Tree	LC	NA
Sapotaceae	<i>Vitellaria paradoxa</i>	Tree	VU	EN

5.2.1.6 Invasive species

As highlighted in the National Environment Management Policy for Uganda 2014 and the National State of the Environment Report for Uganda (2014), Invasive Alien Species (IAS) are a significant threat to ecosystems, biodiversity, human health, and land value/productivity (crops/livestock/recreation/tourism), the impacts of which can be very difficult to reverse and usually escalate rapidly following initiation of minor or major disturbances in the landscape. As such, this specific impact is considered further. At a national level, in collaboration with neighboring countries, a proactive approach to combatting IAS is advocated.

The guiding principles include:

- a) Early detection and implementation of an integrated control program;
- b) Effective control, monitoring and surveillance; and
- c) Involvement of local community in the management of invasive and alien species.

In order to support early detection and surveillance (allowing for effective control), a literature review was carried out to identify those IAS most likely to have the potential to affect the Project Area. Impact species considered are those with potential to cause significant adverse impacts to the Landscape or Project area of influence (Aol) and for which introduction/spread pathways exist and/or the species is already present within the Project footprint. Additionally, a risk rating is assigned to each species; Table 35 provides a description of each risk rating. A list of species that could affect the Project is provided in Table 36 along with their known distribution, summary of impacts, method of spread and risk rating.

Table 35: Risks ratings for Invasive Species

Risk Rating	Description
1	High risk of impact on native habitats/biota and/or project activities, due to high rate of spread and competitiveness with resident species and known to be present or likely to be encountered along or close to the Aol. Action is required to prevent spread.
2	Medium risk of impact on native habitats and biota or unlikely to be encountered, and present or likely be present in the Aol but not known to be in or close project Areas. Standard biosecurity procedures should prevent introduction/spread; however, additional care needs to be taken, particularly with respect to surveillance.
3	Low risk of impact on native habitats and biota or very unlikely to be encountered. If encountered, standard good site hygiene biosecurity procedures should prevent spread.

The risk ratings below are based on currently available information, primarily records of occurrence particularly from field surveys, known distributions at the time of publication of relevant sources and field studies in the Project Footprint. With respect to IAS, distributions can vary dramatically in a short time. As such, the risk ratings below should be considered as being a snapshot and subject to change. Additionally, the invasive plants listed in Table 34 below should not be considered a comprehensive list of all IAS with the potential to impact the project area due to road upgrade, as the list is limited by the availability and publication date of relevant literature. Other IAS may be encountered within the Project Aol; if encountered, they should be subjected to risk assessment.

Table 36: A list of known invasive species within the project corridor and project area of influence

Species	Known Distribution	Known Relevant Impacts	Method of spread	Risk Rating
Terrestrial species				
<i>Mimosa pigra</i> (catclaw mimosa or giant sensitive tree) – shrub or small tree	ESIA surveys identified this species within some of the degraded riverbed vegetation of the project area. It is common in moist vegetation especially wetlands of Uganda	Regarded as one of the worst IAS of tropical Africa wetlands, which it frequently comes to dominate, and alters open grasslands into dense thorny thickets, negatively impacting on native biodiversity. Can also dominate roadside edges.	Seeds (persistence: 2 years, dispersal: water flow, cattle movement and in soil). Noted as being readily spread by road construction equipment.	1
<i>Lantana camara</i> (lantana or tick berry) – shrub	This was found scattered and, in some areas, clumped within the project area on farmland, road edges fallow bushes and transitional savanna bushland edges. This species is widely distributed in Uganda	Forms extensive, dense and impenetrable thickets in forestry plantations, orchards, pastureland, waste land and in natural areas (including protected grasslands and woodlands and forest gaps). Poisonous to livestock. Affects crop yields on agricultural land.	Seeds (persistence: 11 years, dispersal: primarily by birds and by water flow) and by adventitious shoots.	1
<i>Solanum mauritanium</i> (tobacco tree) – shrub or small tree	This species was also found on fallow lands and within disturbed savanna sites of the project area. It was recorded within river Amua basin	Invades natural forests, forestry plantations, riparian zones, urban open space and various disturbed areas, displacing native vegetation, hindering commercial forestry activities, harboring agricultural pests, poisoning livestock and providing health risks for humans	Seed (persistence: not long lived, dispersal: birds, bats, monkeys and human activity) and, more commonly, by adventitious roots.	2
<i>Parthenium hysterophorus</i> (Parthenium weed) – annual herb	This species was not recorded the project area but known to occur within fallow lands of Uganda. It can be identified during pre-clearance inventory or it can easily be transported to site by project vehicles or workers	Infestations are responsible for declines of 40% in food-crop yields, and reductions of 90% in livestock carrying capacities of some grassland areas. Contains potent allergens that can cause severe ailments in grazing and browsing animals, while also inflicting on people discomforting conditions such as dermatitis, asthma, hay-fever, breathing difficulties (potentially leading to death) and irritations of the eyes.	Seeds (persistence: 6 years, dispersal: wind, water, farm machinery, industrial machinery, animals, humans, vehicles, stock fodder, movement of stock, grain and seed).	233

Species	Known Distribution	Known Relevant Impacts	Method of spread	Risk Rating
		Greatly reduces biodiversity in a range of habitats including savanna and open woodland.		
<i>Senna spectabilis</i> (white barked senna) – tree	This was also found scattered within the homesteads within the project area. It was random on fallow lands, farmlands and within built up areas. It is common within some central forest reserves of Uganda including Matiri Central reserve and Kibaale National Park where it is more abundant. It occupies forest, woodland, bushlands, grassland, crop land and it also exists in built up areas of Uganda	Poses a high risk to native flora (and dependent fauna) in Uganda. Out-competes and replaces whole communities of native forest plants. Leaves unpalatable.	Seeds (persistence: 3 years, dispersal: gravity, water flow and in soil) primarily, but also adventitious roots and by plant cuttings.	2
<i>Senna siamea</i>	This was common along the road as a planted tree within trading centers to provide natural shade, trap carbon emissions and source of fuel wood for the communities. The project area of Influence is mainly built up areas and garden edges.	Poses a high risk to native flora (and dependent fauna) in Uganda. Out-competes and replaces whole communities of native forest plants.	Seeds (persistence: 3 years, dispersal: gravity, water flow and in soil) primarily, but also adventitious roots and by plant cuttings.	
<i>Broussonetia papyrifera</i> (paper mulberry) – tree	This species was not recorded within the project site and its neighborhoods. It is common in Mabira forest and most forest fragments around within Uganda the species is common in Uganda	Spreads rapidly through forest reserves and adjoining farmland and pastures, reducing biodiversity and impacting rural livelihoods.	Seed (persistence: no data, dispersal: birds, small animals, water flow and in soil), stem cuttings, coppice and root suckers.	1
Aquatic species				
<i>Salvinia molesta</i> (giant alvinia or Kariba weed) – free-floating aquatic herb	This was recorded in relatively high abundance within the papyrus swamp along the Nile during the survey and, but it also common along river Nile, most factory ponds in Jinja and fishponds in the country as well as other places within the country. The highest density of this species is at lake Kyoga and river Nile which the project form part	Can form mats that are up to 1 m thick, impeding boat traffic, blocking access to water, clogging irrigation piping, impairing the function of hydro installations, and disrupting fisheries. Dense mats suffocate and replace native aquatic vegetation, reducing underwater light penetration and prevent oxygen transfer, making aquatic habitats unsuitable for fish and other animals.	Exclusively vegetative from plant fragments and thin fragmenting 'colonising' stems. Boat ballast.	1

Species	Known Distribution	Known Relevant Impacts	Method of spread	Risk Rating
<i>Eichhornia crassipes</i> (water hyacinth) – free-floating aquatic herb	This exists within the river Nile wetland part of the road link. It is also common in major swamps, rivers and lakes around the country.	Regarded as the world's worst aquatic weed. In Uganda it is has a major impact on the biodiversity of lakes and wetlands, as well as on fisheries and on the lives and livelihoods of the people who are dependent on such freshwater ecosystems.	Seed (persistence: 'many years', dispersal: birds and in mud attached to animals and vehicles). Seedlings rooted at first before becoming free floating. Vegetative fragments and stolon which are dispersed by water flow, blown by wind and attached to boats and in ballast, etc.	1
<i>Pistia stratiotes</i> (water lettuce) – free-floating aquatic herb	Common within wetlands around the Nile	Can rapidly form dense mats which may completely cover the surface of the water, particularly where stagnant conditions exist such as ditches. Subsequently reduces biodiversity and impacts irrigation and drainage. Can also hinder navigation and fishing.	Seeds (persistence: no data, dispersal: water flow and attached to waterfowl or vehicles), vegetative fragments and vegetative offshoots that are connected to the mother plant by stolons. Vegetative fragments are dispersed by water flow and attached to vehicles. Boat ballast.	2
<i>Ipomoea aquatica</i> (swamp morning-glory) – herbaceous vine creeping on mud or floating on water	This was recorded in low abundance along the river Nile waters.	Aggressively colonises aquatic and marginal muddy habitats leading to loss of biodiversity and impacts on irrigation systems, navigation and recreation.	Seeds (persistence: no data), plant fragments or whole plants by water, animals and humans.	2

5.2.1.7 Sensitive habitats/sites along the project corridor

A site is considered sensitive when it contains fragile watershed, riparian community, rare species and threatened species of plants and animals. The savannas within the project area at Ubbi, Amaole, and Afoji host several threatened plant species including *Khaya senegalensis*, *Azadirachta africana*, *Vitellaria paradoxa* and *Dalbergia melanoxylon*. The modified landscape also contains threatened and reserved tree species like *Milicia excelsa*, *Tamarindus indica*, *Ficus* spp and *Albizia* spp. All these sites fulfill the criteria for declaring a site sensitive given the sensitive receptors they host.



Plate 9: Communities of *Milicia excelsa* trees in Moyo Town, considered avoidance features in the project area



Plate 10: Intact wetlands within the project area at Albert Nile (Laropi)

5.2.2 Mammals in project area

5.2.2.1 Mammal species diversity

A total of 26 mammal species belonging to 6 Orders and 15 families were recorded within the project area (Table 37). The Order Rodentia was the most abundant Order associated with 7 species; followed by Chiroptera (6 species) (Figure 16). The success of this group (Rodentia) is in part attributed to its adaptability to new food sources and habitats. The project area was subjected to long term disturbances most especially cultivation and the few remaining semi-natural habitats have been incubated by traditional massive cattle grazing of the prevailing societies. Currently, only a handful of native generalist species tend to dominate, while habitat and dietary specialists and migratory species became locally extinct (White & Burgin 2004; Tait et al. 2005). Mammal communities often respond rapidly to change in habitat structure (Kincaid et al. 1983) and respond quickly to disturbance (Clark et al. 1989), sufficiently mobile to disperse to suitable sites and leave unsuitable sites, yet they are dependent on resources from a reasonably definitive localized area.

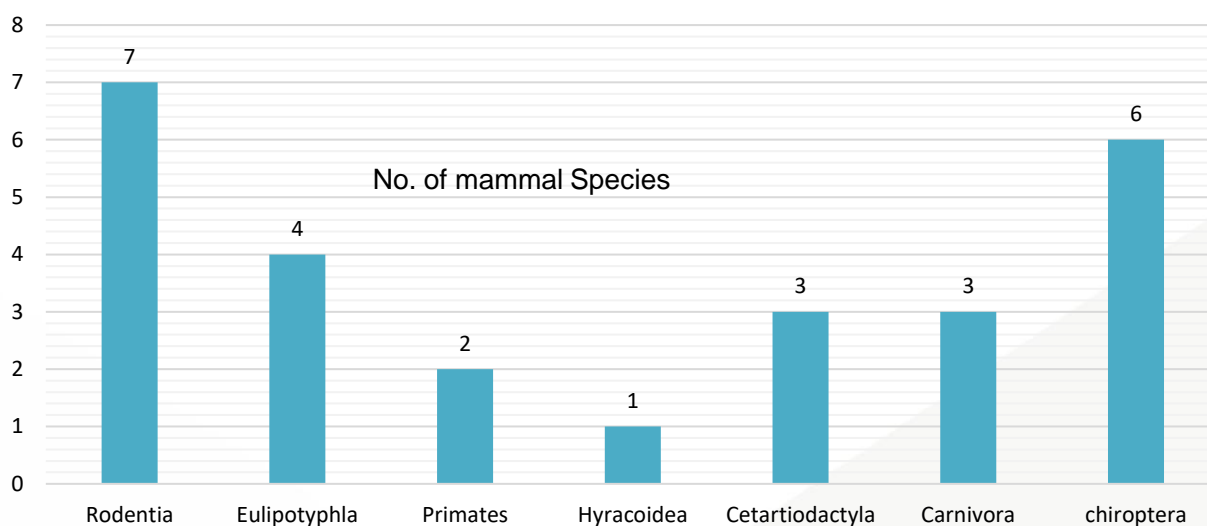


Figure 16: Mammals recorded in the project area by Order



Plate 11: Some of the small mammal species captured from the study; (a) *Arvicanthis niloticus* (b) *Lemniscomys striatus*

Table 37: Mammals recording within the project area

No	Order	Family	species	Common Name	IUCN
1	Rodentia	Sciuridae	<i>Xerus erythropus</i>	Striped Ground Squirrel	LC
2	Rodentia	Sciuridae	<i>Xerus rutilus</i>	Unstriped Ground Squirrel	LC
3	Rodentia	Muridae	<i>Arvicanthus niloticus</i>	African Grass Rat	LC
4	Rodentia	Muridae	<i>Lemniscomys striatus</i>	Striped Grass Mouse	LC
5	Rodentia	Muridae	<i>Lophuromys sikapusi</i>	Rusty-bellied brush-furred rat	LC
6	Rodentia	Muridae	<i>mastomys natalensis</i>	Natal Multimammate Mouse	LC
7	Rodentia	Muridae	<i>Praomys jacksonii</i>	Jackson's Soft-furred Mouse	LC
8	Eulipotyphla	Soricidae	<i>Crocedura olivieri</i>		LC
9	Eulipotyphla	Soricidae	<i>Crocedura nigrofusca</i>		LC
10	Eulipotyphla	Soricidae	<i>Crocedura luna</i>		LC
11	Eulipotyphla	Soricidae	<i>Crocedura dolichura</i>		LC
12	Primates	Cercopithecidae	<i>Papio anubis</i>	Olive Baboon	LC
13	Primates	Cercopithecidae	<i>Chlorocebus pygerythrus</i>	Vervet Monkey	LC
14	Hyracoidea	Procaviidae	<i>Procavia capensis</i>	Rock Hyrax	LC
15	Cetartiodactyla	<u>Bovidae</u>	<i>Tragelaphus sylvaticus</i>	Bushbuck	LC
16	Cetartiodactyla	Bovidae	<i>Sylvicapra grimmia</i>	Bush Duiker	LC
17	Cetartiodactyla	Hippopotamidae	<i>Hippopotamus amphibious</i>	Hippopotamus	VU
18	Carnivora	Herpestidae	<i>Atilax paludinosus</i>	Marsh/Water mongoose	LC
19	Carnivora	Herpestidae	<i>Galerella sanguinea</i>	Slender mongoose	LC
20	chiroptera	Pteropodidae	<i>Eidolon helvum</i>	Straw coloured fruit bat	LC

No	Order	Family	species	Common Name	IUCN
21	chiroptera	Vespertilionidae	<i>Scotophilus dingani</i>	Yellow-bellied house bat	LC
22	chiroptera	Megadermatidae	<i>Lavia frons</i>	Yellow-winged Bat	LC
23	chiroptera	Rhinolophidae	<i>Rhinolophus Landeri</i>	Lander's Horseshoe bat	LC
24	chiroptera	Hipposideridae	<i>Hipposideros ruber</i>	Noak's leaf-nosed bat	LC
25	chiroptera	Mustelidae	<i>Aonyx capensis</i>	African Clawless otter	LC
26	Carnivora	Viverridae	<i>Civettictis civetta</i>	African civet	LC

5.2.2.2 Mammal distribution with the project area.

There was a randomized distribution of this taxon within the project area as there are haphazard and varying degrees of anthropogenic disturbances. The hippopotamus was recorded along the River Nile and their footprints were recorded upto 5km away from the river (Figure 17). Most mammals encountered were Rodents that could be associated with farmlands and peripherals of semi-natural vegetation along the streams. The order Chiroptera (Bats) is associated with hidings in the rocky habitats and selected trees as they are the most suitable roosting sites.



Plate 12: Faecal material of Bush duiker, slender mongooses, African civet and Rock hyrax

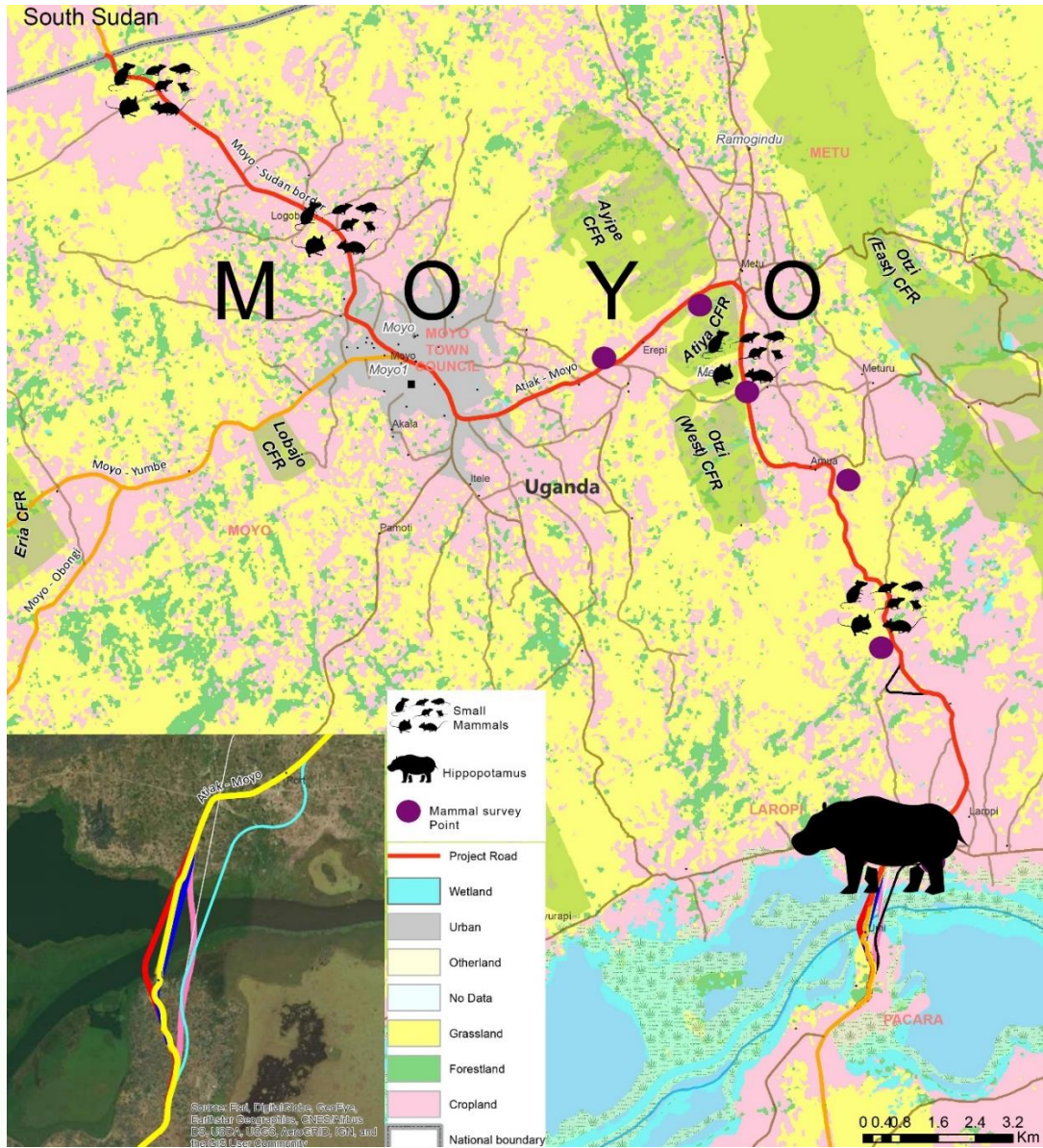


Figure 17: Distribution of mammals within the Project area



Plate 13: Olive baboons



Plate 14: Fecal material of Bushbuck

5.2.2.3 Mammal species of conservation concern

All mammal species, except *Hippopotamus amphibious* identified in the project area are not rare, threatened or endangered according to the IUCN Red List Category of 2010. Whereas *Hippopotamus amphibious* is globally vulnerable, its population is considered stable according to IUCN Red List Version 2020-3 of Threatened Species.

5.2.3 Reptile Diversity

A total of 10 reptile species were recorded, belonging to 8 families and 7 genera. These species belonged to 2 Orders namely; Serpentes, and Sauria of class Reptilia (Table 38). Order Sauria was the most dominant with genus *Trachylepis* presenting 3 species, according to Harold (1992), most lizards have well-developed limbs; the head is normally held high off the ground, and they are agile predators. This increases their colonization success unlike the limbless Serpentes. According to (Gerlach, 2005) many *Trachylepis* species are generalists with a wide ecological tolerance, although there are several more specialized species. Though some of the encountered species were not yet evaluated by IUCN, those that have been evaluated were of least concern.

Table 38: Reptiles recorded within the project area

No.	Order	Family	Species	Common Name	IUCN
1	Sauria	Agamidae	<i>Agama agama</i>	Rainbow Agama	LC
2	Sauria	Chamaeleonidae	<i>Chamaeleo gracilis</i>	Gracile Chameleon	NE
3	Sauria	Gekkonidae	<i>Hemidactylus brookii</i>	Brook's House Gecko	LC
4	Sauria	Gekkonidae	<i>Hemidactylus mabouia</i>	Tropical House Gecko	LC
5	Sauria	Scincidae	<i>Trachylepis maculilabris</i>	Speckle-lipped Skink	LC
6	Sauria	Scincidae	<i>Trachylepis Quinquetaeniata</i>		LC
7	Sauria	Gerrhosauridae	<i>Gerrhosaurus major</i>	Tawny Plated-lizard	LC
8	Sauria	Scincidae	<i>Trachylepis striata</i>	Common Striped Skink	LC
9	Sauria	Varanidae	<i>Varanus niloticus</i>	Nile Monitor	NE
10	Serpentes	Elapidae	<i>Naja melanoleuca</i>	Forest Cobra	LC



Plate 15: Agama-agama, most abundant species in the project area

5.2.3.1 Distribution of Reptiles within the project area

Different reptile species are affected contrarily as a response to specific habitat modifications (Irwin et al. 2010). This was witnessed within the project area as the distribution of this taxon varied with land use changes, vegetation structure, the soil types and the prevailing ecological conditions. Most of the key habitats that were influencing the distribution of reptile fauna within the project area included;

a) Rocky surfaces throughout the project area.

Almost all encountered reptile species were associated with rocks that are spread throughout the project area. However, most species that were encountered on rocks included; *Trachylepis Quinquedentate*, *Trachylepis striata*, *Trachylepis maculilabris* and *Agama agama*. These were distributed all over the project area irrespective of the land use changes and the degree of anthropogenic disturbances because they are generalist's species.

b) Rocky surfaces within woodlands and grasslands

Gerrhosaurus major was associated with rocks away from farmlands and disturbed areas. It was mainly distributed along the rocky slopes within thickets, short grass and scattered trees in the lower side of the project area. This part of the project area is semi-natural only subjected to mild cattle grazing.

c) Riverine vegetation

Chamaeleo gracilis, *Varanus c.f niloticus* and *Naja melanoleuca* are basically associated with the riverine vegetation. They were recorded along River Amua (N03°39.454', E031°47.354'). The shady habitat and the prevailing water availability provide amicable breeding and hunting grounds for the respective species.

5.2.4 Amphibian diversity

From this study, a total of only 8 amphibian species were recorded, belonging to Order Anura, 5 families and 7 genera (Table 39). This is relatively a low amphibian diversity considering the biodiversity potential of the project area; this could be attributed to the extreme dry conditions that limit amphibian activity along the river. All the encountered amphibian species were of least concern regarding IUCN Redlist of species. Most frogs were confined along rivers and wetlands, these included; *Amietia angolensis* and *Hoplobatrachus occipitalis*. The family Hyperoliidae had the highest number of species due to the Cyperus properties of streams.

Table 39: Amphibians reordered in the project area ad their various conservation status categories

Order	Family	Species	Common Name	IUCN
Anura	Hyperoliidae	<i>Afrivalus fulvovittatus</i>	Banded Banana Frog	LC
Anura	Pyxicephalidae	<i>Amietia angolensis</i>	Angola River Frog	LC
Anura	Bufonidae	<i>Amietophrynus regularis</i>	Common African toad	LC
Anura	Dicroglossidae	<i>Hoplobatrachus occipitalis</i>	Crowned bullfrog	LC
Anura	Hyperoliidae	<i>Hyperolius acuticeps</i>		LC
Anura	Hyperoliidae	<i>Hyperolius cinnamomeoventris</i>	Cinnamon-bellied Reed Frog	LC
Anura	Ranidae	<i>Ptychadena anchietae</i>	Ridged Grass Frog	LC
Anura	Ranidae	<i>Ptychadena mascareniensis</i>	Mascarene Grass Frog	LC



Plate 16: Hoplobatrachus occipitalis recorded in River Amua

5.2.4.1 Distribution of Amphibian fauna within the project area

Habitat components come together to produce unique stream environments that harbor a community of amphibians (Lukwago, 2013), each with evolved characters that allow it to grow and reproduce. Amphibian species of different life history and evolved traits will tend to congregate in areas with preferred habitat characteristics. *Amietia angolensis* and *Xenopus muelleri* species were fully associated with the rivers, are known as River frogs since they are allied with fast moving water. These were distributed along River Amua within the project area. The rest of the amphibians were encountered in the farmlands, grasslands and woodlands away from water bodies but in proximity. These are seasonal breeders triggered usually off by the wet season.

5.2.5 Bird diversity

A total of 100 Bird species were recorded within the project area and the surrounding habitats (Appendix 4). These belonged to 12 Orders, 29 Families and 65 Genera. The Order Passeriformes had the highest number of species (77 species of this Order were recorded), the passerines form one of the most diverse terrestrial vertebrate orders (Mayr, 1946) hence increased chances of finding them in most terrestrial ecosystems. This was followed by Orders; Columbiformes, Apodiforms, Accipitriformes and others as shown in figure 18.

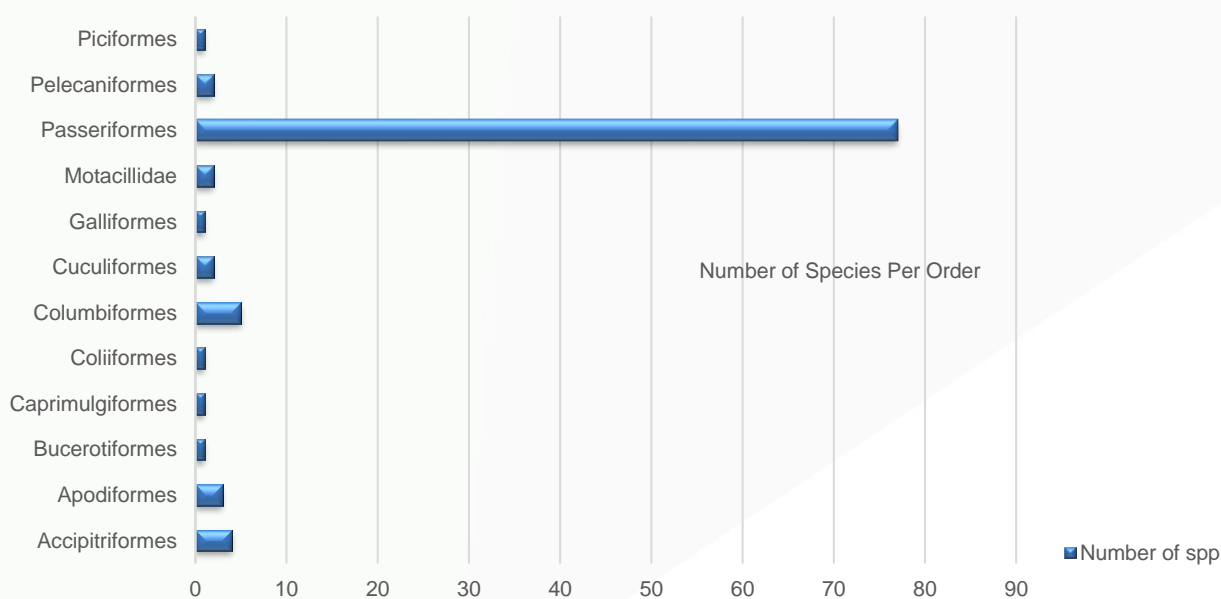


Figure 18: Number of Bird species per Family

Out of the 29 families recorded, the family Fringillidae had the highest number of species (11 Species), followed by Cisticolidae (10 species), Ploceidae (10 species), Musophagidae (8 species), Nectariniidae (8 species), Hirundinidae (7 species) and Columbidae (5 species) as shown in figure 19, though most families were represented by singularities. The high bird diversity within the project area was associated with wooded areas, open grasslands or scrub and farmlands. The project area was subjected to human disturbances; however, this disturbance was intermediate in intensity and frequency as far as birds are concerned. According to (Grime 1978), Diversity is high when disturbance is intermediate in terms of frequency and intensity.

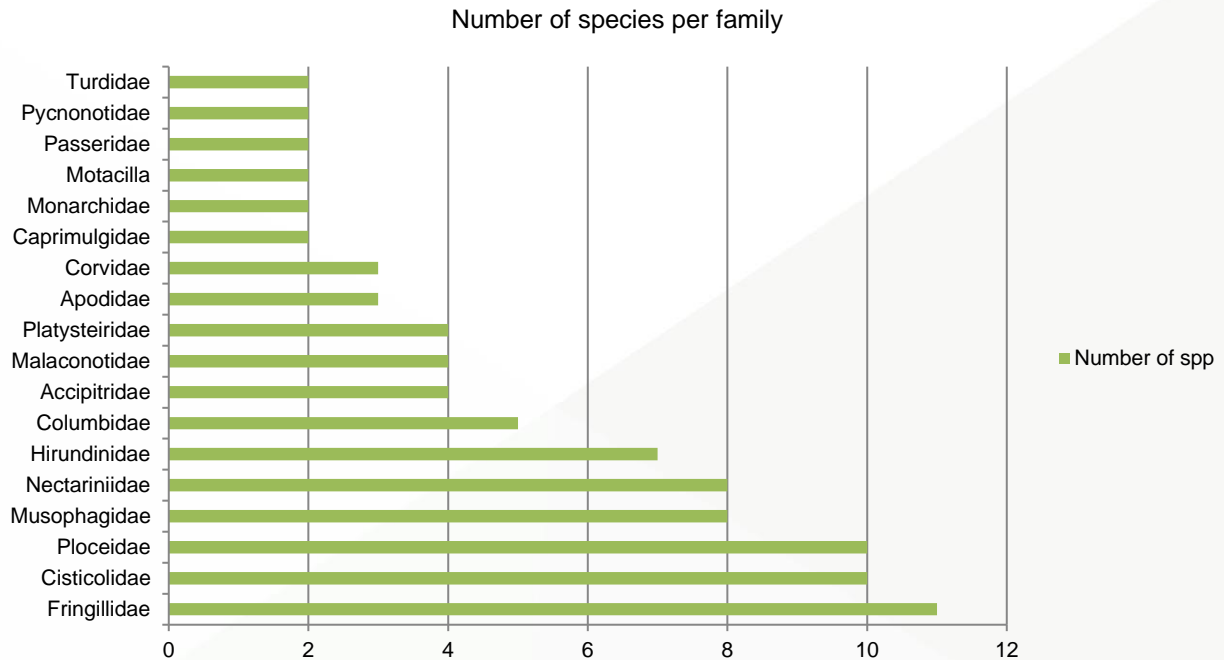


Figure 19: Number of Bird species per Family

5.2.5.1 Distribution of Birds within the project area

Most of the encountered birds within the project area were Grassland specialists (Figure 20). This is because the project area is generally described as a savannah grassland habitat. This was followed by the tree species due to the existing woodlands within the project area. Some of the birds were forest Generalists and specialists because the project area is in close proximity with some of few remaining forests around Laropi areas, such ecosystems in combination with the remaining woodlands, and riverine vegetation along River Nile greatly influenced the avifauna composition. The most dominant Bird species recorded were; Pycnonotus barbatus (Common Bulbul), Pied Crow, Rupel's Long, Tailed Starling and Robin Chat.

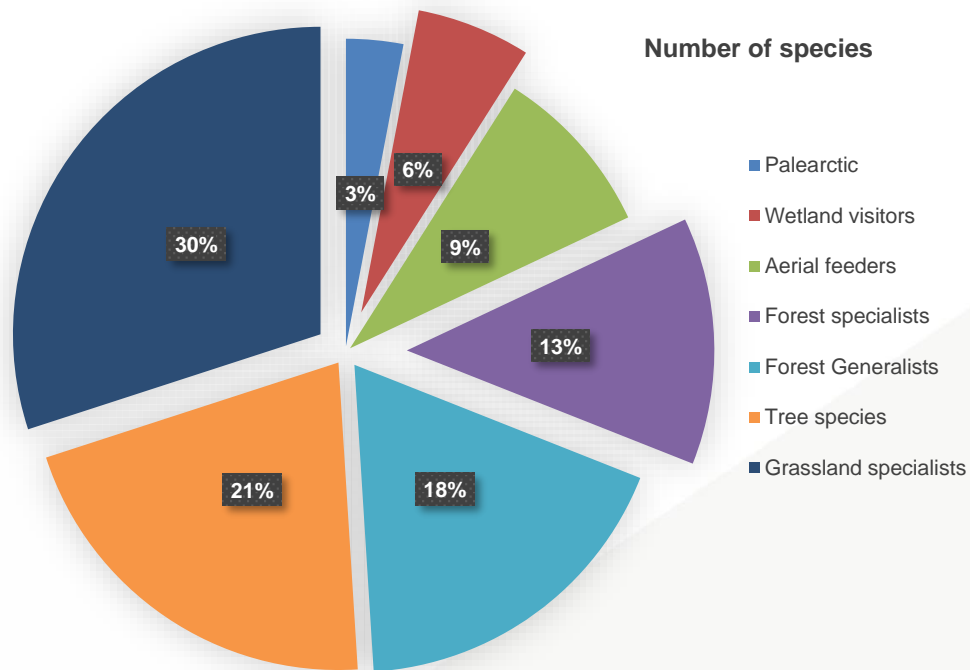


Figure 20: Categories of Birds that were encountered

5.2.5.2 Conservation status of the encountered avifauna

All the identified avifauna was of Least Concern (LC) with reference to IUCN Red list of species. This is because they are disturbance tolerant species and their populations are not threatened in any way. However, the local people in the project locality consider birds so delicious and they normally hunt them for source.

5.3 Socio-economic Baseline

5.3.1 Politics and Administration of Moyo District

The project traverses three sub-counties including Laropi, Metu and Moyo (Figure 21) within Moyo District. Administratively, the District is politically headed by the LCV Chairperson with the elected other Chairpersons at LC I and LC III levels, which together form the local government political structure (comprising of elected councillors at various village). The Chief Administrative Officer (CAO) heads the civil service or technical staff. The Resident District Commissioner who represents the President's office at the district level. At LCIII level, there exist a Sub-county Chiefs who heads the technocrats while the elected LCIII Chairman leads the elected councillors.

Below sub-counties are parishes which are headed by Parish Chiefs and the LCII Chairperson while LCI Chairpersons lead villages assisted by committees personally selected by them.

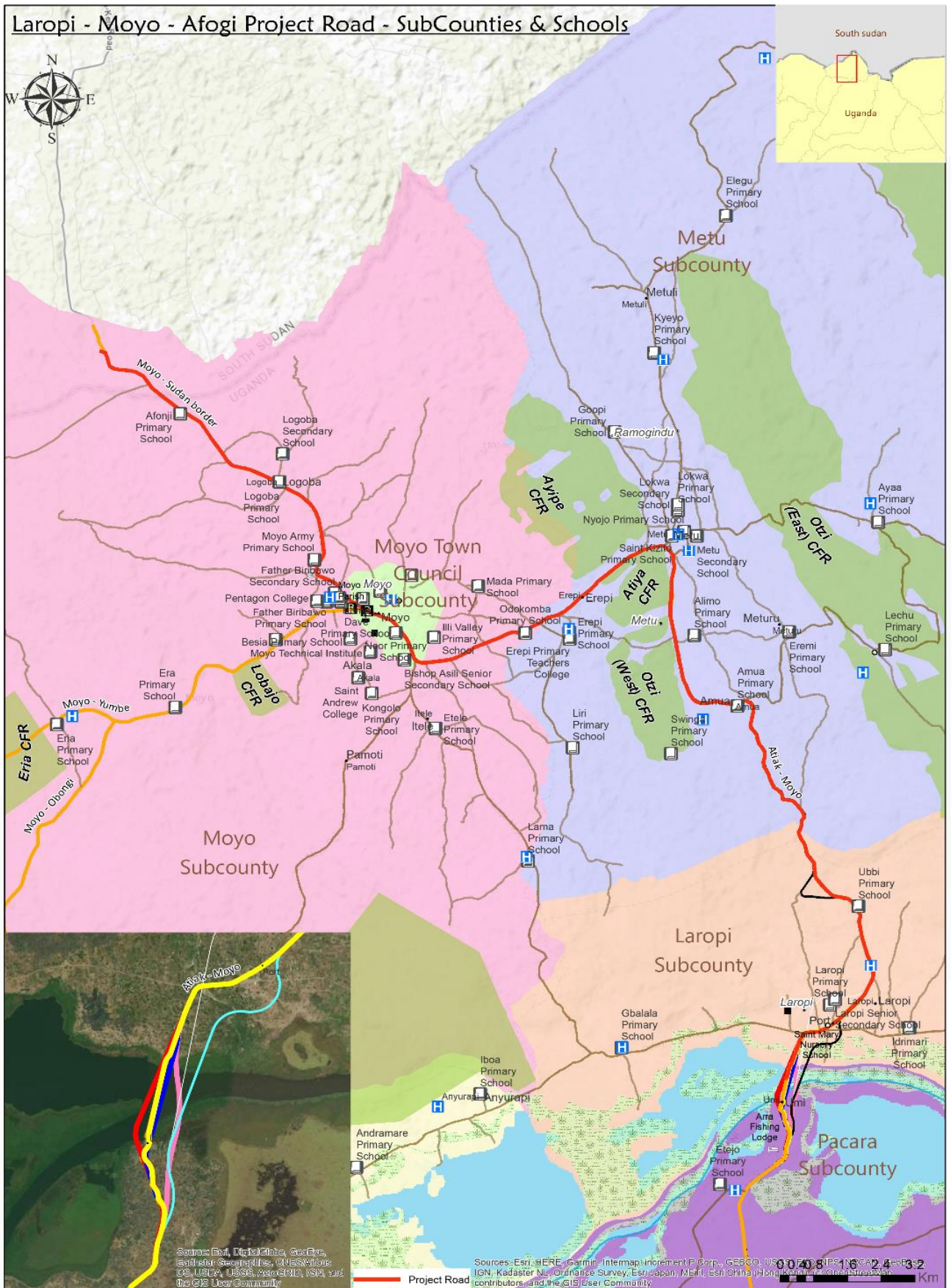


Figure 21: Location of the Laropi-Moyo-Afoji in Moyo District

5.3.2 Security in the District

The South Sudan- Uganda boarder with Savanna woodland on gentle hilly ground is secure. This area is known to have been occupied around 70s and 80s before the insecurity that resulted into people deserting the area. Consultations with the district leadership revealed total peace in the area, cooperation between the two sister countries and booming free trade. The Moyo District authorities revealed the existence of a Security Committee constituted of the political leadership; the Ministry of Defense(Uganda Peoples Defense forces and Chieftaincy of military intelligence); the Internal and External Security Agencies; Ministry of Internal Affairs (the Uganda Police Force(UPF), Uganda Prisons and the Department of Immigration); Uganda Revenue Authority (URA); and Cultural Leaders which super heads security matters.

Quarterly cross-border meeting take place between government security officials of the two neighboring countries with view to reviewing the security situation at the border. Generally, Moyo district has low crime rate without serious security incidents reported and noticed due to effective community policing and sensitization activities. Past experience of insecurity in the area during the past regimes tend to model the society in line with maintenance of peace. There is respect for cultural institutions such as Chieftdoms which stand for community responsibility and conflict resolution and maintenance of peace.

5.3.3 Demographic characteristics of the project area

5.3.3.1 Population size and age groups

The population within the project area is growing at a relatively high rate with an average household size ranging between 5 and 6 individuals (UBOS, 2014). Moyo District had a population of 137,489, of which 67,937 were **males** and 69,552 were **females** according to the 2014 population census. Moyo district population growth rate between 1991 and 2002 was 7.69 percent per annum and the growth rate between 2002 and 2014 was 2.9 percent per annum. The survey revealed that a greater number (40%) of the population were between the age of 5-18 years as shown in Figure 22 below.

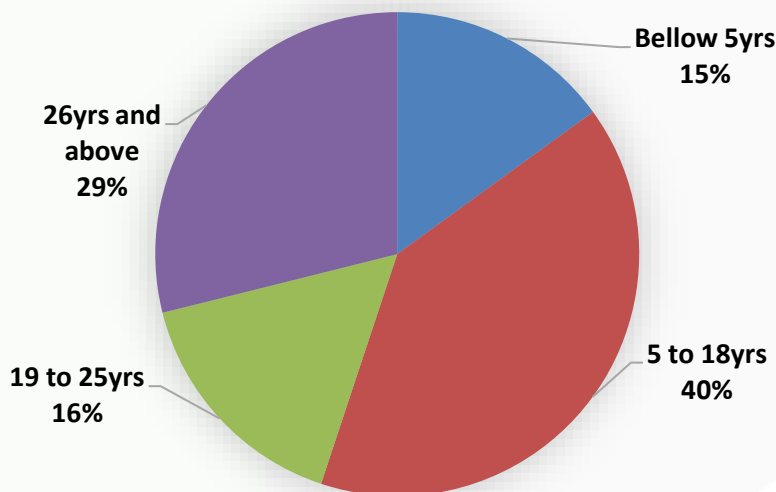


Figure 22: Age Groups within the Project area

5.3.3.2 Education and Literacy levels

The emergency of COVID19 pandemic has destabilised the education system in the country; the infection rates have led the government to close schools multiple times. This has amplified multiple school drop-outs especially for girl child. Majority of the population have not attained formal education (56%) as shown in Figure 23. Moyo district, is also characterized by low completion rates at both primary and secondary levels (UBOS, 2014). The average literacy of the population in the District aged 10 years and above is 65.0% which is below the National average of 70.0% (UBOS, 2014). However, there exists disparity in literacy rates between **males** and **females** which are 78.0% and 53.0% respectively (UBOS, 2014).

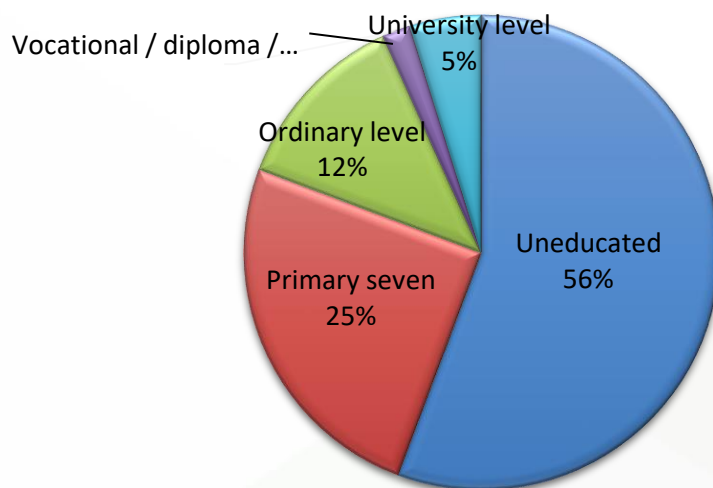


Figure 23: Literacy levels within the project area (Survey data, 2021)

(a) School Enrolment

There has been a steady increase in gross enrolment at primary level from 33,262 pupils in 2009 to 34,280 pupils in 2013 presenting 30.1% increase, however this increase is significantly affected by COVID19 pandemic. The percentage of **girls** and **boys** in total enrolment was almost balancing at 49.6 % and 50.4% respectively but most girls have dropped out of schools due to continued closure of schools to observe SOPs of Covid19. The school classroom ratio was 55.1 same with the National average. Enrolment in secondary schools in 2013 was 4800 pupils. The percentage enrolment of **boys** in secondary schools was 67.6% and **girls** 32.4%. During focus group discussions with women in Laropi subcounty it emerged that **girls** drop out of school at teen age to get married, and due to teen pregnancy, this calls for enhanced gender sensitization. A few of these schools, such as Orokomba Primary School (Figure 24), are in the vicinity of the proposed project area and will be directly impacted by its activities.

(b) School distribution within the Project area

Moyo District has a total of 28 Nursery, 87 primary, 15 secondary schools and 4 tertiary institutions. The nursery schools are exclusively owned and managed by the community and private sector. The number of Pre-primary schools increased from 9 in 2009 to 28 in 2013 with corresponding enrolment increment from 2,031 in 2009 to 3,557 in 2013 giving enrolment increase of 75.1%. The schools are distributed all over the district. However, the highest number of the pre-primary schools were in 2 sub-counties along Atiak-Moyo-Afoji road (Metu and Laropi) with each having 6 schools (Figure 24). There are 96 primary schools, 87 of which are government owned and 9 community/private schools.

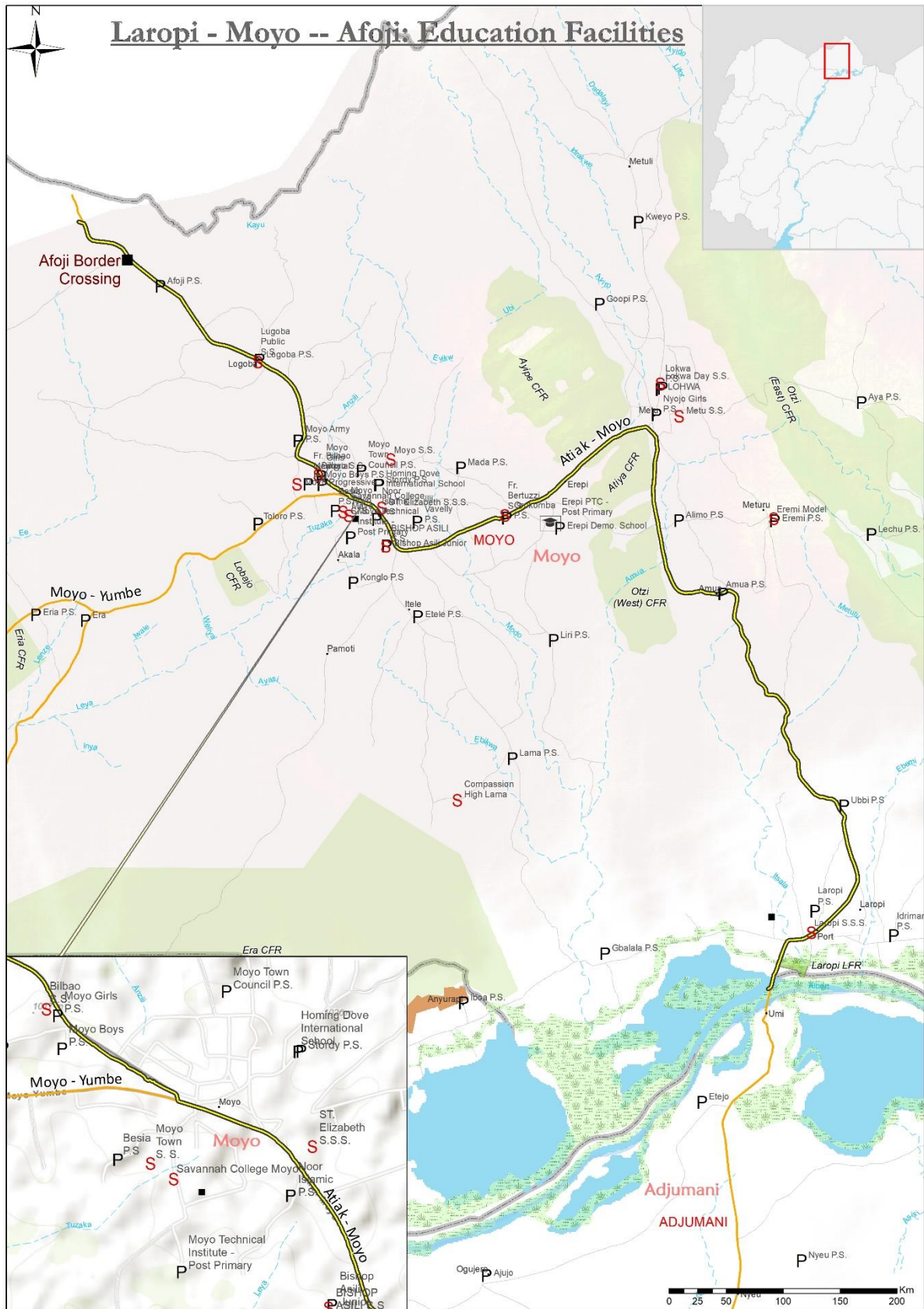


Figure 24: Distribution of Schools and other learning institutions within the project area

(c) Distance to schools

The biggest percentage of school going household members 49.5% travel less than 1 Km to access school while 44.4% travel between 1 and 5 Km to access school. Only 6.1% of school going household members travel for more than 5 Km to access school. Table 40 shows the distance to school travelled by school going household members. The study noted that due to the perceived short distance to school, many learners commute from home, leaving them exposed and vulnerable to challenges on their commute.

Table 40: Distance to school

Distance	Percentage
Less than 1km	49.5
1 to 5km	44.4
above 5Km	6.1
Total	100

(d) Girl-Child education and early marriages

The **Girl-Child** education in the district of Moyo is low particularly in the upper classes (P6 &P7) with about 18% enrolled completing the primary education circle. This is attributed to negative attitudes of parents towards educating the **girl-child**, low value for girl-child education in the community, economic gains from early marriages, heavy domestic chores for the girl-child, child labour and defilement. However, **girls** have benefitted more under the Universal Primary Education (UPE) program (DDP Moyo, 2016).



Plate 17: A 16-year-old girl taking her 2-years old toddler to a health Centre in Moyo (UNRA file photo)

The Prevalence of early marriage remains pervasive with regional disparities: on average one in two Ugandan **women** was married before turning 18 (Plate 17), up to two in three **women** in the East Central, Mid-Eastern and West Nile and Northern sub-regions. Early marriage is widely accepted, but only for **girls**: while many communities believe that men should be married later (UNDP 2014). Limited access to post-primary schools and livelihoods expose adolescent girls to risks of child marriage and prompt recourse to survival sex; increasing vulnerability to sexual and other forms of exploitation and abuse (UNHCR, 2019).

(e) Ability to read and write in any language

This study determined that almost 50% of the household members can easily read and write in any local language, of which females make 47%. Of the household members currently at school, a majority (75%) are in primary school while 21.4% are in secondary schools. Only 2.4% and 1.2% are in Advanced level and vocational training respectively. Figure 25 shows grade currently attended by household members.

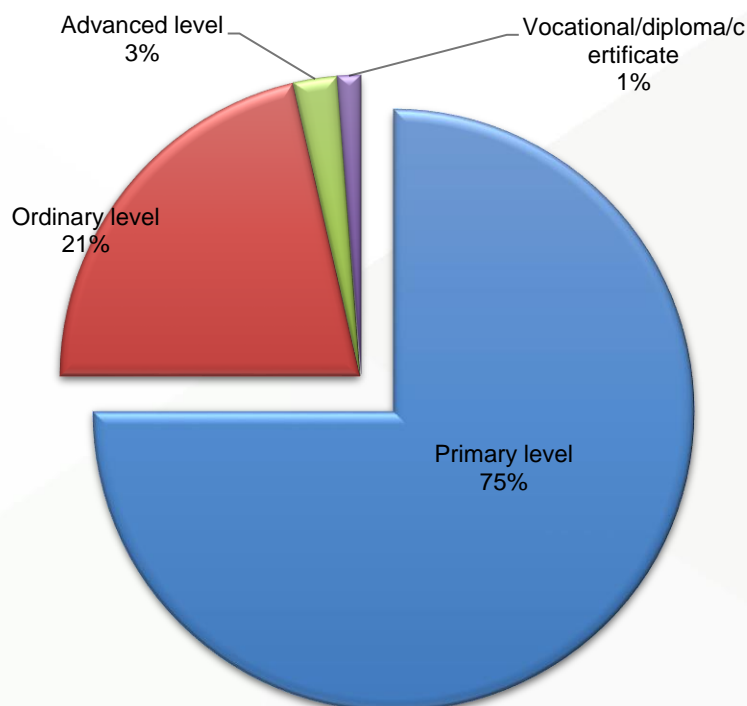


Figure 25: Level of Education currently attended by household members

5.3.4 Gender Analysis

Preliminary Gender analysis is used to identify, understand, and describe gender differences and the relevance of gender roles and power dynamics in a project area. This involves examining the differential impacts of a project on **women** and **men**, and examines the different roles, rights, and opportunities of men and women and relations between them (USAID, 2011). This analysis employs the six domains of Gender Analysis Framework Approach namely: access, knowledge, beliefs and perceptions, practices and participation, time and space, legal rights and status, power and decision making.

5.3.4.1 Access to land

Land in Moyo District, as in most societies in Uganda, is equated with social status, wealth, and power and provides the basis economic activities including provision of food and shelter. There is a strong correlation between the decision-making powers and the type, quality and quantity of land rights. Due to the misunderstanding of customs relating to land (the pervasive patriarchal system), **women** are regularly denied full benefits of this resource and discriminated against in land matters. Land rights and management remain **male-dominated** in Uganda generally: only one-third of land is owned or

co-owned by **women**. There is widespread support for this inequality: 27% of the population supports unequal land rights, reaching as high as 54% in the West Nile and Northern sub-regions (UNDP 2014).

As a result, women do not enjoy complete and equal ownership of land that is usually accessed through male relatives. The access they possess is highly dependent on the good relationship that a **woman** has with **male** relatives. Women are rendered vulnerable and marginalized regarding ownership, access and control of land and other productive resources.

5.3.4.2 Sexual and Gender Based Violence

A total of 726 cases of women or girls being assaulted, denied right to use land or proceeds from sale of agricultural proceeds or sexually abused along the project area were recorded in the last one year (Feb 2020- Feb 2021) (Socioeconomic Survey, 2021)³. In Moyo Town council, prevalence and acceptance of domestic violence are still high: twice as many women than men experienced spousal violence in their lifetime; one in two Ugandan women has been victim at least once during their life and one in three in the last 12 months. The commonest form of domestic violence towards women is physical assault (327 cases) followed by verbal abuses (179 cases) and Defilement (44 cases) as shown in Figure 26.

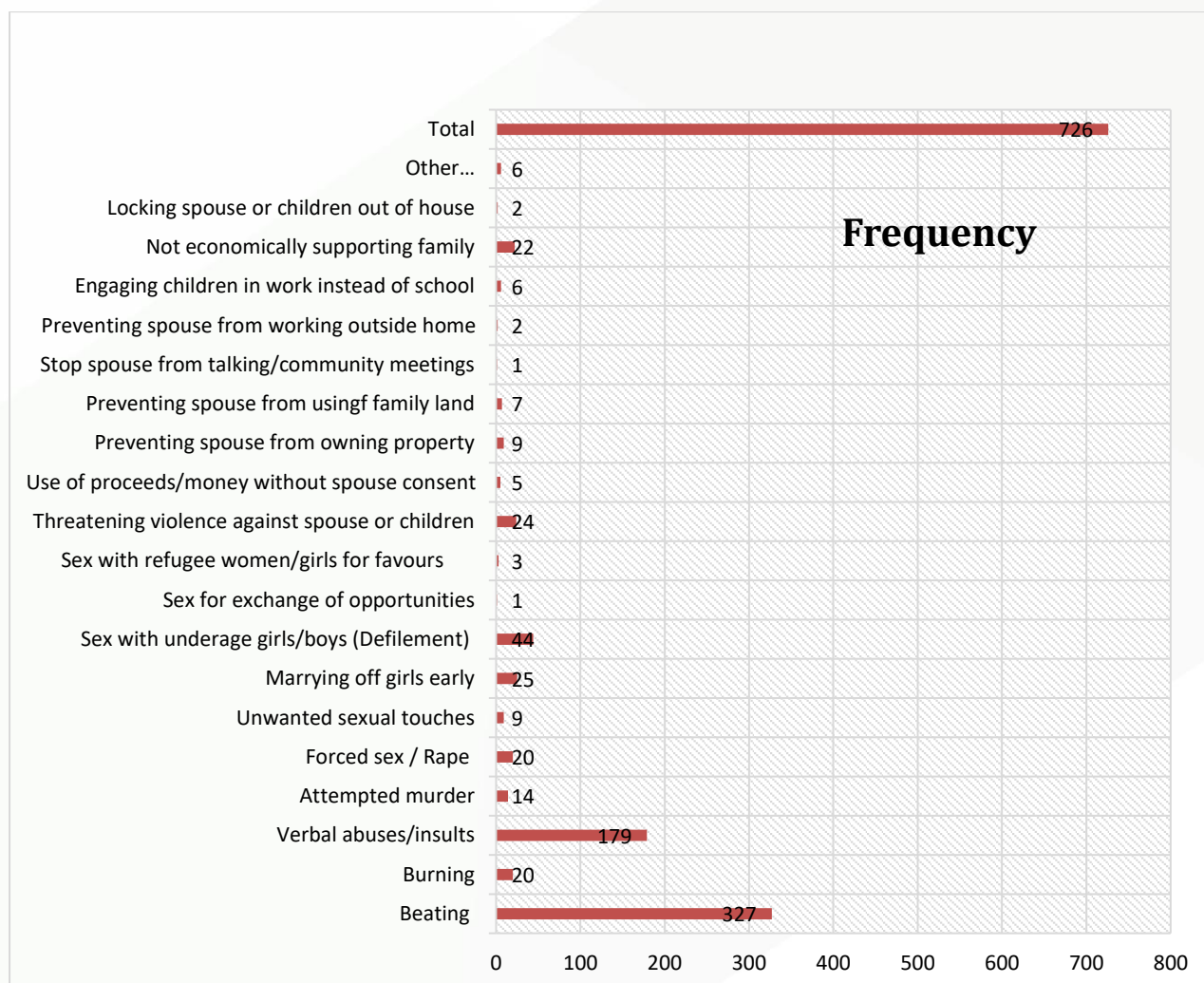


Figure 26: Prevalence of domestic violence in the project area (Source; House Hold Surveys)

5.3.4.3 Bread-winning at Home

Improving attitudes towards the division of household chores and caring activities between girls and boys are not translating into changes in practice. While two-thirds of Ugandans agree that girls and

boys should have an equal share of caring responsibilities, half of the population reports that in practice, girls are still performing more housework. Within the project area, women and girls take responsibility of even providing income (Plate 18) to the family through agriculture and vending in trading centres. This is evidenced by the high dominance of women and girls in the market centres. It was reported that most men opt for alcohol in the morning and only go back home to eat and sleep.



Plate 18: Young girls (below 12yrs) selling cassava flour in West Nile (UNRA file photo)

5.3.4.4 Power and Decision Making

Generally, the literacy level of women in Moyo district is lower than that of men (UBOS, 2014). There are few women in the communities with the necessary levels of education and/or experience to effectively participate and engage in decision making processes. Opportunities for post-primary alternative education and life-skills education are largely lacking with limited alternatives for male engagement in vocational trainings. Close to six in every ten women and men aged 6 years and above, had attained Primary school education. More women (22 percent) than men (16 percent) had not attained any formal education. There were generally higher percentages of men attaining higher levels of education than women. Within the project area, Power and decision-making lies more within the males than their female counterparts.

5.3.4.5 Time and space

Within the project area, girls and women wakeup early in the morning to dig up to noon, thereafter go back home to cook and do other domestic work. Some of the school going girls must first dig before going to school. Most women spend time ensuring financial and food safety of the family; and can only leave home for market or church. The World Development Report 2012, confirmed that, at all level of income, women do most of the housework and care and, correspondingly, spend less time in market work. The study showed that women spend 30 percent more time on housework than men, and 70 percent more on childcare. These differences have an impact on women's ability to seize economic opportunities and to participate effectively in market work.

5.3.4.6 Legal rights and status

Securing women's access to justice remains a challenge: one-third of the population believe that women do not enjoy the same opportunities as men to access justice, i.e. police, courts of law and local traditional authorities. The same share agrees that unequal access is justified. The limited access is somehow linked to low levels of Education levels as indicated in section 5.3.2.2 above.

In line with this, the Local Governments Act states one third of the District Council at the level of lower committees including the parish or village shall be women. These statutes are further reinforced by

the Land Act that stipulates at least one-third of the members of the Land Board, the Land Committee and the sub-county land tribunals should be women (IUCN, 2019).

5.3.5 Migration and refugee activities in the project area

Currently, the West Nile region of Uganda accommodates more than 0.5 million refugees from South Sudan (UNHCR, 2019). Such a huge influx of people and the circumstances in which they come, has created extreme pressure on the existing natural resources and social services including; water sources, land, wood, schools and hospitals. There are six refugee settlements that were gazetted by the Office of the Prime Minister (OPM) of the government of Uganda accommodating a total of 524,703 Refugees in west Nile of which Moyo district has 120,563 refugees in Palorinya settlement area.

5.3.5.1 Coordination of refugee activities

Office of the Prime Minister (OPM) and United Nations High Commission for Refugees (UNHCR) play the lead role in coordinating the humanitarian response for the refugee operation with support from the District Local Government and Partners. There are 5 levels of coordination (community meetings, sector working group coordination meeting, zonal coordination meetings, and settlement level inter agency coordination meeting & quarterly inter agency coordination meeting). All the meetings are monthly with exception of community meetings. Refugee Settlements are led by OPM Settlement Commandant with UNHCR Head of sub-office.

5.3.5.2 Registration and Protection

South Sudanese refugees were granted prima facie refugee status on arrival. OPM supported by UNHCR conducts level 1 and biometric registration/activities to provide identity documentation to new arrivals using the RIMS. OPM & UNHCR Conducted biometric verification in 2018 for all the refugees in the settlements. Further, OPM is responsible for the physical security of refugees and has deployed police officers in the settlement. SGBV and child protection cases are supported through screening checklists with a focus on data collection and data analysis on routinely basis, as well as assessment of specific protection needs and risks.

5.3.5.3 Community Services

As most of the refugees approximately (87%) are women and children, OPM, UNHCR and partners IRC, ARC and others identify needs, which are addressed through community-based approaches by partners. The aim is to ensure refugees social and protection needs are met, and more specifically to provide support to Persons with Specific Needs (PSNs). A total of 20,218 PSNs were identified and verified by an interagency committee. Majority of these PSNs are already receiving various forms of specific assistance like shelter construction, processing documents, food and NFIs etc.

5.3.5.4 Food at Refugee Settlements

During the influx, newly arrived refugees were provided with 3 hot meals per day at the reception center (not operational as of March 2017). When a family is allocated a plot of land, they receive a monthly WFP food ration of cereal (12kg), CSB (1.5kg), cooking oil (0.9kg), salt (0.15kg) and beans (2.4kg) totaling to 2,100 kilocalories per person/per day. All relocated refugees receive food ratios for 30 days every month through the general food distribution by World vision.

5.3.5.5 Shelter and Relocation

Following arrival at the reception center, refugees were housed in communal shelters. Upon relocation, a 30m x 30m residential plot per family is allocated by OPM. UNHCR and partners supported this activity with hygiene and shelter kits composed of plastic sheeting, ropes, hoes, pangas, slashers, construction poles, latrines slabs, and treated logs once they are settled on their plots of land. PSNs and vulnerable female-headed households are assisted by constructing for them shelters & toilet.

Semi-permanent PSN shelters have also been constructed to some PSNs who cannot support themselves in the community. As well permanent & semi-permanent structures in schools, health facilities, community centres etc. have also been built to support service delivery.

5.3.5.6 Livelihoods Support in Bidibidi settlement

The livelihood support that has been given to the refugees and nationals include; Agro-based support with 86, 521 beneficiaries of which 61,029 are refugees & 25,492 are nationals, Cash based beneficiaries are 4,474 of which 3,709 are refugees & 775 are nationals, IGAS beneficiaries are 15,435 of which 10,400 are refugees & 5,035 are nationals and ICT beneficiaries are 16,630 of which 11,641 are refugees & 4,989 are nationals among other livelihood interventions.

5.3.6 Ethnicity

The project area is heterogeneous and a number of tribes were established to exist in the area. Moyo district is predominately occupied by Madi representing 97 percent (Figure 27) of the sampled households within the district. This implies that in order to facilitate good communication of the project, Madi should be languages used for communication about the project. Other tribes recorded during the survey included Aringa and Lugbara.

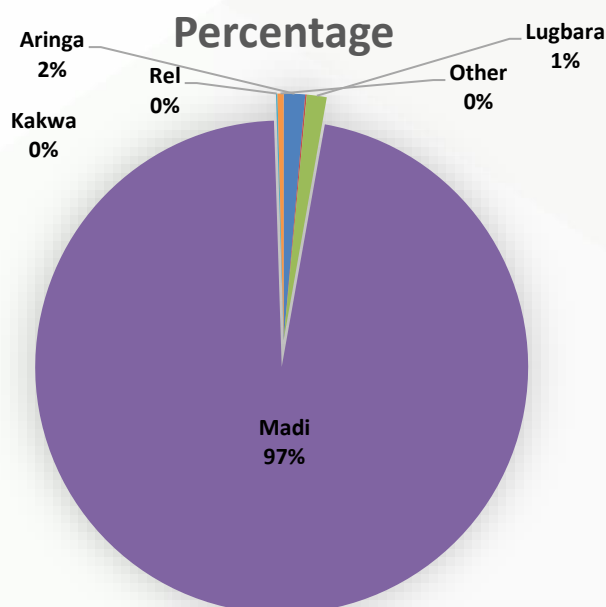


Figure 27: Distribution of ethnic groups in the project area

5.3.7 Religion

Several religions were recorded during household surveys. Catholics are the most dominant (86 percent), Protestants 6 percent and Moslem at 4 percent (Figure 28). The distribution of worship centres is shown in Figure 32 collectively with other social amenities.

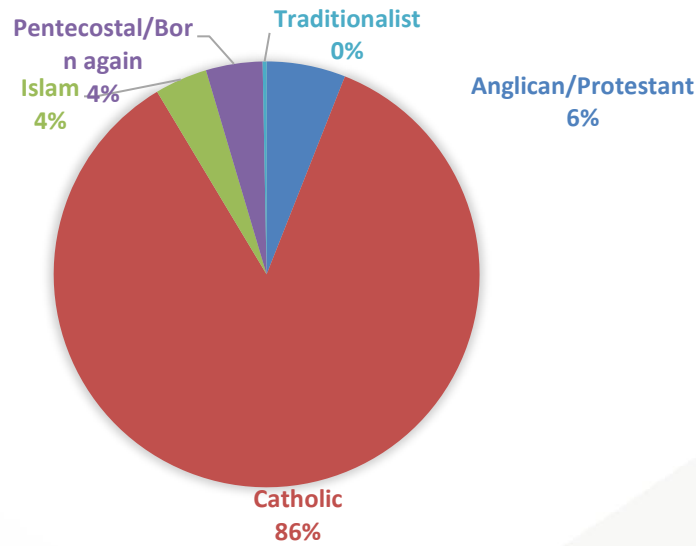


Figure 28: Religious beliefs in the project area

5.3.8 Livelihood sources

The emergency of COVID19 pandemic has destabilized multiple sources of livelihoods especially those associated with mobility and trading centres. Moyo district is highly dependent on agriculture employing over 80% of the total. Agriculture is mainly subsistence (63%) and takes place on smallholdings of approximately two acres using mainly simple farming tools (hoes, pangas, and harrowing sticks). Both food and cash crops are grown. The major food crops include cassava, sweet potatoes, maize, G/nuts, sim-sim, sorghum, cowpeas in Moyo, only a small percentage (0.5%) of the population is engaged in commercial agriculture. Family members constitute the single most important source of labour (Moyo District, 2020). Other sources of income include retail shops, Boda-boda as shown in figure 29 below.

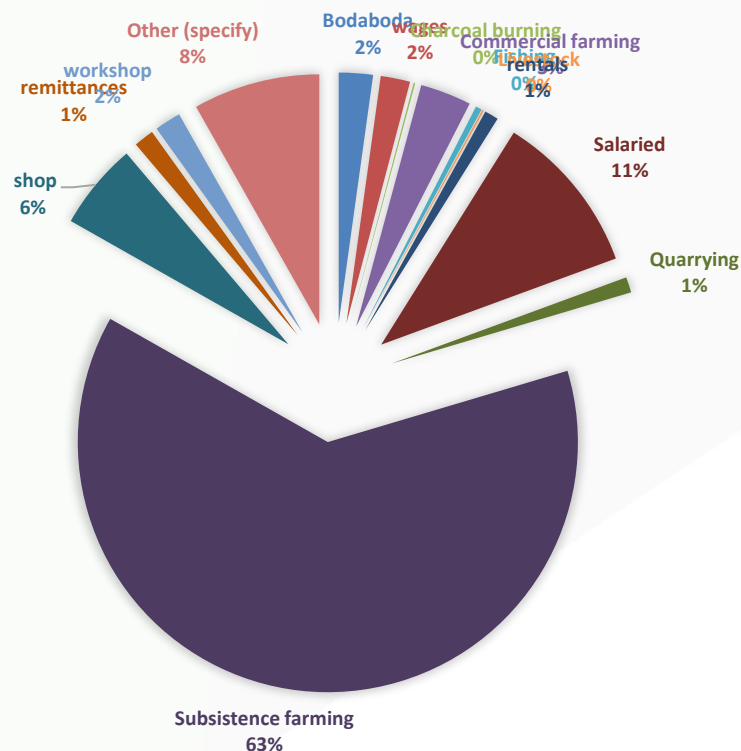


Figure 29: Main source of income for households in the study area

5.3.9 Dependency on natural resources

In Moyo District, land is the most used natural resource with 99 percent of all residents noting agriculture as the main land use. This is consistent with the earlier presented findings that farming is the main source of livelihood for respondents in the project area. This implies that the proposed Road has a significant positive impact on agriculture of the project area by easing transportation of produce.

Additionally, natural water was the second dominant natural resource used as noted by 78 percent of the population in various ways including fishing, domestic water uses among others. In addition, Natural-vegetation use received a considerably high frequency with most community members highlighting fuel wood (used for cooking) and charcoal as the main natural vegetation use. The other natural resources noted to be commonly used according to the survey were wetlands especially near Albert Nile.

5.3.10 Social Network

COVID19 pandemic has destabilized Social networks in the due course of observing the Standard Operational Procedures (SOPs) set by the Ministry of Health. Most gathering centers were closed including schools, recreational centres, churches and mosques among other. The surveys that were co revealed that 97 percent of the respondents had social networks within the project area. Of which 49 percent were relatives, 44 percent friends, 3 percent workmates 4 percent spiritual leaders and 4 percent with local leaders. These are strong social ties that are likely to be affected by population influx in anticipation of jobs during construction phase as well as the operational phase of proposed Laropi-Moyo-Afoji Road project.

5.3.11 Land Tenure

This study revealed a number of land tenure systems in the communities along Laropi-Moyo-Afoji Road. The survey findings indicated that 95 percent were using land owned under the customary system (possessed through inheritance and without any certificate) followed by communal freehold (2%) as illustrated in Figure 30.

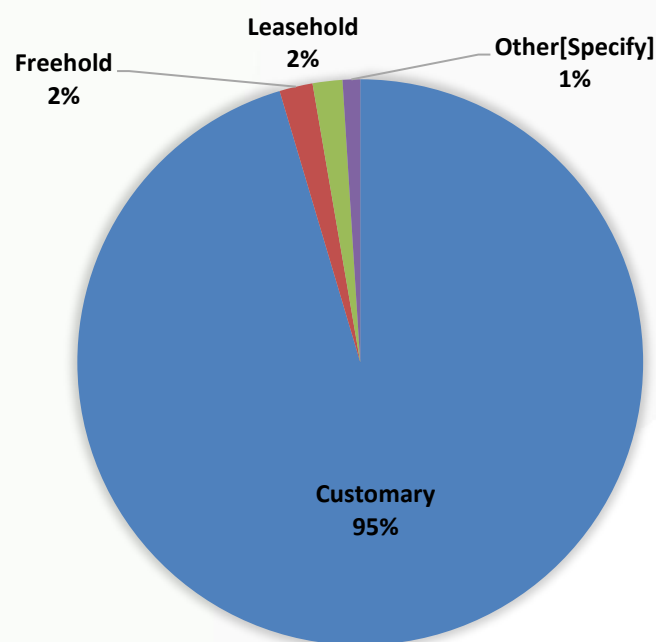


Figure 30: Distribution by land tenure system

Land use under the customary land tenure system can be complex. Engagements need to be conducted with the different groups or individuals who have interests in this land to reduce on any unintended impacts especially during acquisition.

5.3.12 Health and Covid19

A number of common illnesses in the communities of Moyo and the project area were recorded of which malaria was highly prevalent, respiratory/tract infections and diarrhoea, sexually transmitted infections. Of recent the emergency of the Global Pandemic (COVID19) has distablized the health system in the country. Although is affirmed that COVID19 exists within Moyo District, the district doesn't have conclusive statistics on the prevance and rate of infection. Table 41. presents illnesses against their respective occurrences in Moyo District. During the Project, measures should be undertaken to minimize possibilities of losing man-hours due illnesses.

Table 41: Common illnesses among households along Laropi-Moyo-Afoji

Particulars	Frequency	Percent of cases
COVID19	Highly prevalent	Highly prevalent
Malaria	145	96.0
Diarrhea	40	26.5
Coughs/RTI	51	33.8
Worms	15	9.9
HIV/AIDS	5	3.3
Hepatitis B	1	0.7
Hernia	0	0.0
Eclipsys	3	2.0
Mental problem	1	0.7
Leprosy	0	0.0
Other Specify)	7	4.6
None	4	2.7

5.3.12.1 HIV/AIDS

During the ESIA surveys it was established that 100 percent of the respondents were aware of the existence of HIV/AIDS and ways in which it is contracted. Ways of HIV transmission stated as highlighted during interviews included; unprotected sex, infected blood transfusion, sharing of sharp instruments and mother to child transmission.

According to this survey the commonest way of prevention of contraction and spread of the disease was identified to be proper condom use, abstinence and faithfulness and safe childbirth. Since these strategies already exist in the community, the HIV/AIDS mitigation plans as formulated by the developer need to build on these. According to the Household surveys, HIV prevalence rate in Moyo district was at 4 percent which was lower than the national level which was at 7.2. It is prudent that measures are put in place to ensure labour influx does to result in increased infection in the adjoining communities.

5.3.13 Water sources

The project area receives only one rainy season a year which is followed by a long dry spell. The intense drought makes almost all ambient water sources dry out; hence water is a scarce resource both for agricultural and domestic use. The most reliable water source for domestic utilization are public boreholes (58.3%) followed by public tap water (23.8%) in urban centres as shown in Figure 32. Some water sources in the Right of way might be destroyed in the due course of construction works as elaborated in Figure 32 which among others, shows the distribution of water sources in the project area

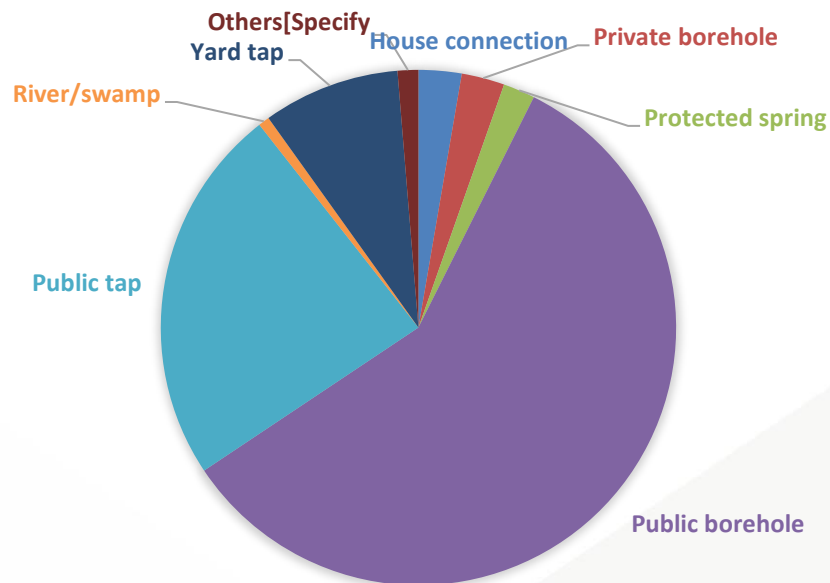


Figure 31: Water sources in the project area

5.3.14 Energy source

The main sources of energy for community are firewood, charcoal, hand-held kerosene lamps locally known as tadooba and lanterns. During these studies in the communities, it was also noted that 43 percent of the household uses solar although this was relatively high in Moyo Town council compared to other sub-counties traversed by the project in Moyo District. Some of the energy sources in the project area are distributed as shown in Figure 32.

5.3.15 Transport

The major mode of transport in the project area is road transport whereby 85.7% of respondents indicated having a means of transport., however, this has been recently disabled by curfew and measures to combat COVID19 Pandemic. Transport means in the area included; a vehicle, motorcycle, bicycle or canoe or boat especially for residents of Laropi Sub-county. Within the project area, 34.3% of owned a bicycle, 31.4% had a motorcycle, 11.4% had a boat/canoe while 8.6% owned a motor vehicle. 14.3% of the households did not have any mode of transport. This is elaborated in table 42.

Table 42: Means of transport in the project area

No	Means of transport	Percent of responses
1	Motor vehicle	8.6
2	Motorcycle	31.4
3	Bicycle	34.3
4	Boat /canoe	11.4
5	None	14.3

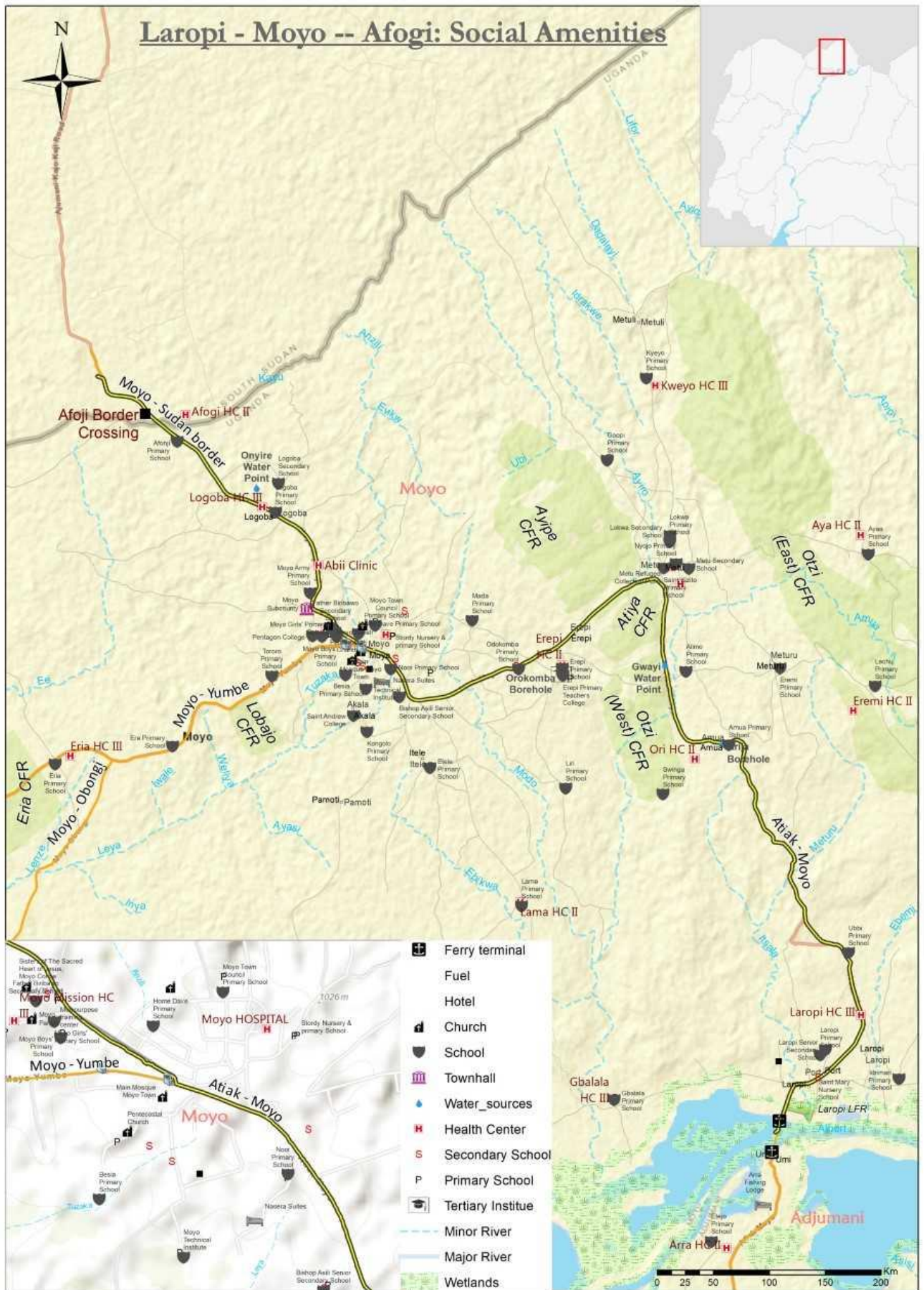


Figure 32: Distribution of Social amenities in the project area

5.4 Physical Cultural Resources

5.4.1 Historical and Archaeological background of the project area

The Madi, (Sudanic speaking people sharing common ancestral with the Lugbara and Kakwa of Uganda) are the main ethnic group of the district. Some scholars link the Madi to Madi-Moru group who originated from West Africa and then moved to the Sudan and Uganda in West Nile sub-region. However, with the multicultural background of Uganda's population either through migrations and settlement or intermarriages, the Gimara, Pajule and Kakwas are among other communities that co-exist with the Madis. Their settlement extends to South Sudan. It should be noted that with continued politically triggered violence in the region especially in South Sudan, Moyo hasn't been a transit point for refugees and asylum seekers getting settled closely in Adjuman and Yumbe refugee camps but also has accommodated hundreds of them thus the increasing variability of ethnicity hence cultural interactions.

The Madi are bordered by the Lugbara in the west, the Acholi in the east and north is South Sudanese having Madi people, the Moru people, Kuku, Boru. Others have linked their ancestral with the Bari in the equatorial province (Birch J.P 1938). Most of the Madi in Uganda lived according to clan system with no centralized authority. Among the several clans in Madi who mainly settled in Moyo settled in higher ridges of the hills stretching from Dufile (Nile shores) to Otce mountains (Birch 1938; Rowley 1940; Mtodleton 1955; Leopold 2005). The Metu clan occupied the hills and valleys surrounding Metuoru who lived on the higher ridges while other clans not limited to Pachara, Pakele lived and moved along the shores of River Nile (Birch 1938 & Rowley 1940). They stayed around these areas until in the 1920s, when most Madi people were moved from the ridges and valleys to settle in Lefori bordering Yumber, Obongi, and Rhino camp in Arua due to sleeping sickness (Rowley 1940).

Earlier studies by Rowley (1940) identified Metu area as the main centre for black smith works and several iron slags were observed on the surfaces, and the practices of iron smelting had declined by 1900. It is important to note, as a religion sacred forests in Madi area or rain making trees had practices of belief and the rain makers were the accepted leaders of the people whose office is hereditary (Birch 1938) and it is still followed today according to oral tradition despite the influence of Christianity. By around 1920's rain making stones were made possible from the ground quartz stones and later became ritual stones kept secret by the rain maker. Merrick (2007) attributed in reference to Rowley's notes such rain making stones which were important in religion and possible Neolithic ground axes. See figure plate 19; below an example of a pot which kept these stones.

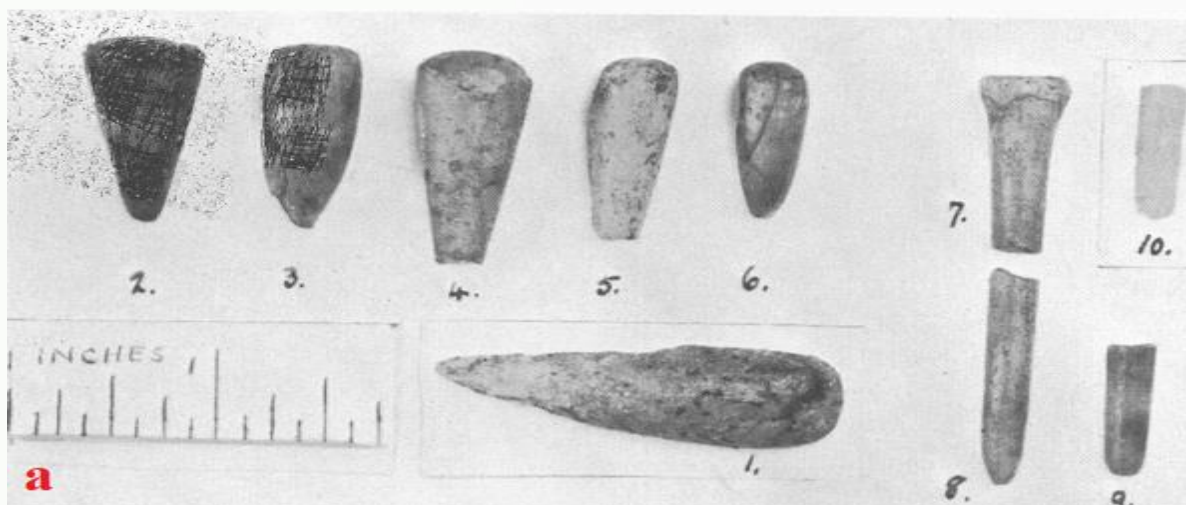




Plate 19: Adopted from Rowley 1927. a – Madi rainstones; b – pot in which rainstones are kept and in c – sacred grove in Madi by 1927. commonly Tumi gate.

In the 1980's during the overthrow of Idd Amin by the UNLA and Tanzanian soldiers, the remnants of Amin's soldiers retreated to West-Nile and a scorching war was waged in West-Nile that led to the displacement of population in the region to Sudan (including Southern Sudan) and the Congo (Leopold 2005). The war changed the landscape and ways of living. As in the case of Madi, the practice of rain making and iron smelting and the use of heavy Medico declined. Most of the returnee refugees of Madi opted to cultivation and fishing to obtain food as resettlement took its place. After returning, most of the Madi were believed to have lost some their historical heritage of black smith practices and performing rituals. However, the few ceremonies are done at some of the remaining sacred groves of the rocks or trees in order to prevent evil spirits and solving disputes. From 1986 until 2005, Madi land was affected by the Kony war leading to loss of life, displacement and destruction of properties in mostly Adjuman district (Iya, 2010).

5.4.2 Paleontology

No fossil record in the project area was discovered or known. However, the project corridor contains mainly alluvial deposits seemingly younger for fossilization.

5.4.3 Archaeological features

The project and surrounding areas are archeologically rich with lots of iron slags and pottery scatters. Common were the iron slag scatters especially in the areas of Moyo particularly in the villages of Metu. Results from the field research revealed that the technology of iron smelting (iron ore as raw material) has disappeared replaced by black smithing (metal as raw material) using the same method but different raw material. Fragments of raw quarts were identified and very few lithic artifacts were identified in the project area neither from the field walks nor the test pit excavations. Similarly, granites rocks with shelters exist in and outside the project area but no evidence of rock art.

5.4.4 Living culture

Numerous living cultural sites were identified in the project area. They include traditional places of worship like churches or mosques, shrines or healing centres such as the sacred grove (Tumis as known in Madi Language) see plates 20, clan traditional trees such as Madi parliament known as the Belukum and traditional family/clan houses for cleansing and interceding.



Plate 20: Black Smiting at Pamulu west village (picture taken 2017)

Graves and cemeteries were as well encountered in this category. This calls for careful engagements with the project activities around homesteads that exist close in the project area and close proximity of the existing road by the contractor. Although found deeply located in the villages Paloburi (plate 21 & \ table 42), Pamulu west (see plate 20) and Pamulu east, Eremi and Arapi far away from the project area, smiting sites are very important to the study of metallurgy in the past through ethno archaeology and experimental archaeology.



Plate 21: Black Smiting at Paloburi (picture taken in 2017)

5.4.5 Historical Monuments and buildings

A monument is a structure created to commemorate a person or event, or a structure which is relevant to a social group as part of their remembrance of historic times or cultural heritage due to its artistic, historical, technical or architectural importance. Historical ferry wrecks at Laropi landing site are located only 14 meters from the existing road at UTM GPS coordinates; 0368137, 0393041. This is believed to have been used in 1980s, and acted as a pull-out machine for the ferry. The ferry docks could be removed from the water supported by turning chains. As shown in the Plate 22, the wrecks by 2017 were on main land. Current picture (plate 23) shows it is captured by water, it is inaccessible just like the Laropi missionary Monument (plate 24).



Plate 22: Historical ferry wrecks (picture taken in 2017)





Plate 23: Laropi Capsized ship wreck at Laropi landing site







Plate 24: Laropi missionary monument at Laropi landing site



Significant historical Monuments in form of ruins, wrecks and structure see Table 43.

Table 43: Significant historical Monuments in form of ruins, wrecks and structure along Laropi-Moyo-Afoji

S/N	SITE NAME	SITE CODE	GPS COORDINATES	DESCRIPTION OF BASELINE CONDITION AND SIGNIFICANCE	PHOTOS
01	Site name	Afoji House foundation			 <p><i>A chert flake exposed from the ground at LS1</i></p>
	GPS Coordinates	36N 0351793 UTM 040799 Elevation 985m.			
	Baseline Condition and Significance	<p>It is an open house foundation located a few meters from the boarder sign post of Uganda and South Sudan. It is just four meters off the existing road. This area is known to have been occupied around 70s and 80s before the insecurities that spread around that resulted into people killing each other. It is alleged to have harbored both Ugandans and south Sudanese who latter alone were displaced to cub down the killings. Hence it is associated to the people fled the area. This feature provides insight into human permanent settlements although other features that relate to it. For that matter, it's a possibility to find accidentally some human remains during the excavation.</p>			
02	Site name	Afoji Slave Market Site?			 <p><i>Chert Core at LS2</i></p>
	GPS Coordinates	36N 0352954 UTM 0409587 Elevation 955m.			
	Baseline Condition and Significance	<p>This site is characterised with a mango tree located just next to the Afoji Boarder check point close to the existing road. It is in association with several other fruit trees. It is believed according to oral history courtesy of Sgt. Lamek Ongwa also working as a Laison Officer that during the slave trading in the region, this spot worked as a slave market and from this point they would cross the border into South Sudan. Although we couldn't find any attribute to slave trading, we cannot dispute the narration. It's better to save it for future reference and research.</p>			
03.	Site name	Afoji Ruins of the East Africa Emigration			
	GPS Coordinates	36N 0353018 UTM 0409484 Elevation 956m			



	Baseline Condition and Significance	These are remnants of the East African Emigration administration buildings were destroyed during the war in the 70s (revise this)	
04.	Site name	Reaching Africa's unreached	<i>Scatters of pot sherds exposed on ground at PS1</i>
	GPS Coordinates	36N 0354461 UTM 0408203 Elevation 962m	
	Baseline Condition and Significance Liaise with management	This is Christian Pastors' training center of the born Again churches since 2013, 11m off the existing road. However, the training facility is found about 60m inside the fence. It is a non discriminative multipurpose institution which offers agricultural trainings of the local people. Although the crucial features of the organisation are not directly affected, the road project will claim part of the institution's land.	
05.	Site name	Mungumama Pentecostal Church	
	GPS Coordinates	36N 0354626 UTM 0408042 Elevation 967m	



	<p>Baseline Condition and Significance</p> <p>Chance find procedure</p>	<p>This church is located Today village, Afoji Parish, Moyo sub county. The church building is found 40m away from the existing road, it will not be affected. However, the church land begins from the very road side. Around this area, scatters of undecorated and abraded potsherds were seen on surface and at the road cut. Although it is a direct evidence of human settlement possibly some hundreds of years before the current settlers, due to the effect of agricultural activities, soil erosion and other human related activities, it becomes difficult to reconstruct the entire process.</p>	 <p><i>Pot sherds on the surface at PS3</i></p>
06.	Site name	Minze Burial Site BS1	 <p><i>Grave at BS1</i></p>
	GPS Coordinates	36N 0355462 UTM 0407483 Elevation 964m	
	Baseline Condition and Significance	<p>One grave is located Mr. Vilega Onorio and he is a care taker. It is located in Minze village Afoji Parish, Moyo Sub County. Late Gioj Bota was buried here 4th August, 1988, hence the grave surviving to date. It is directly affected as it is in right of way of the project. The care taker is willing to relocate the remains but requires him to consult other family members on the process and cultural requirements.</p> <p>Is it cemented?</p>	
07.	Site name	Logoba Catholic Church CC1	
	GPS Coordinates	36N 0356006 UTM 0407154 Elevation 936m	


	Baseline Condition and Significance	Found in Logoba village, the church is opposite Logoba Primary School. It is not directly affected only the church land including a football pitch.	
08.	Site name	Logoba Burrial site BS2	
	GPS Coordinates	36N 0356110 UTM 0407135 Elevation 958m	
	Baseline Condition and Significance	The grave is identical with an earth mound, well maintained with stons and bricks on top. It is a three in one grave? of late Masimo Isovu (elder), Azaa and Kon Gwo (children) according to Ms. Madelena about 90 years old.	
09.	Site name	Logoba Burial site BS3	
	GPS Coordinates	36N 0356177 UTM 0407095 Elevation 961m	



Church Building



Grave at BS2



	Baseline Condition and Significance	Late Anjoa Janes's grave about 10m off the existing road being taken care of by Ayama Micheal.	
			<i>Plate 18: A grave at BS3</i>
10.	Site name	Pameli Cultural tree CTS1	
	GPS Coordinates	36N 0356393 UTM 0406958 Elevation 964m.	
	Baseline Condition and Significance Avoid it	This lyu tree as locally known and referred to as Itia villa cultural center is found zero meters of the existing road in Logoba-Itia village, Logoba Parish. It is a cultural tree associated to Inyo forest another cultural site where various rituals are performed. Under this tree, elders of the Pameli clan perform prayer rituals for rain making during exhaustive drought seasons. Users offer sacrifices such as slaughtering animals (sheep, goat or chicken) depending on the need. According to Mr. Buni Simon (65yrs old 0777082932) a retired community development officer now a Minister for culture in the Rendeke Chieftdom, this site is still active and people hold traditional spiritual prayers and cleansing.	<i>Pameli Cultural Tree at CTS1</i>
11.	Site name	Logoba Burial Site BS4	
	GPS Coordinates	36N 0356681 UTM 0406676 Elevation 975m	

	<p>Baseline Condition and Significance</p>	<p>This burial site is found in Logoba-Itia Village under care of Idrinyana Dominica. They are six (6) graves in total all identically cemented, found in the enclosures of homestead. They are not directly affected as they are 30m away from the existing road and 25m off the demarcated ROW.</p> <p>Informant: Ms Dipio Beatrice granddaughter to the care taker</p>	 <p>Graves at BS4</p>
12.	Site name	Onyeri Burial Site BS5	 <p>Graves and Potsherds exposed on the surface at BS5</p>
	GPS Coordinates	36N 0356753 UTM 0406591 Elevation 965m	

	Baseline Condition and Significance	It is located in Onyeri village, Logoba parish Moyo sub county. It is burial site of six graves all cemented and well maintained. They are found in a homestead of more than ten houses, cared for by Mr. Isse Ogwido John (078280303). They are not affected as they are 15m away from the current existing road but close to the demarcated ROW. In the same area, in the courtyard of one of the homes in situ potshards were visible an indication of human settlement. No samples were collected at this spot as the site is not affected. However, the artifacts have been exposed over time by human activity such as continued trampling and sweeping of the courtyard that keeps removing the top soils leaving the sherds vulnerable to erosion activity. Other than project excavation activities, other activities such as parking of machines or any diversions are highly discouraged around this area.	
13.	Site name	Kendi Burial Site BS7	 <p><i>Graves at BS7</i></p>
	GPS Coordinates	36N 0356814 UTM 0406495 Elevation 966m	
	Baseline Condition and Significance	Located just seven (7m) off the demarcated ROW and 35m away from the middle of the existing road, the burial site is found in Kendi village, Logoba parish Moyo sub county. In front of the house, it is a single grave of late Koma Dragulu son to a 95 years old Rosetta Dragulu, a care taker. This grave has been in its current locality since 2006 when the deceased was buried.	
14.	Site name	Birinyo Pentecostal Assemblies of God Church PC2	
	GPS Coordinates	36N 0356977 UTM 0406147 Elevation 962m	


	Baseline Condition and Significance	This church is located in Vura Birinyo village, Logoba parish. It is actively used by the local community for both spiritual values and educational values. It has a component of polytechnique school thus serving as a school and a church as well. Part of the building is directly affected as it was seen the ROW from the survey peg line passed through building.	
15.	Site name	Mary Assumpta Moyo Catholic Parish CC3	
	GPS Coordinates	36N 0357489 UTM 0404413 Elevation 979m	
	Baseline Condition and Significance	Locality of the cross of the church which is very close to the existing road. The church is very far away and won't be affected but the cross is affected.	
16.	Site name	Moyo Mission Cemetery CS	



	GPS Coordinates	36N 0357577 UTM 0404427 Elevation 979m	 <p><i>Graves at MCS</i></p>
	Baseline Condition and Significance	Found in Metu quarter Moyo sub county, it is a cemetery under the care of Mary Assumpta Moyo Catholic Parish. The cemetery is characteristic of more than fifty (50) graves all cemented. Found east of the parish church building	
17.	Site name	Muyipi Burial Site BS8	 <p><i>Grave at BS8</i></p>
	GPS Coordinates	36N 0360122 UTM 0402876 Elevation 966m	
	Baseline Condition and Significance	This site is found in Muyipi village Moyo sub county under care of Mr. Irabero Denis (0782657192). It is a single well maintained cemented grave.	
18.	Site name	St. Joseph Catholic Church CC4	
	GPS Coordinates	36N 03616554 UTM 0403435 Elevation 981m	



	Baseline Condition and Significance	Locality of St. Joseph Catholic Church found in Ramogi North Metu sub county. The church building is not affected, it is found far from the existing road.	
19.	Site name	Minya Burial Site BS9	
	GPS Coordinates	36N 0365361 UTM 0404420 Elevation 965m	
	Baseline Condition and Significance	Located 50m off the existing road, they are three graves under care of Ms. Elivira Draria, 70 years of age. They are all well maintained and cemented. They are safe by only seven (7) meters away from the demarcated ROW. May need barricading during the construction	
20.	Site name	Minya Smelting and Potery site SPS1	
	GPS Coordinates	36N 0365352 UTM 0404413 Elevation 962m	



Church building at CC4



Graves at BS9



	<p>Baseline Condition and Significance</p> <p>Excavation of the sites to establish the extent</p>	<p>This site is in Minya village, Pameri parish, Metu Sub County; Moyo district located five (5) meters away from the demarcated ROW. It is a mixed site composed of numerous observable iron slag and scatters of both decorated and undecorated potsherds in form of rims, body and neck sherds. Pottery of various roulettes commonly of Late Iron Age were observed a direct evidence of human settlement on the site. It should be noted that half exposed and broken pieces of tuyeres, massive slag displays both surface and in-situ all directly show human interaction and utilization of the environment.</p> <p>From Ms. Elivira Draria who have lived here for 60 years, she has been seeing them in her compound and a few in her garden while cultivating. Recording of these sherds at this site explains making and using of pottery as one of early man's innovations and the presence of Iron working signatures in slags and Tuyeres, portrays the ancient technology of early iron working thus an evidence of technological development in the past societies in the region.</p> <p>With huge pieces of iron slags observed both surface and in-situ (majority) and the two broken ends of the tuyeres still in-situ is a direct evidence of iron smelting in this area. This site therefore could have been a manufacturing area that needs to be preserved for further research.</p>	 <p><i>Iron Slag, Tuyere and Potsherd at SPS1 Minya village</i></p>
21.	<p>Site name</p> <p>GPS Coordinates</p>	<p>Kwayi Burial Site 10 - BS10</p> <p>36N 0365239 UTM 0403975</p> <p>Elevation 960m</p>	



	Baseline Condition and Significance	This is found 30m from the demarcated ROW behind the house in Kwayi village, Pamoï Parish, Metu sub county Moyo district. The grave is identically cemented and well maintained. Although it is not affected in any way, it is in a spacious locality suitable for machine resting. It should be avoided in all aspects.	 <p><i>Grave at BS10</i></p>
22.	Site name	Kwayi Burial Site II - BSII	
	GPS Coordinates	36N 0365320 UTM 0403930 Elevation 958m	
	Baseline Condition and Significance	The site is found in Kwayi village; Pamoï parish, metu sub county Moyo district. This is an earth grave identical with a mound covered with grass almost not visible by the time of assessment. It is very close to the existing house under construction. It is 13m to the project corridor (ROW) thus not affected.	 <p><i>Earth Grave BSII</i></p>
23.	Site name	Kwayi Burial Site 12 - BS12	

	GPS Coordinates	36N 0365380 UTM 0403565 Elevation 949m	 <p><i>Tyled Graves at BS12</i></p>
	Baseline Condition and Significance	This site as well is foun in Kwayi village, Pamoj parish Metu sub county, under care of Mr. Lagu Stephen Bua. The site has two identically tiled graves and one earth grave recognisable with an earth mound. They are literally only 12m off the demarcated ROW. The tiled graves are recent; 2019 and 2020.	
24.	Site name	Ori Burial Site 13 - BS13	 <p><i>Tiled Grave at BS13</i></p>
	GPS Coordinates	36N 0366448 UTM 0401730 Elevation 986m	
	Baseline Condition and Significance	It is a single tiled grave in the ROW found in Ori Village Metu sub county. It is under care of Mr. Taujo John (0784637044). It is affected.	
25.	Site name	Ori Burial Site 14 - BS14	
	GPS Coordinates	36N 0366501 UTM 0401778 Elevation 985m	

	<p>Baseline Condition and Significance</p>	<p>This is a locality of two tiled, two cemented and one non cemented graves in Mr. Vonje Leku Emir's homestead (also the care taker). The non cemented one is unrecognisable, thus five graves in total. They are just 10m off the demarcated ROW. The care taker of these graves is a brother to Taujo John (they are from the same family just opposite the other). They are found in Ori village Metu sub county.</p>	 <p><i>Tiled & cemented graves at BS14</i></p>
<p>26.</p>	<p>Site name GPS Coordinates Baseline Condition and Significance</p>	<p>Ori Tumi Gate Cultural Site - TgS1</p> <p>36N 0365594 UTM 0402348 Elevation 938m</p> <p>This site is found in Ori village, in Pajakiri Parish Metu sub county Moyo district. It is comprised of the Tumi gate, the Gubo and the Belukuma (Madi Parliament). The Tumi gate is a triangle shaped feature of three upright planted rocks with a roof of another flat stone. This is taken to be a cleansing gate where in any case of disorder by any community member such as rape, adultery, theft, murder or any other misconduct the suspect is made to pass through this gate to resolve the matter. It is a cultural center manned by Chief Ojja Victor Deli Lukere III of Pajakiri Chiefdom. The site is characterised by Gubo (36 N 0365610 UTM 0402339, Elvn. 937m) Listen to the audio and make notice</p>	

			 <p><i>Tumi cultural gate up and Gubo at TgS1</i></p>
27.	Site name	Paloburi Iron site SS2	
	GPS Coordinates	36N 0367282 UTM 0401896 Elevation 1027m	
	Baseline Condition and Significance	This site is in Paloburi village, Pamoi parish, Metu Sub County; Moyo district. It is far away from the project corridor. The site is characteristic of a pile of stones with plenty of Iron slags of various sizes, in association with pieces of Tuyeres and Iron Age potsherds. From observation, all these and the stones have been collected and piled up here during garden clearing for cultivation. Local people attest to this and it is reported it is a common practice in the village. Such signatures attests to the history of iron working technology being accommodated here about the area.	 <p><i>Iron slag piled up at SS2</i></p>
28.	Site name	Paloburi Black Smithing Site BSS1	
	GPS Coordinates	36 N 0367431 UTM 0401885 Elevation 1015m	

	Baseline Condition and Significance	Like the above, this site is in Paloburi village, Pamoj parish, Metu Sub County; Moyo district. It is purely using the contemporary metal from hardware material such as Iron bars to make knives, spears and arrows from nails as well as changing hoes into a deferent form. It is not anywhere close to the project area but given the encounters of Iron smelting sites, its not a coincidence that black smithing activity is happening in the same area locality.	 <p>A rock of iron ore content at BSS1</p>
29.	Site name	Church under construction - CC5	 <p>Church building under construction at CC5</p>
	GPS Coordinates	36 N 0369766 UTM 0396559 Elevation 711m	
	Baseline Condition and Significance	This church is found in Ubi village, Laropi sub county Moyo district. It is located 40m away from the middle of the existing road. Not affected.	
30.	Site name	Chinyi Tumi Gate Cultura Site - TgS2	
	GPS Coordinates	36 N 0366802 UTM 0401708 Elevation 979m	

	<p>Baseline Condition and Significance</p>	<p>This site is found in Chinyi East village, Oche parish Oche/Mestu sub county in Mr. Micheal Dravo Iza's home compound. Iza is a Prime Minister Pajakiri chiefdom and executive speaker of the district cultural institution. They are two Tumi Amata gates in this home unlike for Chief Ojja Victor Deli Lukere III which is only One. In his submission, Iza says the gates are useful in various ways; used for security as it guards and protect people of the home from any attacks by evil people. It is also used for cleaning in case of any offense against the ancestral spirits after performing rituals, which includes lamentations and feasts. And in sickness, prayers are held here and one get healed, all this means rituals being performed.</p> <p>If human agency is suspected as in the case of adultery, theft, murder or any evil mistakes, it can be established at these tumi gates. After passing through such, if the suspect is guilty then misfortunes could happen including falling sick unnecessarily or even death until they reconcile and placate the ancestral spirits.</p> <p>For relocation consultations of the elderly community from the various clans within the Pajakiri chiefdom will be sought. Rituals will have to be performed including traditional prayers and feasts will be conducted and thereafter, the Tumi gates will be relocated amicably.</p>	 <p><i>Iza explaining the functions of Tumi gate at TgS2</i></p>
<p>31.</p>	<p>Site name</p>	<p>Palem Cultural site - PCS</p>	
	<p>GPS Coordinates</p>	<p>36 N 0367381 UTM 0400758 Elevation 990m</p>	

	<p>Baseline Condition and Significance</p> <p>WP765</p>	<p>People use this area in leadership of elders; Anyanjo William (Palem clan leader) and Idra Evaristo (Prime Minister Palem Clan) are part of the leadership that do rituals in this place. It is said, in times of insecurities such as wars, clan wrangles, draughts and any other perceived threat to human safety, they do sacrificial and cleansing rituals asking for blessings and protection. Feasts are made in cleansing and celebration in belief that they will achieve. It should be noted that the Palem clan elders are the ones responsible for all ritual performances according to Dravo Iza (Prime Minister Pajakiri chiefdom and executive speaker for the district cultural institution). They are positive on relocating to another area. However, this will involve other clans mate from Ajuman and Laropi areas, specific elders from all the 23 clans that make the Pajakiri chiefdom will be engaged. According to Anyanjo, Idra all from Palem clan, (see in picture) rituals will have to be performed involving slaughtering goats, sheep and at least two bulls and feasts will be held on top of rituals.</p>	<p><i>Elders demonstrating one of the ritual practices at the site</i></p>
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CHAPTER SIX

6 PUBLIC PARTICIPATION AND STAKEHOLDER ENGAGEMENT

- 6.1 Objectives of Consultations
- 6.2 Key stakeholders identified
- 6.3 Key themes of Concerns



6.0 PUBLIC PARTICIPATION AND STAKEHOLDER CONSULTATIONS

The African Development Bank Group (AfDB)'s Integrated Safeguards System (ISS), through the Operational Safeguards (OS) emphasize stakeholder participation and engagement as a cornerstone of its strategy to promote growth that is socially inclusive and environmentally sustainable. Various stakeholders were engaged during the ESIA process to create awareness about the project and obtain their concerns. This guided the improvement in the designs, knowledge on impacts as well as project alternatives and mitigation measures.

Under OS1: Environmental and Social Assessment; OS2: Involuntary resettlement land acquisition, population displacement and compensation; Uganda Environmental Impact Assessment regulations (2020) and best international practice, the project developer is required to undertake public consultations during the ESIA process. Consultations were conducted with Government ministries, conservation agencies, local governments, communities and individuals. Record of Engagements are appended in Appendix 5.

6.1 Objectives of consultation and disclosure

The objective of the consultations included to: -

- i) Explain the project and create awareness;
- ii) Obtain perceptions of the project on economics, social and environmental setting;
- iii) Obtain the perceived potential negative environmental and social impacts so that they can be mitigated;
- iv) Enlist stakeholder participation in positive change associated with development;
- v) Provide equal opportunity to stakeholders and the general public members to get involved in project planning;
- vi) Explain the stakeholder engagement process during the project cycle including the environmental and social grievance redress mechanism;
- vii) Identify relevant policies and laws.

6.2 Key stakeholders

Among the key stakeholders that were conducted include;

- i. Moyo District
- ii. Moyo Town council
- iii. Laropi Sub-county
- iv. Metu Sub-county
- v. Moyo Sub-County
- vi. National Forestry Authority
- vii. Ministry of Gender, Labour and Social Development
- viii. Ministry of Tourism and Wildlife Antiquities
- ix. Uganda Electricity Generation Company Limited
- x. Selected Civil Society Organization
- xi. UNHCR
- xii. Office of the Prime Minister



Plate 25: Engagement with community members at Laropi



Plate 26: Engagement with community members at Moyo Trading Centre



Plate 27: Engagement with Moyo town council

6.3 Key themes of concerns

The following emerged as key themes of the consultations.

a) Physical Cultural Resources

- Damage of living culture

b) Labour and employment

- Employment of migrant workers
- Priority to be given to community members
- Subjecting workers to uncondusive employment terms
- Safety and occupational hazards.

c) Population influx

- Increase in HIV/AIDS and other sexually Transmitted Diseases
- Dominance of migrant workers on employment opportunities
- Increase in Prostitution, crime and drug abuse
- Increase in single mothers.
- causing child abuse and school dropouts
- Causing Conflict over water resources
- Causing disruption of families
- Increase in thefts.
- Stressing the existing health facilities
- Engaging community to address issues of population influx
- Grievance redress mechanism

d) Land acquisition

- Loss of agricultural land, property and crops
- Acquisition of land at low prices
- Delayed compensation
- Entitlement Cut-Off date
- Impact on vulnerable groups caused by displacement
- Disrupting Social network by displacement
- Speculation resulting into titling of communal land
- Misuse of cash compensation
- Injurious affection from hanging and flooding of community houses.
- Grievance redress mechanism

e) Road works

- Blocked and interruption of accesses to social amenities and property
- Poor disposal of spoil materials
- Increase in noise and vibration levels from operation of plant, equipment and rock blasting in the quarries and stones to clear the road alignment.
- Increase in workers and community accidents
- The myth of child sacrifice.
- Increase in thefts.
- Disruption of school programme during road construction.

f) Road operations

- Increase in road accidents
- Increase in road kills
- Safety issues leaving the existing alignment

g) Camps

- Poor disposal of non- hazardous and hazardous waste
- Loss of vegetation

h) Water resources

- Sedimentation of water bodies
- Interference of hydrological flow
- Damaging water sources and distribution pipe networks
- Increase in water stress

Safety and Security

- Working with the mandated security agencies and the community;
- Working in the border area;
- Safeguarding project property;
- Storage of explosives; and
- Crime prevention.

NOTE: Details of stakeholder engagement views, concerns and issues are in Appendix 5

6.4 Public Disclosure Plan

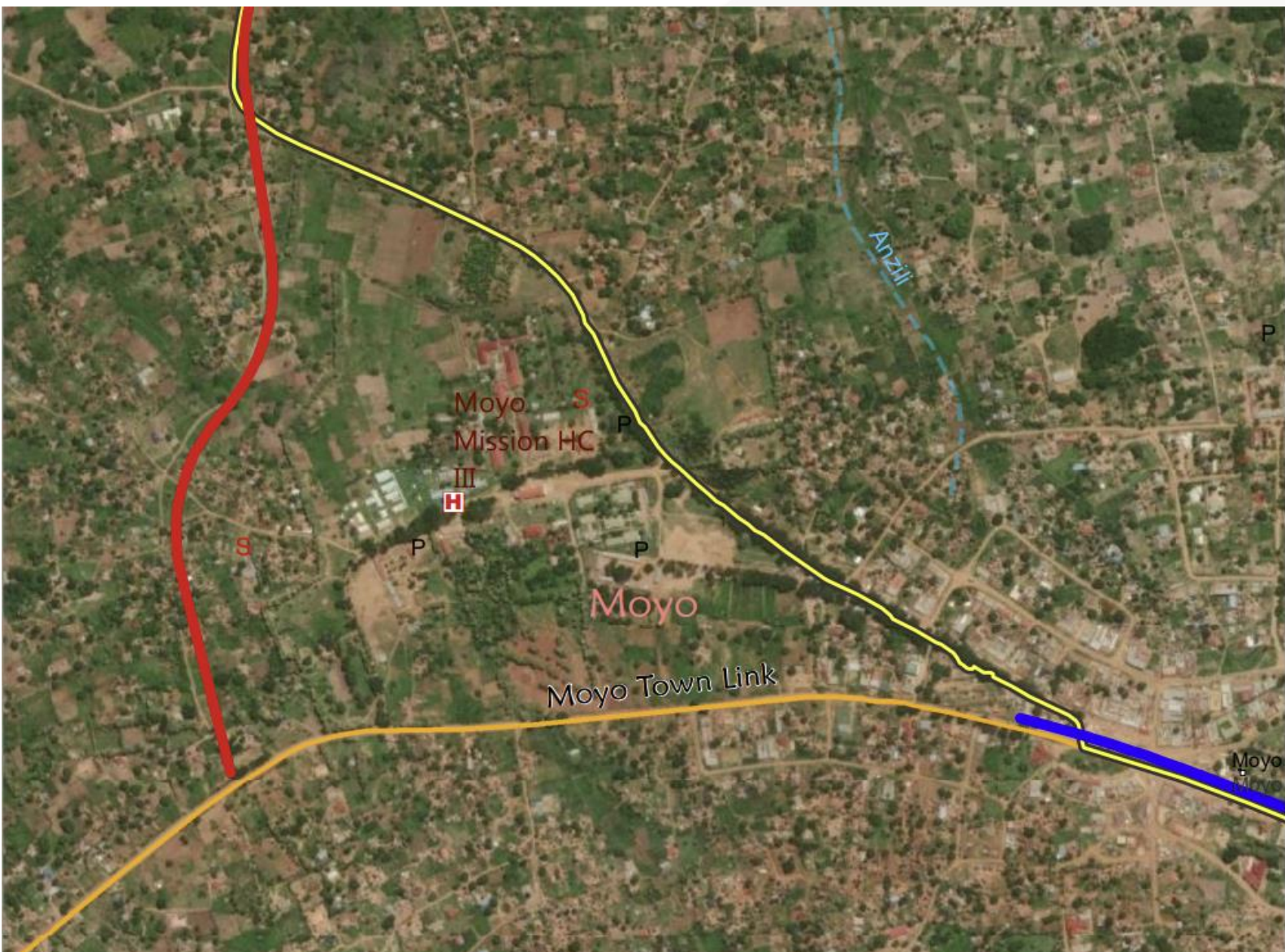
According to the EIA Guidelines for Uganda of 2020, the Environment and Social Impact Statement (ESIS) is a public document which may be inspected at any reasonable hour by any person. NEMA and UNRA shall make the contents of the ESIS disclosed to the public in the various regions in the project area. During the ESIA process UNRA was requested to disclose the ESISs to various stakeholders. UNRA will disclose the ESIS on its website. The ESIS and Executive summaries of the report will be disclosed in strategic locations within the project area. Public notices will be posted in the News Papers both in English and the Local Languages and the stakeholder requested to provide their comments.

CHAPTER SEVEN

7 ANALYSIS OF PROJECT ALTERNATIVES

7.1 "Description of alternatives

7.2 Improvement Options Costs



7.0 ANALYSIS OF PROJECT ALTERNATIVES

Analysis of project alternatives refers to the performance of the natural environment and socio-economic resources with-or-without the project, or, with-or-without the implementation of the measures of this ESIA.

7.1 Description of alternatives

The assessment of the robustness of the project was based on a comparative analysis of the two project alternatives described below. The alternatives were subjected to stakeholder consultation in government agencies, local government, research and academia and civil society throughout the EISA process. The alternatives were also subjected to engineering design considerations, physicochemical studies, biodiversity assessments, socio-economic impact assessments and natural resource economics studies.

7.1.1 Option 1: “No project” scenario - Maintaining the Road as Gravel

The existing Laropi-Moyo-Afoji road was not planned for heavy traffic that is predicted from completion of Atiak-Laropi Road section. Maintaining the status quo would enhance protection of natural vegetation and community integrity. However, this option is not preferred by any community member and local administration units emphasizing that road upgrade will greatly improve on livelihoods and community connectivity. The “No project” scenario would be inadequate to handle both the burden of heavy traffic expected after completion of Atiak-Laropi Road and the proposed Laropi Bridge. In this case, the roads would require rigorous intermittent maintenance due to regular break downs hence high and continuous economic.

7.1.2 Option 2: Upgrading the proposed road to bituminous standard

This option involves upgrading the entire 37km of Laropi-Moyo-Afoji from gravel to bituminous standard. The road proposed for upgrade is currently gravel and regularly maintained by UNRA hence periodic ecosystem disturbance. Upgrading Laropi-Moyo-Afoji road will form a continuous connectivity with Atiak-Laropi which is currently under construction and the proposed Laropi Bridge. Completion of the route will provide an alternative connection to west Nile from South Sudan and Northern Parts of Uganda, saving travelers a total of 420km which they had to traverse through Gulu, Arua and Yumbe Road links.

7.1.3 Alternative alignment in Moyo Town Council

Moyo Town council is characterized by numerous trees specifically Muvule (*Milicia excelsa*). *Milicia excelsa* is a highly valuable timber and shade tree. Other highly valuable species within the corridor include *Tectona grandis* – hard wood tree, *Vitellaria paradoxa*, *Mangifera indica*, and *Tamarindus indica*– both fruit trees; Mahogany species (*Khaya senegalensis*, *Azalia africana*) highly timber species, *Albizia* spp are also known to provide valuable timber. Depending on the position of the tree within the corridor, *Milicia*, *Tectona*, *Mangifera*, *Khaya* and *Azalia*, *Azadiracta* and *Senna siamea* will be affected more than any other tree along the road. In this era of declining biodiversity, climate change and food insecurity, trees are very vital to influence the micro-climate of the prevailing areas. The trees of Moyo district and town council not only sequester Carbon dioxide from the atmosphere to mitigate the climate change impacts but also provide alternative habitat for various fauna especially the birds. Most of the trees are close to the existing road along both sides.

Moyo town is also known for various business opportunities including Roadside trade (retail), most small businesses activities co-exist with the trees and some of them take place under the trees. Additionally, there are numerous social services such as schools, piped water services, electricity

lines, and telecommunication services. Most of these services can be relocated to safe zones prior to construction. However, the aforementioned trees cannot be translocated.



Plate 28: *Milicia excelsa* trees in Moyo town



Plate 29: *Milicia excelsa* trees in Moyo town (2)



Plate 30: *Milicia excelsa* trees in Moyo town (3)

7.1.3.1 Alternative alignment in Moyo Town to save trees.

The existing Moyo – Afoji road has been realigned to start at about 1.5 Km from the Moyo Junction off the Moyo – Koboko road through an existing feeder road until it connects to the old Moyo – Afoji road as shown in figure 33 (Moyo – Afoji link). The existing road section shall also be paved but the road width maintained to protect the *Melicia excelsa* trees planted along the avenue.

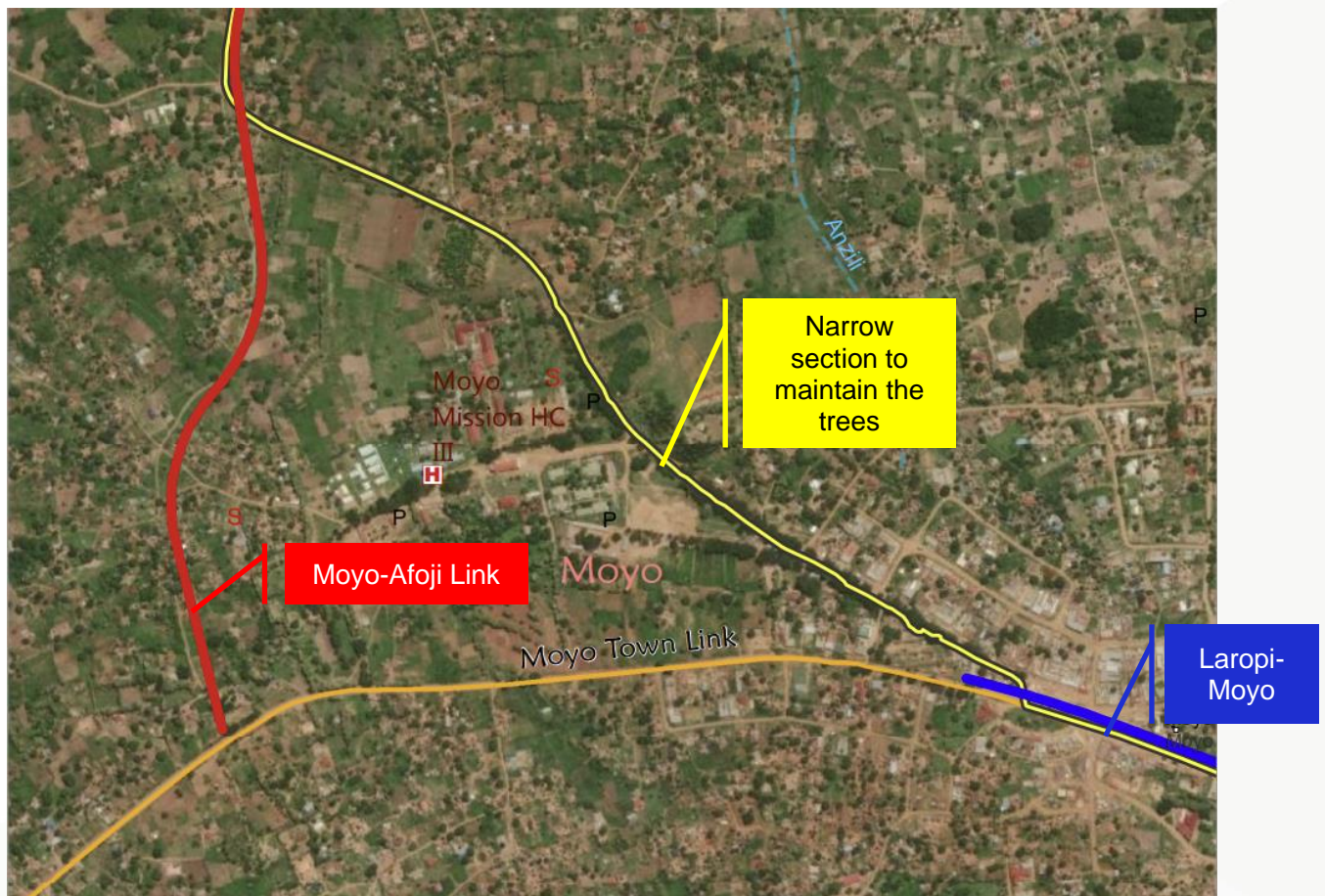


Figure 33: Alternative Links in Moyo Town

7.2 Improvement Options Costs

The upgrading scenarios of the project roads were specified within the “Improvement Standard” in HDM4 which included details of geometric characteristics of the road after improvement, and the improvement type.

- Option 1: Upgrading to Asphalt Concrete (AC) surfaced road, and
- Option 2: Upgrading to Double Bituminous Surface Treatment (DBST) surfaced road.

The unit costs of road works need to be specified in both economic and financial terms. The economic costs are used for calculating economic indicators and the financial costs are used for budgeting road agency expenditures. The unit costs of upgrading construction works were derived from estimates based on traditional bill of quantity approach together with estimates of unit rates for different components of work derived from first principles. The primary source of road maintenance work types and the updated unit cost data was UNRA.

Table 44: Improvement Options Cost Per Km (USD)

Project Road	Cost Item	Length (km)	Standard Conversion Factor	Upgrade to AC surface (USD)	Upgrading to DBST surface (USD)
Laropi Moyo Afoji	Financial cost	37.3	0.85	43,199,551	40,343,662
	Economic cost			36,635,468	34,292,113

Table 45: Improvement Options Cost Per section

Project Road	Length (km)	Road Surface	Total Cost (USD)	Financial Cost Per km	Standard Conversion Factor	Economic Cost Per KM
Laropi Moyo	28.3	AC	28,500,000	1,007,067	0.85	856,007.07
		DBST	27,043,213	955,591		812,251.97
Moyo-Afoji		AC	8,135,468	813,547	0.85	691,514.78
	10	DBST	7,248,900	724,890		616,156.50

It is therefore recommended that the option for upgrading to AC bituminous standard be considered for this project and this investment would be economically justified.

CHAPTER EIGHT

8 IMPACT IDENTIFICATION, ANALYSIS AND MITIGATION

- 8.1 Definition of Impacts and Impacts Analysis
- 8.2 Positive impacts analysis and enhancement measures
- 8.3 Negative impacts analysis and mitigation measures
- 8.4 Cumulative impacts analysis



8.0 IMPACT IDENTIFICATION, ANALYSIS AND MITIGATION

8.1 Definition of impacts

For the proposed Road development there are potential positive and negative impacts and have been identified for the pre-construction, construction, and operational phases. Impacts differ in various aspects as defined in Table 46.

Table 46: Definitions of impacts

Impact type	Impact description
Cumulative	- Impacts resulting from incremental effects of other previous, existing or Future projects impact.
Direct	- Are directly caused by a specific action as the primary effects. - Occur at the same time and location as the action.
Indirect	- Reasonably foreseeable and caused by a project but occur at a different time or place.
Irreversible	- Impacts cannot be completely reversed.
Long-term	- Impacts would persist for many years or decades.
Medium-term	- Impacts could last a few years
Negative	- Reduce socio-economic welfare of people, - Reduce quality of existing environment,
Positive	- Enhance socio-economic welfare e.g. employment, - Increase quality of existing road.
Reversible	- Impacts can be completely reversed.
Short-term	- Impacts last only a short duration probably a few days or months.

(Extracted from: UNEP, Environmental Impact Assessment Training Resource Manual, 2002)

Impacts of the same/different nature may differ in several parameters including, timing, duration, extent, magnitude, certainty, significance,

Where;

Timing	:	time frame (phase) at which an impact occurs within a project area
Duration	:	the period of persistence of an impact on receiving environment
Extent	:	area of occurrence/influence by the impact on the subject environment
Magnitude	:	the strength of the impact on the environment
Certainty	:	the likelihood of occurrence of an impact
Significance	:	the overall change brought in the environment
Sensitivity	:	Level of change on the receptor environment

8.1.1 Impact analysis

The significance of impacts associated with the proposed road development project was analyzed using Matrix method (Leopold et al, 1971 & HA, 2008) and later subjected to professional judgment (Canter, 1996, Morris & Therivel, 2001), during the project cycle including pre-construction, construction and Operation.

Table 47: A quantitative format for ranking impacts based on parameters summarized as magnitude and sensitivity.

Significance			Sensitivity			
			Very low	Low	Medium	High
			1	2	3	4
Magnitude	Very low	1	1 Negligible	2 Minor	3 Minor	4 Minor
	Low	2	2 Minor	4 Minor	6 Moderate	8 Moderate
	Medium	3	3 Minor	6 Moderate	9 Moderate	12 Moderate
	High	4	4 Minor	8 Moderate	12 Moderate	16 Severe

Table 48: Rating of impact parameters to guide professional judgment

Symbol	No	minor	Low	Moderate	High	Very High	No
M=Magnitude	0	2	4	6	8	10	0
P=Probability	0	1	2	3	4	5	0
E= Extent	0	1	2	3	4	5	0
S=Significance			< 30	40-50	> 60		

Where, D=DURATION: (0 to 1 years) –1. (2 to 5 years) –2. (5 to 15 years) –3. (> 15 years) – 4. Or permanent – 5 And **S= (E+D+M) P**

8.2 Positive Impacts analysis and enhancement measures

8.2.1 Employment opportunities

The project is anticipated to provide employment opportunities to about 250 unskilled and 50 skilled personnel throughout the project cycle. It is estimated that the majority of the workers will be Ugandans. This will highly contribute to a reduction in unemployment and boost people's incomes in the project area. The impact is positive and highly significant as shown below;

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
communities	Direct, positive	4	2	6	5	60

Among the enhancement measures, include;

- i) Employ from within the surrounding communities to abide by the Local content policy;
- ii) Involve Local leaders in the recruitment process to ensure fair and full participation;
- iii) Provision and honoring of contracts to all project workers;
- iv) Ensure a safe working environment for all workers;
- v) Develop and implement a workers' code of conduct;

8.2.2 Improved connectivity between Uganda and South Sudan

The proposed Road development will provide improved means of transport in the region, through ensuring connectivity. This solves the current challenges experienced by travelers especially in the rocky areas around Laropi and seasonal flood plains. The project will provide an alternative to the known Nimule Route connecting between South Sudan and Uganda. The impact is positive and highly significant as shown below;

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
General public	Direct, positive	4	5	6	5	75

Enhancement measures for this positive impact include:

- i) Regular maintenance of the Road and ;
- ii) provision of adequate security at border points;
- iii) Installation of the weighbridge to regulate axle load

8.2.3 Creation of business opportunities

During construction, there is stimulation of businesses in markets especially ones involved in vending foodstuff outside near the proposed sites for workers' camps. Additionally, the land is always rented from community members to set up temporary workers' camp and equipment yard. Owners of land on which these facilities will be erected will earn a rental income upon negotiations with contractors. The business will be rampant in Laropi and Metu sub-county where a few trading centres. The impact is positive and highly significant as shown below;

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
Communities	Direct, positive	4	3	6	5	65

Among the enhancement measures are:

- i). Adequate, fair, and prompt payments for the landowners;
- ii). Conduct safety awareness regarding construction activities;
- iii). Community sensitization on business opportunities due to influx of workers in their area;
- iv). Suppression of dust.

8.2.4 Support to Regional Industrialization and Development

Upgrade of Laropi-Moyo-Afoji road will facilitate regional growth for Agricultural industries, production factories among others. Road development plays a significant role in opening opportunities for other social services such as electricity and water which are vital in industrialization. The impact is highly significant. The impact is positive and highly significant as shown below;

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
Regional	Direct, positive	4	5	6	5	75

Among the enhancement measures are:

- i). Periodic and routine maintenance of the Road;
- ii). Maintain all community access roads to the Laropi-Moyo-Afoji
- iii). Provide security especially at the boarder points

8.3 Negative impacts analysis and mitigation measures

8.3.1 Pre-Construction phase

8.3.1.1 Increased human activity in the region and COVID19 Pandemic

Pre-Construction activities include; feasibility studies, engineering designs, ESIA studies and mobilization by the contractor. All these activities are associated with importation of people from other areas. This poses a high risk of spread of COVID19 pandemic. The ESIA activities provide a roadmap for environmental and social planning. Mobilization involves preparations prior to starting works. It includes acquiring equipment, planning and preparing for their storage, setting up offices and recruitment of workers. The major activity of environmental concern during pre-construction is location and constructing auxiliary facilities. The assessment of this impact is as below;

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
Communities	Direct, negative	4	1	4	5	45

The Location of camps in sensitive environmental and social setups, designing camps with inadequate amenities and construction impacts makes this impact significant. However, NEMA approvals shall be secured for associated auxiliary project facilities such as quarry material sources, gravel sources (borrow areas) and the proposed project camp. Therefore, the mitigation measures provided for each facility were found appropriate and will be implemented and monitored during the project cycle.

Proposed mitigation measures include:

- i) All activities should observe the Ministry of Health Standard Operational Procedures (SOPs) for COVID19 pandemic. Individuals with COVID19 symptoms shouldn't be engaged in any activities but rather seek medical attention.
- ii) Continuous and meaningful stakeholder engagements with community leadership;
- iii) Locating all camps away from busy community settings;
- iv) Provide adequate camp facilities that are gender sensitive including accommodation and ablutions.

8.3.2 Construction phase

8.3.2.1 Loss of agricultural land, property and crops

The carriageway ranges from 12 to 14m, while existing roads have a width of 6 to 8m. Additionally, right of way of 30 to 50m has been proposed for land acquisition. The proposed upgrading of the roads will require road-widening which will impact on structures in Laropi, Moyo Town and other small trading centers. Grazing and crop land of cassava, maize, beans, groundnuts, sweet potatoes and cotton gardens will be changed to road land use. The land use change applies to both sides of road sections within communities. Loss of farmland will have a large negative impact because it was established that most of the population depend on subsistence farming as their main source of livelihood. The anticipated loss of property, land and crops was the main concern of the Project Affected Persons (PAPs). The assessment of this impact is as below;

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
Vegetation	Direct, negative	4	5	6	5	75

Proposed mitigation measures include:

- i). Adequate, fair, and prompt compensation and resettlement of PAPs should be done before project construction activities commence.
- ii). Timely communicate to PAPs on schedules of project activities to enable them to adjust their livelihoods plans.
- iii). The RAP should define mechanisms that are responsive to the extent possible to the prevailing needs of the beneficiaries/PAPs.

8.3.2.2 Interruption of accesses to social amenities and property

Road works may result into blocking of accesses to social facilities and property through cutting, filling, dumping of gravel, heaping of spoil, barricades etc. The practice results into considerable disruption of economic and social activities in the project area and may cause stress and resentment of project activities. This impact is negative, moderate, short and medium term, reversible

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
Aquatics ecosystem	Direct, negative	4	5	4	3	39

Proposed mitigation measures include:

- i). The contractor should always consult and plan with communities on convenient stock piling areas and accesses during construction.
- ii). Existing accesses should be restored after works, or convenient alternatives provided.

8.3.2.3 Impacts from workers' camps

Camps and equipment yard will require land to develop, temporarily altering land use hence modifying wildlife habitats, Congregation of people in one areas poses a high risk of spreading COVID19 pandemic,. Operation of the camp will generate domestic and hazardous waste (used oils and oil filters) which if improperly managed will contaminated local environmental resources (soil, water) and posing a public health risk. Vehicle maintenance areas and workshops generate used oils that have the potential of contaminating land and water bodies. Peelings commingled with plastic carrier bags could pose a risk to livestock from feeding on camp waste. Workers camps are also associated with bulk fuel storage and dispensing, vehicle maintenance areas and workshops generator houses and vehicle wash bays with potential to result into fuels spillages and generation of waste waters that can contaminate land and water bodies. Unrestored camp and yard sites would cause aesthetic blight and remnant contamination from fuel, oil or unused bitumen. Duration of impacts is short-term; extent is local but likelihood high and impact severity on receptor community is moderate.

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
Aquatics ecosystem	Direct, negative	4	5	4	3	39

Proposed mitigation measures include:

- i. Observe the Ministry of Health Standard Operational Procedures (SOPs) for COVID19 pandemic, including immunization of all workers where possible;
- ii. Workers' camps should be located outside community settlements Recruit the work force from the local communities where possible.
- iii. Restrict access to workers camps.
- iv. Camp site and yard should have adequate sanitation facilities (latrines) that are gender friendly. Living quarters should be gender friendly as well.
- v. Contractor should provide clean water at camp, ensuring that water abstraction is permitted by WRMD.
- vi. For fire safety, contractor should provide fire extinguishers and signage in camp including refueling areas.
- vii. On completion of the project, contractor should remove structures and sites restored to pre-project condition or give them to local communities/ land owners for use. Exposed areas shall be replanted with indigenous tree or vegetation species.
- viii. Onsite combustion of waste shall not be done at camp.
- ix. Smoking in communal areas at camp and near fuel storage areas should be prohibited and signs to this effect posted in visible areas.
- x. Contractors should prohibit smoking in work places and means of public transport.
- xi. Contractors should prohibit smoking in outdoor space that is: -
 - Within 50 meters of a public place.
 - Within 50 meters of any window, door or any intake mechanism of a public pace including places of service or consumption of food or drink. and
 - Designated not smoking area

8.3.2.4 Impacts from the quarry sites and bituminous plant

Stone quarry sites and other auxiliary plant locations are yet to be identified. Potential hard-core sources were recommended and discussed in **Chapter Three** of this report. The suitability of the materials is yet to be established. The Impacts arising from the quarry sites and bituminous plants include spread of COVID19, dust and gaseous emissions, cracking noise and vibration, flying stones, among others. These expose workers and surrounding communities to Occupational Safety and Health risks.

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
Vegetation	Direct, negative	4	5	6	5	75

Proposed mitigation measures include:

- i. Observe the Ministry of Health Standard Operational Procedures (SOPs) for COVID19 pandemic at all auxiliary sites,
- ii. These auxiliary components will undertake their own environmental and social planning requirements and will obtain approvals;
- iii. Quarries affecting human settlements will undertake abbreviated RAPs and obtain approvals;
- iv. The quarries and bituminous plants will be located outside intense human settlements and the protected areas;
- v. Stone should be exploited in such a way that does not leave sharp cliffs and loose hanging stones to cause accidents and pits.
- vi. Rehabilitation/restoration of quarries will have to be undertaken at the end of stone quarrying activities.
- vii. Dust from the stone crushers will be suppressed by wet crushing.

8.3.2.5 Potential social impacts due to Population Influx

8.3.2.5.1 *Dominance of migrant workers on employment opportunities*

Contractor's preference of migrant workers to undertake skilled and semi-skilled employment reduces employment opportunities for community members. The practice may marginalize community and reduce their support towards the project. Denial of employment opportunities to suitable community members is against the spirit of the National Development Plan and vision 2040 that seek to raise incomes of PAPs.

Proposed mitigation measures include:

- i. Observe the Ministry of Health Standard Operational Procedures (SOPs) for COVID19 pandemic, including immunization of all workers where possible;
- ii. Priority for skilled, semi-skilled and unskilled labour should be given to persons from within immediate communities.
- iii. Foreign workers should have work permits as required by law.
- iv. The contractor should follow Ugandan Labour laws and related regulations on the recruitment and disciplinary measures for the workers.
- v. There should be sensitization of workers on cultural values and norms of the area.

8.3.2.5.2 *HIV/AIDS and other sexually Transmitted Diseases*

There is a strong link between spread of HIV and other STDs circumstances of movement directly affect the potential risk of infection for a migrant and the communities in which they settle (IOM, 2015). The proposed project is expected to be generating an influx of migrant workers which will increase the

risk of spread of HIV/AIDS and other STDs. The impact of increased risk of HIV includes pressure on local health systems, impact on community livelihood and social cohesion. Increased HIV prevalence would result into reversal of economic gains within the community and may reduce the ability of the community to benefit from the project.

Proposed mitigation measures include:

- i. An HIV/Aids organization nominated by UNRA should conduct workplace HIV/AIDS awareness, and control programme for the contractor's workers.

8.3.2.5.3 *Prostitution, crime and drug abuse*

The proposed road project is expected to generate additional disposable income particularly for the active working group of youth and young adults. Studies in the transport sector have recognized that men who have disposable income and who travel or migrate for work such as construction workers and truck drivers provide most of the demand for commercial sex and are likely to engage in risky behaviors such as unprotected sex with casual partners and sex workers. A large influx of males for a construction project increases demand for sex in an area (Republic of Uganda, 2016). A community meeting held at Moyo Sub-County raised concern about increased prostitution in the area as a result of new social activities specifically in night clubs.

The risk of HIV makes this impact negative high significance medium to long term irreversible.

Proposed mitigation measures include:

- i). Observe the Ministry of Health Standard Operational Procedures (SOPs) for COVID19 pandemic.
- ii). The contractor should have an independent security system that collaborates with the local security organs.
- iii). Development and implementation of security plans should involve local (LC) leaders and police.
- iv). Create awareness and build capacity within communities, workers, security agencies on the dangers of prostitution, crime and drug abuse to resist the temptation.
- v). Capacity of local authorities should be enhanced to handle challenges associated with migrant and immigrant workers.

8.3.2.5.4 *Potential of child abuse*

The proposed project traverses' areas with several schools and settlements. It is likely that workers associated with the project will engage in sexual relationships with school and under aged children. A community meeting raised concern about previous construction projects where child abuse and early pregnancy was reported. The community indicated that re-occurrence of such behaviors may reduce community support for the project. The impact is negative with high sensitivity and overall impact significance moderate.

Proposed mitigation measures include:

- i. The contractor will be required to develop child protection plan which will be implemented in collaboration with community leaders, schools and districts;
- ii. The contractor will be required to collaborate with communities to provide information where child abuse cases;
- iii. The community should be sensitized on the risks of child abuse;
- iv. Minimize the interaction of children with the workers, and closely monitor and report worker's behavior/conduct;
- v. Cases of abuse should be reported to the police for investigation and prosecution.

8.3.2.5.5 *Disruption of families*

High disposable income especially for males increases predisposition to extra marital affairs. The extra marital affairs often involve both married and un-married male and females and sometimes young females below the age of consent. This newly introduced behavior leads to a high level of family conflict, family break-ups, polygamy and early marriage among others. Cases have been reported where men with new disposable income completely abandon their families resulting into school drops, single mothers and increased risk of child labour. Social vices are likely to increase including family breakdowns and increase in the number of streets children. This is due to worker exploiting the local communities taking advantage of high disposable income compared to community members and taking advantage of company resources. It was suggested that a social and gender specialist should be part of the contractor's team.

Proposed mitigation measures include:

- i. Awareness creation for community members on the challenges of additional disposable income and how it can have a disruptive effect on the family.
- ii. The contractors should be bound to follow the UNRA Environment and Social Policy, procedures and guidelines.
- iii. Contractors with their - should be obliged to have Codes of Conduct for employees and anti-retaliation policies.
- iv. Administrative controls should be instituted to prevent unethical use of employers' resources.
- v. Sensitization of community members on the challenges of additional disposable income of migrant workers how it can have a disruptive effect on the family and therefore be prepared
- vi. Empower community leadership to be able to protect the rights of children, woman and family norms.
- vii. Enhanced the capacity of local authorities to handle challenges associated with migrant and immigrant workers.
- viii. The contractors should have regular community engagement meetings.
- ix. The contractors should have grievance redress mechanisms (GRMs).

8.3.2.5.6 *Gender concerns*

Gender concerns for the project particularly relate to infringement on the rights of women in the workplace. The concerns include; sexual harassment, denial of employment opportunities, physical violence, and male partners forcefully taking away women's pay and lack of proper public facilities such as toilets and shelter for their children as they work on the road. Other potential negative impacts on women include; exposure to STIs such as HIV/AIDS, sexual exploitation of young girls and abandonment by partners in case of unwanted pregnancies. Impacts related to gender are negative, highly sensitive with potential for high magnitude however they can be effectively alleviated against hence making the overall impact moderate.

Proposed mitigation measures include:

- i. Workers will be sensitized on their gender rights and responsibilities. UNRA will Work with the contractor on establishing zero tolerance policies and codes of conduct related to violence against women and girls (VAWG). The Contractor will conduct gender sensitization to the work force on matters such as gender sensitive communication and on the gender sensitive conduct of workers towards women amongst others.
- ii. Display signs throughout the site making it clear that the work site is a violence free zone and VAWG will not be tolerated.
- iii. All workers should receive adequate briefing and education on the laws against defilement and other sexual offences.

- iv. To the extent possible, there will be gender sensitivity in task allocation to the women.
- v. There will be a Specialist (Environmental/Social Specialist) to oversee implementation of the gender action plan.
- vi. The project will install gender sensitivity facilities (toilets and bath shelters).

8.3.2.6 Potential Conflict in Water Use

During the ESIA study exercise it was observed that most of the project area is water stressed. It was established that all water points were characterized by long queues and it was further noted that the water points are relatively scattered and not well distributed. Some water sources were noted to be closed to the existing road and these might require relocation before the project commences. Therefore, there could be instances where the contractor's workers will attempt to use the existing water sources thereby creating conflict with the community. Further road construction activities have the potential to damage water supply lines and water sources.

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
Aquatics ecosystem	Direct, negative	4	5	4	3	39

Proposed mitigation measures include:

- i. Identify and relocate all affected water sources before the project commences.
- ii. The contractor should have and implement a clean water supply plan for project use and where possible provide water as a corporate social responsibility.
- iii. In case of interruption of the ground water table during excavation, the contractor should seal off the affected area as soon as possible so as to re-establish the normal hydrological flows

8.3.2.7 Habitat modification and loss

There will be vegetation clearance to set the site for earthworks and subsequent excavations during construction. Most areas are predominantly under natural vegetation with relatively high biological diversity. Vegetation clearance is also associated with habitat fragmentation and loss in Carbon sinks since plants serve a tremendous role on carbon absorption. The assessment of this impact is as below;

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
Vegetation	Direct, negative	4	5	6	5	75

Proposed mitigation measures include:

- i) Minimize vegetation clearance as much as possible;
- ii) The contractor will only operate following a method statement approved by the Supervision Engineer. The method statement shall address all environmental sensitivities;
- iii) Adequate measures will be undertaken to restore all areas disturbed by the project.

8.3.2.8 Loss of trees of conservation value

During the botanical surveys, a total of 317 individuals of *Melicia excelsa* (Muvule trees) and 20 individuals of *Tamarindus indica* were recorded within the proposed right of way road. *melicia excelsa* is Near threatened (NT) worldwide (IUCN, 2018) and *Tamarindus indica* is Vulnerable (VU) (WCS, 2016). The Muvule trees is utilized as breeding sites for several bird species, used to sequester carbon dioxide and other greenhouse gases for climate change mitigation. Clearance of such tree species of conservation concern imposes survival threat to their diminishing populations.

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
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Vegetation	Direct, negative	2	5	8	5	75
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Proposed mitigation measures include:

- i) Avoid cutting Muvule trees and *Tamarindus indica* along the project area;
- ii) In Moyo Town council consider bypassing the road outside the town to protect the Muvule trees, also develop while following the existing roads where are trees on either sides;
- iii) Develop and implement an adequate Biodiversity Restoration Plan;
- iv) Increase tree cover by planting indigenous trees in the Right of Way.

8.3.2.9 Spread of alien invasive species

Alien and invasive species can be compounded by disturbances to the ecosystems through excavations earthworks and through movement of machinery & equipment contaminated with materials of invasive plant species. Invasive plants suffocate growth of native species and some have potential to degrade soils fertility. The impact of invasive species is highly significant especially where most wildlife is herbivores; parameters of this impact are rated as shown in table below.

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
Vegetation	Direct, negative	4	5	6	5	75

Proposed mitigation measures include:

- i) Avoid ferrying material that contain foreign seeds into the project area;
- ii) Mechanically remove all invasive species that sprout within the project area;
- iii) Develop and implement an adequate Habitat Restoration Plan.

8.3.2.10 Pollution due to waste

The possibility of waste generation is high and this has severe pollution impacts in case such wastes are released to the natural environment before proper treatment. Wastes anticipated include both domestic and industrial such as waste oils, debris from the drilled riverbed and wastewater among others. Surface water and aquatic biodiversity are at risk in case of any pollution events. However, the quantity of such hazardous waste materials onsite will be very small since only minor accidental spills could occur.

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
General environment	Direct, negative	5	2	10	5	85

Proposed mitigation measures include:

- i) Application of appropriate technology which minimizes waste generation.
- ii) Restrict interaction between the project activities and the natural environment.
- iii) Measures should be developed to ensure Reuse, Recycle and Reduce generated waste;
- iv) Develop and implement an adequate waste management plan;
- v) Implement a good housekeeping culture.
- vi) Quarterly water quality tests should be undertaken within the project area.

8.3.2.11 Soil erosion

Soil erosion is expected, especially as a result of vegetation loss and movement of heavy machinery on bare soils. In addition, poor disposal of spoil could propel the risk further. There is potential risk of

localized soil erosion around the streams and rivers resulting into siltation, and contamination of the aquatic life. As such, there is potential disruption of the breeding grounds for aquatic fauna.

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
Aquatics ecosystem	Direct, negative	4	5	4	3	39

Proposed mitigation measures include:

- i) Movement of heavy machinery should be restricted to approved areas;
- ii) Vegetation clearance should be minimized as much as it will be practically possible and following an approved method statement;
- iii) Soil erosion barriers such as contour bunds will be necessary around the operational area;
- iv) Prepare and implement an adequate site restoration plan;
- v) Develop and implement an adequate Spoil Management plan.

8.3.2.12 Potential vibration effects on communities and schools

Impacts of vibration during the construction phase of the project will be considerable since construction involves excavation, blasting and compacting. In addition, movement of heavy equipment during construction will generate vibration. From the baseline assessment, it is evident that there was no significant vibration along the project area. Therefore, any amount of vibration introduced in the area will be noticeable. Nonetheless, vibration could still have a significant impact on workers and communities and learning processes for schools near the road. Additionally, workers might develop vibration induced illnesses due to machine operations such as musculoskeletal conditions. The impact is negative and significant as shown below;

Receptor	Type of Impact	Extent	Duration	Magnitude	Probability	significance
General environment	Direct, negative	3	2	8	4	52

Proposed mitigation measures include:

- i) Apply appropriate technology during excavation, blasting and compacting with low vibration;
- ii) Daily monitoring of vibration on site should be conducted;
- iii) Regularly service all equipment that are associated with vibration generation;
- iv) All works should be carried out within permissible vibration levels;
- v) Provide appropriate PPE to workers as well as fitting workers to right tasks;
- vi) Community members and workers should be sensitized on the effects of vibration and control measures that should be adhered to.
- vii) If possible, conduct vibration activities during low schools activities especially in the afternoons.

8.3.2.13 Noise nuisance and interruption of learning processes

Continuous exposure to high noise levels can be injurious to a person's health. It can result into permanent or temporary loss of hearing depending on the threshold and time of exposure. From the baseline assessment, there are a lot of schools and health facilities along the Laropi-Moyo-Afoji. The project activities are anticipated to generate a considerable volume of noise. Therefore, if not mitigated, such noise levels will affect the health and safety of workers, and school and health facility processes, among others.

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
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General environment	Direct, negative	5	2	6	3	39
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Proposed mitigation measures include:

- i) The contractor should cordon-off schools and hospital facilities that are likely to be affected by construction noise.
- ii) The contractor shall comply with safety and health standards and guidelines during operations;
- iii) Engineering controls should be used to reduce noise generation at the source (isolation, dampening etc.);
- iv) All equipment should be well maintained appropriately;
- v) Workers exposed to high noise levels should be provided with appropriate personal protective gear – ear plugs, earmuffs or ear defenders, as would be appropriate;
- vi) Appropriate methods must be utilized for replacement of equipment which would otherwise generate noise;

8.3.2.14 Spontaneous particulate matter and dust

Particulate matter is the sum of all solid and liquid particles suspended in air, some of which are hazardous. Exposure to fine particles can cause short-term health effects such as eye, nose, throat and lung irritation, coughing, sneezing, runny nose and shortness of breath. Exposure to fine particles can also affect lung function and worsen medical conditions such as asthma and heart disease. Scientific studies have linked increases in daily PM2.5 exposure with increased respiratory and cardiovascular hospital admissions, emergency department visits and deaths. Studies also suggest that long-term exposure to fine particulate matter may be associated with increased rates of chronic bronchitis, reduced lung function and increased mortality from lung cancer and heart disease.

People with breathing and heart problems, children and the elderly may be particularly sensitive to PM2.5. PM2.5 are tiny particles in the air that reduce visibility and cause the air to appear hazy when levels are elevated. Particles in the PM2.5 size range are able to travel deeply into the respiratory tract, reaching the lungs. At the time of the baseline assessment, it was evident at the proposed project area had minimum activity to cause notable particulate matter. The impact on air quality and air pollution of fugitive dust is dependent on the quantity, relative humidity, temperature, wind velocity and drift potential of the dust particles.

The Proposed Laropi-Moyo-Afoji traverses through terrestrial areas which are wildlife habitat and communities. It is anticipated that construction activities will have significant adverse impacts to the receptors namely; workers, businesses and properties. The impact is negative and significant as shown below;

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
personnel at site, communities	Direct, negative	3	2	6	5	55

Proposed mitigation measures include:

- i) To avoid the generation of unnecessary dust, material drop height should be reduced and material storage piles should be protected from wind erosion. This can take the form of wind breaks, water sprays or vegetation of piles;
- ii) It should be noted that emissions generated by wind are also dependent on the frequency of disturbance of the erodible surface. Each time material is added to, or removed from, a storage pile or surface, the potential for erosion by wind is restored. Any crusting of the surface binds the erodible material.

- iii) Dust created during transportation and stockpiling can be limited by watering the road sections that are being used and by either wetting the material being transported or covering the back of the trucks, to limit the windblown dust from the load. Stockpiles may also be covered or watered;
- iv) Trucks carrying finer granular materials should always be covered and comply with the set speed control mechanisms such as safety signs, speed control limits, and speed humps among others;
- v) The engines whether for trucks or other plant/equipment should be well maintained in efficient form to reduce on gaseous emissions;
- vi) Where the emissions cannot be effectively controlled, workers should be provided with appropriate respiratory Personal Protective Equipment/gear as guided by PPE Management Plan and Risk Assessment and Management Plan;
- vii) Workers should be medically certified to wear respiratory Personal Protective Equipment/gear provided;
- viii) All stockpiles should be maintained for as short a time as possible and should be enclosed by wind breaking enclosures of similar height to the stockpile. Stockpiles should be situated away from the site boundary, water courses and nearby receptors and should take into account the predominant wind direction;
- ix) During the transfer of material to piles, drop heights should be minimized to control the dispersion of materials being transferred. Additional preventative techniques include the reduction of the dust source extent and adjusting work processes to reduce the amount of dust generation;

8.3.2.15 Air pollution

Outdoor air pollution activities have been noted to be potential sources of Criteria Air Contaminants (CAC) and Greenhouse Gases such as Nitrogen Dioxide (NO₂), Carbon Monoxide (CO), Volatile Organic Carbons, and Methane (CH₄) that can harm human and environmental health if their levels are not effectively controlled.

During project activities, it is anticipated that there will be an increase in vehicular traffic and equipment operations (potential sources of air pollutants). Nitrogen oxides and Carbon Monoxide will be released by all internal and external combustion equipment on site though in relatively small quantities. Additionally, Volatile Organic Compounds (VOCs) that readily evaporate into the air under ambient conditions are anticipated, also in small quantities. Long-term exposure to volatile organic compounds can cause damage to the liver, kidneys and the central nervous system. Short-term exposure to volatile organic compounds can cause eye and respiratory tract irritation, headaches, dizziness, visual disorders, fatigue, loss of coordination, allergic skin reactions and nausea and memory impairment.

The impact significance is assessed as is moderate

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
general environment	Direct, negative	3	2	3	3	24

Proposed mitigation measures include:

- i) All trucks or other plant/equipment should be well maintained according to the maintenance schedule to reduce on gaseous emissions;
- ii) Prepare and implement an adequate PPE Management Plan and Risk Assessment and Management Plan Workers should be provided with appropriate respiratory Personal Protective Equipment/gear as guided by. However, before issuance of respiratory PPE. Each

worker should be medically certified to wear the respiratory PPE as this shall in turn prevent adverse health incidents such as difficulty in breathing;

- iii) An occupational hygienic surveillance plan should be developed and implemented throughout project life cycle and after commissioning the Road.

8.3.2.16 Physical agents

Workers involved in infrastructure works are often exposed to extreme heat or work or strenuous physical activities in hot or cold environments which increases their risk for heat or cold stress. From the baseline assessment, it was evident that all of the sampled points had readings below the threshold of WBGT exposure limits of 25 °C for heavy activities.

During project implementation, it is anticipated that workers will be involved in strenuous physical activities in both hot and cold environments. From the baseline measurements, it is evident that workers will be at risk of both minor and major occupational incidents during very hot environment such as heat exhaustion, fainting (syncope) and heat stroke which could be fatal in absence of medical attention. During cold environments, they face a risk of cold stress particularly during construction activities. However, response to these risks varies from person to person depending on their physiological state, medical history and ability to handle strenuous activities.

Once left unaddressed, these risks affect productivity of the worker and may result in occupational accidents and diseases. Assessments of the significance of impacts associate with WBGT exposure in the project area were low.

Receptor	Type of Impact	Extent	Duration	Magnitude	Probability	significance
Project workers	Direct, negative	3	2	6	2	22

Proposed mitigation measures include:

- i) Proper scheduling to ensure that heavy tasks are performed at time when working temperatures in the atmosphere are low;
- ii) Flexible working hours to include rest breaks and rotational work practices should be established, communicated in the contracts of employment and operational for all workers;
- iii) Workers should be provided with welfare services to include wholesome drinking water, warm drinks, appropriate PPE in respect of working temperatures and tasks being performed.

8.3.2.17 Interruption of traffic flow

Construction of the proposed Road will require consistent haulage of materials especially stones, gravel and sand from the respective borrow sites to the proposed project site. This is anticipated to interfere with tourism traffic, especially from Adjumani and Gulu through Laropi Ferry crossing. Considering that the project traffic will be regulated, the impact is considered moderate.

Receptor	Impact Type	Extent	Duration	Magnitude	Probability	significance
Communities	Direct, negative	4	2	4	5	50

Proposed mitigation measures include:

- i) The contract will develop a mobilisation and materials transportation plan including deployment of flagmen, creation of divergent routes among others.
- ii) Dust suppression, for example by water sprinkling will be done to ensure that only acceptable dust levels are maintained in the project area;
- iii) Implement and enforce of speed control measures for trucks in haulage of materials.

8.3.3 Operational phase

8.3.3.1 Increased income from agricultural production and trade

The project will boost farmer and traders' incomes and accelerate development in trading centres, at village and domestic (family) levels. The proposed roads upgrading will allow free marketing of produce and farmers will be able to access bigger markets while the trading centres will become more active. The major economic activity in the project area is farming (crop production) mainly of crops including cassava, sweet potatoes, maize, sorghum cotton and peas.

Impact enhancement measures:

- i. The areas along the proposed roads at the Markets should be designed with bays to accommodate vehicles that will be transporting merchandise to bigger markets
- ii. Encourage communities to observe the Ministry of Health Standard Operational Procedures (SOPs) for COVID19 pandemic.

8.3.3.2 Improved access and delivery of health services

Improvement of the road network will increase access to health facilities and service delivery. Transportation of drugs, health service providers and emergency cases such as expectant mothers, infants etc. will also be facilitated.

Impact enhancement measures:

- i). Erect vehicle waiting stations at the health centers while considering the Ministry of Health Standard Operational Procedures (SOPs) for COVID19 pandemic,

8.4 Climate Change impacts, mitigations and adaptation measures

The most frequent climate change impacts in the project area include Domestic water shortage; displacement of people due to Severe flooding along the Nile; Food shortages and Distruption of transport activities due to Severe flooding. Mitigation reducing climate change involves reducing the flow of heat-trapping greenhouse gases into the atmosphere, either by reducing sources of these gases (for example, the burning of fossil fuels for electricity) or enhancing the "sinks" that accumulate and store these gases (such as forests). The goal of mitigation is to avoid significant human interference with the climate system, and "stabilize greenhouse gas levels in a timeframe sufficient to allow ecosystems to adapt naturally to climate change, ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner. Among the climate change mitigation measures proposed for this project include;

8.4.1 Tree planting within the Road Corridor

The project is planning to plant several trees of various species within the project areas. The trees will be planted within the road corridor, at the extents of the Right of Way at an interval of 10meters from each other on either sides of the road. Trees are the ultimate carbon capture and storage machines. Like great carbon sinks, woods and forests absorb atmospheric carbon and lock it up for centuries. They do this through photosynthesis. Trees that are drought resistant and indigenous to West Nile region of Uganda will be planted soon after completion of construction activities.

8.4.2 Retaining most trees as much as possible

The existing road treverses several areas with multiple trees, During the botanical surveys, a total of 317 individuals of Melicia excelsa (Muvule trees) and 20 individuals of Tamarindus indica were recorded within the proposed right of way road. melicia excelsa is Near threatened (NT) worldwide (IUCN, 2018) and Tamarindus indica is Vulnerable (VU) (WCS, 2016). The Muvule trees is utilized to sequester carbon dioxide and other greenhouse gases for climate change mitigation. Retaings a

significant number of trees in the project areas by altering the designs will not cause a Net Loss regarding carbon sequestration.

8.4.3 Building resilient road structures

Road infrastructure is more vulnerable especially when extreme rainfall conditions strike. Building resilient Road infrastructures based on realistic models will enable Bridges withstand the test of enormous floods.

8.4.4 Encouraging communities to re-afforest

All communities traversed by the road shall be encouraged to re-afforest their areas. This shall be done in collaboration with local and National authorities. This will help to revegetate degraded community and National forest reserves within the project areas.

8.5 Cumulative impacts

Several infrastructural developments are taking place in the proximities of the project area including the proposed upgrade of Koboko-Yumbe-Moyo Road, Yumbe-Ure, and Laropi/Umi Bridge among others. Further infrastructural developments in form of Hydro power plants and transmission lines are underway in the project area and the neighborhoods. The impacts of such development have cumulative effect on Moyo District. All these infrastructural development projects have similar previous, current and future socio-economic and biophysical impacts on the project area (Table 49).

Table 49: Identified cumulative impacts

Source/project	Cumulative impact	Receptor environment
i. Hydropower, ii. Road Development projects	Bio-physical impacts: <ul style="list-style-type: none"> • Loss of property (Land) • Social issues due to influx of people • Interruption of learning processes • Vegetation Clearances • Habitat alteration and destruction • Loss of aesthetic beauty • Habitat Fragmentation • Spread Colonies of Invasive plants • Soil erosion 	Communities Wildlife

Mitigation measures

Addressing cumulative impacts is a concerted effort, the developer shall;

- i) Implement all mitigation measures specified under this ESIS;
- ii) Develop and implement a stakeholder engagement Plan.

8.6 Complementary Initiatives under Works

The project is poised to have significant positive socio-economic impacts including increased access to markets by farmers, increased job opportunities for the youth and women, reduction in road accidents, and improved accessibility to basic social services—directly connecting the communities to administrative centres, schools, and medical facilities. Preliminary engagements with district, subcounty leaders and communities during socio economic baseline studies for the upgrade of the road project recommended a number of interventions as a form of additional support to communities to mitigate against the impacts of the proposed project. They include;

8.6.1 Construction and rehabilitation of Community Access Roads/Town roads and street lighting

A number of community access roads and streets in traversed northern towns be rehabilitated using labour-based technologies to contribute to generation of jobs to the local communities and to the refugee settlements. Community access roads enhance access to markets and other social services by rural communities. Most community access roads in the district are in poor condition due to occasional flooding. During engagements stakeholders for upgrade of the LMA road project, a request was made to support the upgrade of Kms of community access roads, town roads and a component of street lighting.

8.6.2 Refurbishment / Establishment of a Trauma centre in Moyo General Hospital

Improved road standards normally result into increased traffic speeds particularly in areas with limited traffic. Given the hilly terrain at Kpwemgbele and Ori in Metu and Laropi subcounties coupled with the nature of rural settlements straddled along the road alignment especially in the trading centres, accidents involving residents, community members and motorists as well as construction related have been predicted. Road accidents was an issue of concern during stakeholder engagements and the fear was attributed to low levels of awareness on road safety by the communities and motorists. The project has considered provision of a set of emergency health equipment at one of the healthy facilities along the Laropi-Moyo-Afoji road as part of a road crash trauma centre, preferably the Moyo General Hospital to cater for accident victims. Moyo hospital casualty unit and theatre shall be assessed by a team from MOH to advise on the type of supplies and refurbishment that shall be required to receive and attend to emergencies during and after project implementation. In addition to refurbishment, ambulatory services to reach potential crash sites, the project will train Emergence Response Teams in the hospital and health centres of Laropi and Logoba to provide first aid, emergency and referral services. UNRA will engage with the Ministry of Health to agree on modalities to make the initiative sustainable.

8.6.3 Road safety sensitisations and awareness creation

There shall also be road safety sensitization campaigns to be undertaken by an independent consultant appointed by UNRA but paid for under the civil works contract. This activity is aimed at reducing the risk of individuals using the new road being killed or seriously injured as a result of accidents both during the construction phase and after project completion. The users of Laropi – Moyo-Afoji are likely to include pedestrians, cyclists, motorists, their passengers, and passengers of on-road public transport. The sensitisation will also cover project workers. The training will cover health officials in handling post-crash victims at health facilities along the project area and awareness and education campaigns with communities and schools. In addition, this will finance training for local leadership making them road safety advocates, training of first responders and training of village health teams.

8.6.4 Awareness creation on Gender and prevention of Gender Based Violence

The baseline socio economic studies and stakeholder consultations revealed that gender based violence and discrimination against women is rampant in the district. This disadvantages women in the project area and deprived them from enjoyment of their fundamental human rights as enshrined in the Constitution. The commonest form of Gender Based Violence in the project area is battering of women and verbal abuses; sex with underage girls or boys (defilement); marrying off girls early, threatening violence against spouse or children; not economically supporting family; unwanted sexual touches, threatening violence against the spouse, engaging children in work instead of school, preventing wife from using family planning.

The key complementary activities recommended in this area will include: -

Undertaking a detailed gender profiling and documentation of gender differences, identification of practices and beliefs that promote gender based violence. Assessment of capacity of existing traditional and institutional structures to address GBV. The assessment will include establishment of existing referral pathways, identification of key communication messages that target negative

practices and beliefs that bar women from access and control of productive resources, sensitisation on gender and land rights , life skills. UNRA will work with the MGLSD to design a program for prevention of GBV during project implementation and after. Additional data will be gathered during the profiling to support gender analysis and the information collected will guide the scope of interventions in line with the national program of the MGLSD on gender inclusion and management of GBV including support to survivors. A detailed costed program will be prepared and shared with the Bank that will guide on the scope of the initiatives/activities to be undertaken on the project based on available resources and agreed priority areas.

8.6.5 Construction of road side market stalls in Moyo town

Road side markets support rural livelihoods and are a critical source of income to women and other vulnerable groups of people in the rural country side. The upgrading of the road shall displace women vendors operating small business within the existing Right of Way in Celecelea, Madagascar and central cell in Moyo town council as well as Laropi Town Council, with the later engaging mainly in fish vending . Most of the items are vended on bare ground and open spaces under very unhygienic conditions. Upgrade of Laropi-Moyo-Afoji shall in essence be an opportunity to enhance trading opportunities for these women and the other vulnerable groups. There is therefore need to identify a relocation site and improve the conditions under which businesses are being carried out. FGDs with vendors operating in the road reserve recommended construction of market stalls along the new constructed road. This can be implemented as a complementary initiative to support livelihood restoration and mitigate against the negative impacts of the project.

Before construction of the market, Moyo Town and Laropi urban council authorities shall identify a relocation sites with participation of vendors to avoid “white elephants” and letters of comfort to prove ownership of land availed before commitment is made . The proposed relocation site should be in a trading centre and easily accessible.

8.6.6 Distribution of Ox ploughs and carts to selected women groups

Studies for upgrade of the road project revealed that 80% of the population in the project area derive their livelihood from subsistence farming and most of agricultural related activities are undertaken by women using the hand hoe that is not only labour intensive, strenuous but also low acreage is opened leading to less productivity. Apart from farming, it is the responsibility of a woman to construct /thatch a house, take care of children including payment of school fees and provide a meal for the family besides undertaking all productive roles. This drains women’s energy and hence little time is spent on other community development and welfare activities . Discussions with women groups, recommended supply of ox ploughs and carts to existing women groups to help open up more land, reduce women labour, increase agricultural production and improve house hold income. As part of the support initiatives for women it is recommended the project considers provision of ox ploughs to women in the project area, with priority being given to project affected women. UNRA will undertake further engagement with PAPs on the together design procedures and guidelines for the management of the ox-plough project.

8.6.7 Tree Planting

The Environmental Social Impact Statement for the upgrade of the road project has a component on climate change and mitigation. Moyo district just like any other district in Uganda is highly susceptible to the impacts of climate change and disaster risks due to its socio-economic characteristics. Climate change and natural disasters pose serious adverse impacts on the environment, the people and their livelihoods.

The district experiences frequent and intense occurrence of prolonged dry spells (drought) and floods. These have significant impacts on the livelihoods of the local community who largely depend on natural resources and particularly agriculture as their main source of income and employment. During stakeholder consultations, communities and local leaders recommended as a form of corporate social responsibility tree planting and establishment of woodlots to replace trees that shall be destroyed during the process of bush clearing . This activity can be financed as a complimentary initiative.

A collaborative tree planting programme with National Forestry Authority , UNRA and district local governments will be designed. Through NFA, the project will undertake a site species matching in degraded areas of the otze forest reserve and establishment of wood lots on public land . NFA will take the leading role in providing technical assistance.

The initiatives listed above shall be disclosed to the stakeholders and beneficiary target groups for further discussions, acceptability and thereafter ranked according to order of preference, which exercise shall be participatory. Experience from similar service components on infrastructure development projects in the country reveal that less involvement of stakeholders in identification, prioritization and selection of service components leads to abandoned projects. To avoid this, the UNRA shall further undertake consultations with leadership and communities in the project area.

CHAPTER NINE

9 ENVIRONMENT AND SOCIAL MANAGEMENT AND MONITORING PLAN (ESMMP)

- 9.1 Overview of the ESMMP
- 9.2 Objectives of the ESMMP
- 9.3 Monitoring and Responsibilities
- 9.4 Project Reporting Commitments
- 9.5 Detailed ESMMP
- 9.6 Emergency response
- 9.7 Auditing and Review



9.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN (ESMMP)

9.1 Overview of ESMMP

UNRA is committed to African Development Bank Operational Standards. In support of this commitment, UNRA developed an Environmental and Social Management System, governed by an Environmental and Social Safeguards Policy (2016). The management system provides UNRA with a procedural framework for implementing, achieving, reviewing and maintaining her environmental and community policies and all environmental and social management targets.

This Environmental and Social Management and Monitoring Plan (ESMMP) describes site specific measures that will be implemented by the contractor and the implementing team to mitigate environmental and social impacts associated with roads development in different phases. This section describes how the Project proposes to manage the environmental and social impacts and risks that will arise during the pre-construction, construction and operation phases of the proposed Project. This is a core tool that the Contractor will use to prepare a standalone Environmental and Social Implementation Plan (ESIP). Project aspects, activities as well as management measures highlighted in Chapter 8 above have been incorporated in the ESMMP:

9.2 Objectives of the ESMMP

The ESMMP provides a link between policy and implementation, essentially, acting as a planning document, summarizing environmental and social commitments (as outlined in this ESIA) and presenting the management measures and monitoring programs to be undertaken to achieve these commitments. The ESMMP provides a framework for developing flexible and readily updateable environmental management procedures within a formal EMS.

The specific objectives of the ESMMP include:

- i) Provide a mechanism for ensuring that measures identified in the ESIA mitigate potentially adverse impacts and unforeseen or unidentified impacts are implemented until construction is complete; and
- ii) Provide a framework for UNRA's compliance, auditing and inspection programs;
- iii) ensuring continuous compliance with Ugandan legislation;
- iv) Provide assurance to regulators and stakeholders that their requirements with respect to environmental and socio-economic performance will be complied with.

9.2.1 Monitoring

Monitoring involves a routine check on the progress of implementation and the resultant effects on the environment as the project proceeds. These shall be checked against their effectiveness in reducing the negative impacts or enhancing the benefits identified in the Environmental Social Impact Statement. Monitoring procedures will comprise formulations of enforceable contractual terms to ensure contractors implement the ESMMP; certifying a project completion and handover process necessitates UNRA and NEMA approval for social-environmental aspects.

9.3 Responsibilities

The key roles, responsibilities and other requirements for the implementation of the Project ESMMP are outlined below. The project team and Project contractor will undertake internal training and education activities to ensure that Project expectations regarding environmental and social performance are achieved.

9.3.1 UNRA Project Team

UNRA will continue to provide oversight in the implementation of the Project. The Contract Manager assisted by Environmental and Social Safeguard Specialists and independent technical consultants in ESHS will be responsible for: -

- Ensure that appropriate resources are allocated to facilitate environmental and social management of the Project, including budget and human resources;
- Review for quality and recommend approval of the Contractors ESIP and the Projects Final Mitigations Plan
- Monitoring to ensure adequate compliance is achieved on the project with regards to implementing the ESH standards on the project;
- Offer Technical Guidance to the Contractor and Consultant to ensure full time compliance to EHS requirements and standards;
- Participate in providing corrective actions in cases of non-compliance;
- Participate in the Environmental and social audits;
- Monitor and ensure to no GBV cases are present on the project; among others.
- Have overall responsibility for environmental and social compliance; and
- Check that non-contractual environmental commitments are actioned.

9.3.2 Project Supervision Engineer

The Project Supervising Consultant shall be responsible for supervising the implementation of EHSS requirements on the project. The Resident Engineer and the Supervising Environmental and Social experts shall;

- i) Check that the required management and monitoring measures identified in the ESMMP are undertaken;
- ii) Check that the ESMMP and environmental and social risk assessment are regularly reviewed and updated as required;
- iii) Obtain all necessary permits for UNRA as identified.
- iv) Inspection of executed work for compliance with contract specifications;
- v) Inspection of construction areas for signs of environmental spills or emergencies; oil and fuel leaks and for compliance to safety requirements
- vi) Enforce Compliance to implementation of ESIA, Permit conditions and other regulatory requirements
- vii) Approve work methods, management plans and requests of the Contractor

9.3.3 Contractor

The contractor(s) shall:

- i) Develop a Contractor's ESMMP in line with this ESMMP prior to construction, providing detail to meet environmental and social management requirements, and to the satisfaction of the Supervision Engineer. Prior to the Operations Phase, an Operations ESMMP will also need to be developed and approved by UNRA's Project Director;
- ii) Effectively implement and manage the CEMP and OEMP to the satisfaction of Supervision Engineer;
- iii) Monitor, record, audit and conduct surveillance of the implementation and effectiveness of the CEMP/OEMP and report their effectiveness to Supervision Engineer;
- iv) Report regularly to the Supervision Engineer's Environmental and Social Specialists regarding environmental and community performance;
- v) Engage an independent, suitably qualified and experienced auditor, under the guidance of UNRA to conduct audits of implementation of the contract specifications and EIA certificate conditions;

- vi) Engage a qualified ecologist to demarcate ecological 'No-go zones' on-site and advise on any matters of ecological concern throughout the Project;
- vii) Check that all contractual commitments and conditions of the EIA Certificate are honored;
- viii) Report environmental incidents to the Supervision Engineer, UNRA and relevant government lead agencies. Furthermore, document actions taken to rectify the situation;
- ix) Check that all other requirements as described in the contract specification and other licenses, certificates and permits are complied with;
- x) Inform UNRA's and the Supervision Engineer of any queries from government lead agencies and respond accordingly;
- xi) Review and update the CEMP/OEMP during construction/operations annually or if any significant changes occur; and
- xii) Ensure that Contractor's staff and subcontractors have been appropriately trained in environmental awareness, occupational health and safety and understand the required measures for environmental and social compliance and performance.

9.3.4 Public and Government Agency Involvement

The participation of external parties in the monitoring Programme of the Project will be the subject of consultation and will be agreed between UNRA, the construction contractor/concessionaire and other Government agencies. Monitoring is expected to involve at least the following Government authorities:

- i) National Environment Management Authority (NEMA);
- ii) Ministry of Water and Environment (MWE);
- iii) Ministry of Works and Transport - Environment Liaison Unit (ELU);
- iv) Ministry of Tourism, Wildlife and Antiques (MTWA);
- v) Ministry of Gender, Labour and Social Developments (MGLSD);
- vi) Department of Occupational Safety and Health;
- vii) Directorate of Water Resources Management (DWRM);
- viii) Wetlands Management Department (WMD).
- ix) National Forestry Authority (NFA)

Government agencies especially NEMA and MTWA will be instrumental in ensuring that the appropriate mitigations as presented in the ESMMP are implemented during the project cycle.

9.4 Project Reporting Commitments

The Contractor will be required to prepare regular reports (monthly, quarterly, and annual) on environmental, social, health and safety performance. The contractor shall adopt the monthly reporting format as specified in the UNRA ESMS. On an annual basis, the Contractor will, under the guidance of UNRA, engage services of an independent environmental and social compliance auditor to determine the level of the Project's environmental and social performance.

The report will provide the information and data required to determine compliance with national legal requirements. Periodic reports on environmental and social sustainability will be made publicly available.

9.4.1 Incident and Project Grievances Reporting

a) Incident reporting

An incident is any event that impacts on, or may potentially impact on the safety, health, environment or community, or any activity resulting in regulatory non-compliance or breach of UNRA policies, standards or commitments.

The system will also allow for a reporting scheme that includes:

- i) Description of the incident and its causes;
- ii) Risk rating of the incident;
- iii) Description of corrective and preventative actions;
- iv) Description of repairs, clean-up or other remedial measures; and
- v) Actual or estimated costs of repair, clean-up or other remedial measures.

The following situations will constitute an incident:

- i) Confirmed or likely violation of any law or international agreement;
- ii) Injury or property damage;
- iii) Near miss or hazard;
- iv) Chemical spills;
- v) Spills of fuel or oil outside of primary containment areas greater than 50 L (environmental incident);
- vi) Non-contained fires within operational areas;
- vii) Uncontrolled gas emissions;
- viii) Biodiversity incidents - e.g. injured or dead animals
- ix) Employment incidents e.g. collective termination of workers, workers' strikes; and
- x) Community incidents - primarily related to community grievances, uncontrolled access within blast exclusion zones.

b) Grievance Redress Mechanism

Grievance Redress Mechanism describes routes through which the affected persons present their complaints against the project during pre-construction, construction and operation phases. It describes procedures for receiving, managing and escalating grievances. The GRM will be popularized such that every project aggrieved person has access to the mechanism. UNRA's approach to manage grievances involves formation of Grievance Management Committees (GMCs) at community, sub-county and district level. However, in this Project, there is no need to have a committee at the sub-county level. In addition, the committees already formed at the community level will be sufficient.

Key objectives of GRM are to:

- (i) Provide accessible Platform for Dialogue to resolve grievances, even for those that might have resorted to judicial proceedings;
- (ii) Ensure that mutually acceptable corrective actions are identified and implemented to address complaints;
- (iii) Provide a platform for affected persons to report their grievances be addressed; and
- (iv) Verify that complainants are satisfied with outcomes of corrective actions.

Information input to the grievance mechanism will be from 5 main sources:

- i) Community residents in the project area;
- ii) GMCs;
- iii) UNRA's client care office, Toll free;
- iv) Supervising engineer; and
- v) Project monitoring team.

Grievance management process

Step 1: Filing of a complaint: complainants will first register their cases at the site. This will ensure active participation of affected persons in resolution of grievances. This complaint will then be communicated to the Clerk of Works/ Supervising engineer and recorded in a complaint log-book at site. The log will indicate the type of grievances, Narrative of grievances, date of complaint, action taken to address complaint or reasons why the grievance resolved, information provided to

complainant and date the grievance was closed. Grievances should be lodged at any time through the Chairperson of the GMC.

Step 2: Determination of corrective action: A grievance can be solved at this stage if a responsible party (Supervising engineer) on site determines a corrective action and in consultation with the aggrieved person. A description of remedial action(s), date/time and responsible party for implementing them will be recorded in the grievance log. Grievances will be resolved, and status reported back to complainants within 1 week. If more time is required, this will be communicated clearly and in advance to the aggrieved person. For cases that are not resolved within the stipulated time, detailed investigations will be undertaken, and results discussed not more than 1 month from the time of lodging a grievance.

Step 3: Meeting with the complainant: The proposed corrective action and timeframe in which it is to be implemented will be discussed with the complainant within 5 days of receipt of the grievance. Consent to proceed with corrective action will be sought from the complainant and witnessed by the area's local council chairperson (LC Chairman) and village GMC.

Step 4: Implementation of corrective action: Agreed corrective action will be undertaken by the project or its contractor within the agreed timeframe. Details of corrective action will be recorded in the grievance log.

Step 5: Substantiation of corrective action: To verify satisfaction, the aggrieved person will be asked to return and resume the grievance process, if not satisfied with the corrective action.

Step 6: Action by UNRA and contractor: If the Clerk of Works cannot solve the grievance, she/he will refer it to UNRA (and contractor) through the Supervising Engineer. It is believed all possible grievances can be solved at this level.

The grievance management process as illustrated in Figure 34.

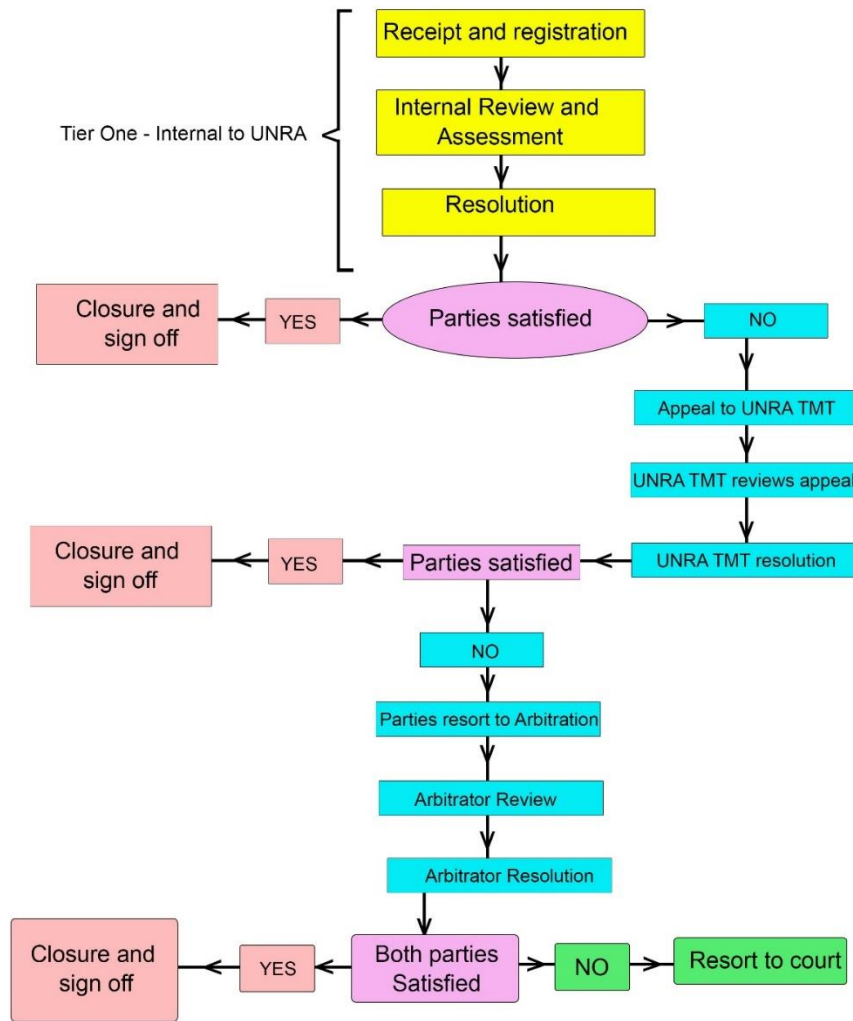


Figure 34: The grievance management process

9.5 Detailed ESMMP

The detailed ESMMP is provided in table 50 below;

Table 50: Detailed Environmental and Social Management and Monitoring Plan (ESMMP)

	Impact/ Mitigation/ Enhancement and Commitments	Preferred Outcomes	Monitoring/ performance Indicators	Frequency	Timing	Responsible party	Incremental Costs (\$)	Capacity Building Requirements
A		Positive impacts on Socio-economic environment						
1	<p><u>Impact:</u> Creation of business opportunities</p> <p><u>Enhancement(s):</u></p> <ul style="list-style-type: none"> ▪ Encourage Ministry of Health SOPs for COVID19. ▪ The contractor shall control dust during road construction. ▪ Gazette places for food and refreshments ▪ Conduct road safety awareness sessions for the community member to reduce on road traffic incidents 	<ul style="list-style-type: none"> i. Development of small enterprises at campsite ii. Supply of construction materials by Local residents iii. Increase merchandise in retail and wholesale business in Trading centers 	<ul style="list-style-type: none"> • Number of local businesses developed • Number of self-employed youth due to road project • Sales of both retail and wholesale business in trading centers • Complaints from community 	Daily	Construction period	<ul style="list-style-type: none"> - Contractor - Local Authorities - UNRA 	20,0004	Basic training on OHS for owners of small enterprises at campsites
2	<p><u>Impact:</u> Appreciation of property value</p> <p><u>Enhancement(s):</u></p> <ul style="list-style-type: none"> ▪ Sensitize residents on land tenure 	High premiums to landowners	% increase in land premiums over the years	annually	Operation	<ul style="list-style-type: none"> - Local Authorities 	Not applicable	-
3	<p><u>Impact:</u> Employment opportunities</p> <p><u>Enhancement(s):</u></p> <ul style="list-style-type: none"> ▪ Local leaders should be Consulted in the recruitment process. ▪ Ensure fair and full participation of local communities ▪ Implement Health SOPs for COVID19. ▪ Ensure fair wages <ul style="list-style-type: none"> ▪ Skilling of PAPs to enhance agricultural based livelihoods 	<ul style="list-style-type: none"> i. Increase in employment of skilled and unskilled labor. ii. Improved social wellbeing 	<ul style="list-style-type: none"> • Percentage of employed youth • Number of employed women on the project • Status of social welfare 	after every 2 months	Construction period	<ul style="list-style-type: none"> - Contractor - 	38,571.4	<p>Induction training on occupational health and safety for all employees</p> <p>Skilling of PAPs to enhance agricultural based livelihoods</p>

	Impact/ Mitigation/ Enhancement and Commitments	Preferred Outcomes	Monitoring/ performance Indicators	Frequency	Timing	Responsible party	Incremental Costs (\$)	Capacity Building Requirements
4	<p><u>Impact:</u> Improved Transport and access to social services</p> <p><u>Enhancement (s):</u></p> <ul style="list-style-type: none"> ▪ Potentially flood areas within the communities should be well drainage ▪ Develop and implement travel schedules. ▪ Access roads to communal centres should not be blocked ▪ Construct bus shades at bus stops 	<p>i. Increased transportation of agricultural produce and general goods</p> <p>ii. Increased access to social centers</p>	<ul style="list-style-type: none"> • Amount of agricultural produce transported to and from the project area • Number of transport routes to neighboring large towns. • Percentage drops in travel time on different road sections. • Transport costs 	monthly	Operation	- Contractor	15,000 for sensitiation	<p>Sensitize safe use of roads to school children, Drivers, and Boda-boda riders.</p> <p>Comprehensively instill the interpretation of road signs</p>
5	<p><u>Impact:</u> Enhancing Gender and social Development</p> <p><u>Enhancement (s):</u></p> <ul style="list-style-type: none"> ▪ Promote HIV/AIDS awareness campaigns. ▪ Promote COVID19 awareness campaigns ▪ Environmental cleanliness and hygiene campaigns ▪ provision of alternative sources of potable water during periods of interruption in water supply ▪ Ring fence less manual jobs like road traffic control for women ▪ Offer apprenticeship to community members especially the youth and women 	<p>i. Women taking up several the skilled, semi-skilled, and unskilled employment positions of the workforce in the project during implementation</p> <p>ii. Women taking the lead in all awareness campaigns</p> <p>iii. Enhanced skills for the community members</p>	<ul style="list-style-type: none"> • Number of on-going social campaigns • Changes in social behaviors • Number of community members on apprenticeship 	Weekly	construction and Operation	- Contractor	150,000	<p>Training in HIV/AIDS counseling</p> <p>Training in Primary Health Care</p>

	Impact/ Mitigation/ Enhancement and Commitments	Preferred Outcomes	Monitoring/ performance Indicators	Frequency	Timing	Responsible party	Incremental Costs (\$)	Capacity Building Requirements
	▪		•					
B	Negative impacts on Socio-Economic environment							
7	<p><u>Impacts:</u> Social expectations in anticipation for jobs, compensation, speculation and hostility from affected communities</p> <p><u>Mitigation:</u></p> <ul style="list-style-type: none"> ▪ Information regarding the project should be transparently disseminated to the community. ▪ Community engagements should be continuous from commencement of studies throughout the project cycle so that all concerns are addressed. 	<ul style="list-style-type: none"> i. Controlled expectations, ii. Fair and adequate compensation 	<ul style="list-style-type: none"> I. Stakeholder engagements conducted, ii. Grievance redress committees established, i. Resettlement Action Plan ii. Disclosure of valuation report iii. Comments from PAPs 	During feasibility, ESIA and RAP studies, mobilization and before works commence	Pre-construction	UNRA,	Conducted	Not Applicable
9	<p><u>Impact:</u> Location of camps in sensitive environmental and social setups, designing of camps with inadequate amenities and construction impacts</p> <p><u>Mitigation</u></p> <ul style="list-style-type: none"> ▪ Camps should not be established in Moyo Town ▪ Impalimentation of SOPs for Covid19 Pandemic ▪ The plans of camps should conform to standard planning requirements and the plans should have approvals from relevant planning authorities and UNRA 	<p>No camps located in sensitive social areas</p> <p>Camp designs addressing national requirements and international best practices.</p>	<ul style="list-style-type: none"> •Preparation of environmental and social planning tools •Plans and designs addressing amenity requirements for camps •Approvals/ Permits for establishment of camps. 	During mobilization, before works commence	Pre-construction	CContractor	Inbuilt in Contractor's price.	Not Applicable

	Impact/ Mitigation/ Enhancement and Commitments	Preferred Outcomes	Monitoring/ performance Indicators	Frequency	Timing	Responsible party	Incremental Costs (\$)	Capacity Building Requirements
10	<p><u>Impact:</u> Inadequacy of integration of environmental and social considerations into design feasibility assessment resulting into poor and inappropriate environmental and social safeguards of the project.</p> <p><u>Mitigation:</u></p> <ul style="list-style-type: none"> ▪ Conduct comprehensive studies covering environmental and socio-economic issues. ▪ Undertaking environmental and social planning with the feasibility and engineering design team. 	Feasibility and engineering design that addresses environmental and social considerations	Consultative meetings held with the feasibility and engineering team Designs that have address environmental and social concerns	Before, During and after the studies (ESIA, Feasibility and engineering design, RAP)	Pre-construction	UNRA	Not Applicable	Not Applicable
11	<p><u>Impact:</u> Increased HIV/AIDs and other illnesses due to influx of workers</p> <p><u>Mitigation (s):</u></p> <ul style="list-style-type: none"> ▪ Develop and implement an HIV/AIDs Policy ▪ Observe SOPs fro Covid19 pandemic ▪ HIV/AIDs sensitization programs shall be conducted at the workers' camps 	<p>i. Zero new infections among young teenagers.</p> <p>ii. Reduced rate of HIV/AIDs transmission</p> <p>iii. Improved HIV/AIDs services</p>	• Number of new infections. rate of HIV transmission	Monthly	construction	- Contractor -	\$8000 for HIV training	Training in HIV/AIDS counseling
12	<p><u>Impact:</u> Environmental contamination due to hazardous waste from Workers' camps</p> <p><u>Mitigation (s):</u></p> <ul style="list-style-type: none"> ▪ Preparation and implementation of a Waste Management Plan ▪ Preparation and implementation of a Health and Safety plan 	<p>i. High degree of sanitation at the campsite</p> <p>ii. Protection of public health and the environment.</p>	<p>Frequency of waste collection</p> <p>Prevalence of sanitation related illness</p> <p>Sanitation related complaints from the communities</p>	Daily	Construction	- Contractor's Environment management Team - Contractor's CLO	75,000	None

	Impact/ Mitigation/ Enhancement and Commitments	Preferred Outcomes	Monitoring/ performance Indicators	Frequency	Timing	Responsible party	Incremental Costs (\$)	Capacity Building Requirements
	<ul style="list-style-type: none"> ▪ Locate worker's camps and equipment yards away from communities. ▪ Screen off site to intrusion by community ▪ Develop rational waste management systems ▪ Transportation and disposal of hazardous waste will be undertaken by licensed transporters to facilities licensed for storage and disposal of hazardous waste. ▪ The waste should be sorted, and resources recovered. Biodegradable waste shall be transported to Moyo Municipal waste composite plant while recyclable waste will be transported to recycling plants. ▪ Operationalize a Management plan for construction waste ▪ Enforce buffer distance regulations from surface water sources ▪ Preparation and implementation of a hazardous waste management plan ▪ Develop onsite sewage management systems ▪ Develop an elaborate primary health care Programme ▪ Health and Safety education Programme. ▪ Provide drinking water at the campsite and different workstations. ▪ Design vehicle wash areas so as not to contaminate the environment. 	iii. Zero exposure to hazardous substances						

	Impact/ Mitigation/ Enhancement and Commitments	Preferred Outcomes	Monitoring/ performance Indicators	Frequency	Timing	Responsible party	Incremental Costs (\$)	Capacity Building Requirements
	<ul style="list-style-type: none"> Hazardous waste should be stored in facilities designed and licensed for storage of hazardous waste by NEMA 							
13	<p>Impact: Prostitution, crime, insecurity and drug abuse due to influx of people</p> <p>Mitigation (s):</p> <ul style="list-style-type: none"> Prepare and implement a Security Management Plan with clear measures to protect workers and communities. The contractor shall involve local (LC) leaders in labor recruitment to ensure people hired have no criminal record. Local authorities and the contractor shall collaborate with police to contain criminal activities and drug abuse. The contractor shall sub-contract a local security firm to take charge of Camps and Machine yard security 	<p>i. Amicable working environment</p> <p>ii. Contained cases of prostitution, drug abuse and crime</p>	<ul style="list-style-type: none"> Crime rates Prostitution rates 	Daily	Construction	- Contractor's Sociologist	\$5,000 for Health Camps	<p>Conduct regular Health camps and sensitize all employees on dangers of drugs, prostitution.</p> <p>Sensitize workers on crimes and promote neighborhood watch</p>
14	<p>Impact: Loss of agricultural land, property, perennial crops and businesses</p> <p>Mitigation (s):</p> <ul style="list-style-type: none"> Preparation, approval by CGV and implementation of the RAP Adequate, fair, and prompt compensation and resettlement of PAPs will be done before project construction activities commence. Communicating to the PAPs early enough on the schedules of the project 	<p>i. Adequate, fair, and prompt compensation and resettlement of PAPs.</p> <p>ii. Effective and well-organized communication between the PAPs and the contractor.</p>	<ul style="list-style-type: none"> Stability of the communities and other stakeholders. Number of Complaints rose to Grievances Management Committees. Number of meetings 	Monthly for first 6 months	Construction	<ul style="list-style-type: none"> UNRA for the road Contractor all the other associated facilities and during road works - 	4,194,324	None

	Impact/ Mitigation/ Enhancement and Commitments	Preferred Outcomes	Monitoring/ performance Indicators	Frequency	Timing	Responsible party	Incremental Costs (\$)	Capacity Building Requirements
	<p>so that, they can adjust on a number of their livelihood's plans.</p> <ul style="list-style-type: none"> RAP will define mechanisms for the Resettlement of some of the PAPs as their needs may demand. 	iii. Community stability.	organized between the contractor and PAPs.					
15	<p><u>Impact:</u> Disruption of schools and learning processes by Noise, Vibrations and dust</p> <p><u>Mitigations(s)</u></p> <ul style="list-style-type: none"> Sensitize School administration about the project and associated impacts Observe speed limits and general order while working across sections of schools Where schools exposed to the road, there should be provisions to screen off. Zero dust emissions by regular watering There will be erected speed control humps across sections of roads near the schools. 	<p>iv. Uninterrupted school activities and learning schedules</p> <p>v. Timely arrival of students/ pupils at school and back home</p>	<ul style="list-style-type: none"> School attendances Cases of dust related illnesses among students/pupils teachers and students' Time of arrival 	Weekly	Construction	- Contractor's Sociologist	20,000	None
16	<p><u>Impact:</u> Potential of child abuse e.g. child pregnancy/ marriage, sex work, school dropout and defilement</p> <p><u>Mitigations</u></p> <ul style="list-style-type: none"> A child protection plan will be developed and provided to local stakeholders Discourage contractors from using children as laborers Ensure that community have access to and know of and report abuse using the national child abuse hotline 116 	<p>Violence free childhood</p> <p>Incessant school life</p>	<p>i. Number of child abuse cases</p> <p>ii. Rate of school dropouts</p> <p>iii. Premature pregnancies</p>	Weekly	construction	- Contractor	70,000	None

	Impact/ Mitigation/ Enhancement and Commitments	Preferred Outcomes	Monitoring/ performance Indicators	Frequency	Timing	Responsible party	Incremental Costs (\$)	Capacity Building Requirements
	<ul style="list-style-type: none"> ▪ Hoard off construction sites to ensure controlled interaction between children and workers ▪ Ensure close monitoring of worker's behavior/conduct are in place ▪ Parents/guardians should be sensitized and held accountable for children leaving and arriving home before dark 							
17	<p>Impact: Social order disruption: Increased gender-based violence</p> <p>Mitigation (s):</p> <ul style="list-style-type: none"> i. Female workers will be sensitized on their sexual rights. ii. Have policies to promote non-discrimination and equal opportunities iii. Establish zero tolerance policies and codes of conduct related to violence against women and girls (VAWG). iv. Adequate briefing and education on the laws against defilement and other sexual offences. v. There will be gender sensitivity in the project with respect to facilities (toilets and bath shelters). 	<p>Violence free community</p> <p>Protection of women and girls' rights</p>	Cases of gender-based violence	Weekly	Construction	- Contractor	Not applicable	Sensitize workers on their rights, gender based issues.
18	<p>Impact: Public health and safety hazards from material sources & Construction activities.</p> <p>Mitigation (s)</p> <ul style="list-style-type: none"> ▪ Observe the SOPs for Covid19 pandemic ▪ Preparation of Environmental and Social planning tools i.e. a standalone 	<ul style="list-style-type: none"> - No accidents result from project activities - No public health problems result from project facilities. 	<ul style="list-style-type: none"> - Incident/accident reports involving the public - Availability of a Health and Safety plan 	Daily	Construction	-UNRA -Contractor 's Environmental Team	250,000-	-

	Impact/ Mitigation/ Enhancement and Commitments	Preferred Outcomes	Monitoring/ performance Indicators	Frequency	Timing	Responsible party	Incremental Costs (\$)	Capacity Building Requirements
	<p>ESIA, Project Briefs, Obtaining approvals from lead agencies</p> <ul style="list-style-type: none"> ▪ Preparation and implement of Health and Safety Plan, ▪ Health and Safety education Programme. ▪ Provision of right PPE to entire construction crew. ▪ Preparation and implement of a Traffic Management Plans ▪ Enforce a strict blasting schedule and install a community warning system ▪ Quarry sites should be located away from settlements. 							
19	<p><u>Impact</u> Impacts on vulnerable groups</p> <p><u>Mitigation (s)</u> Provide access facilities for vulnerable (women, children, elderly, blind) people along the project area.</p> <p>Institute and enforce a sexual harassment policy.</p> <p>Children below 18 years should not be recruited</p>	Preserve rights of vulnerable people	Complaints from vulnerable people	weekly	Construction and operation	- Contractor -	375,428.5714	-
20	<p><u>Impact:</u> Temporary loss of livelihoods</p> <p><u>Mitigation (s)</u></p>	Affected people find alternative livelihoods.	Level of litigation involving communities and road contractors	Monthly	Construction phase	- Contractor - UNRA -	34285.71429	Vocational skills trainings

	Impact/ Mitigation/ Enhancement and Commitments	Preferred Outcomes	Monitoring/ performance Indicators	Frequency	Timing	Responsible party	Incremental Costs (\$)	Capacity Building Requirements
	<ul style="list-style-type: none"> Give timely notice to affected business units. Follow relevant compensation procedures. 	Community wellbeing does not decline.						
21	<p>Impact: Occupational Hazards and Risks</p> <p>Mitigation (s)</p> <ul style="list-style-type: none"> Prepare and implement an Occupational Safety and Health Plan in line with Occupational Safety and Health Act of 2016 including; induction training to all workers on OHS Observe the SOPs for Covi19 Pandemic A professional t Safety manager will recruited and deployed on the project by the Contractor Work place safety committees will be set up on the projects Contingency and Emergency Plan 	<ul style="list-style-type: none"> No injuries to workers Reduced risks to the work force 	<p>Number of injuries reported per day during the construction phase.</p> <p>Availability of a safety management plan approved by the employer</p> <p>Deployment of a competent Safety Manager on a full time basis</p> <p>Existence of functional safety committees</p>	Daily	Construct ion phase	- Contractor	Catered for in item 18 in this ESMMP	Occupational Hazards and Risks training
22	<p>Impact: Air pollution from dust</p> <p>Mitigation (s)</p> <ol style="list-style-type: none"> Prepare and implement a dust, noise and vibration management plan Construction sites, transportation routes and materials handling tools will implement dust suppression measures including water spraying on dry and windy days and speed reduction 	Improved air quality with suspended particulate matter with national and international limits	<p>Level of suspended particulate matter in air at areas under construction</p> <p>Level of complaints from the public</p>	Daily	Construct ion	<ul style="list-style-type: none"> - Contractor - UNRA - 	Catered for in item 18 in this ESMMP	-

	Impact/ Mitigation/ Enhancement and Commitments	Preferred Outcomes	Monitoring/ performance Indicators	Frequency	Timing	Responsible party	Incremental Costs (\$)	Capacity Building Requirements
	<p>measures such as humps to reduce dust emissions</p> <p>iii. The speed limit should not exceed 40km/hr during construction.</p> <p>iv. Cover trucks transporting construction materials</p>							
23	<p><u>Impact:</u> Storage of construction materials, accidental spills and fires</p> <p><u>Mitigation (s)</u></p> <p>i. Avoid open stock piling</p> <p>ii. Construct silos for long time storage</p> <p>iii. Provide bunded storage for fuels</p> <p>iv. Install fire suppression systems</p> <p>v. Design ware house safety manual</p> <p>vi. Maintain a portable spill control pack.</p>	<p>Pollutants resulting from warehouse activities do not contaminate the surrounding environment.</p> <p>Always ensure worker safety in the warehouse</p>	<p>Regular audits on performance of pollution control systems</p>	<p>After every 3 months</p>	<p>construction</p>	<p>- Contractor</p> <p>-</p>	<p>Catered for in item 18 in this ESMMP</p>	<p>Training hazardous waste handling and fire fighting for warehouse personnel</p>
24	<p><u>Impact:</u> Increased noise and vibration levels</p> <p><u>Mitigation (s)</u></p> <p>i. Prepare and implement a dust, noise and vibration management plan</p> <p>ii. Schedule construction activities near school during weekends or during school holidays</p> <p>iii. Working hours will be restricted from 0700Hrs to 1900Hrs around community settlements.</p> <p>iv. Building close to sites should be monitored for any impacts from vibrations. Damages buildings will be repaired.</p>	<p>Noise released does not exceed maximum permitted national standards.</p>	<p>Monitored noise levels at construction sites</p> <p>Level of complaints from the public</p>	<p>Daily</p>	<p>Construction and Operation</p>	<p>- Contractor</p> <p>- Contractor</p>	<p>None</p>	<p>none</p>

	Impact/ Mitigation/ Enhancement and Commitments	Preferred Outcomes	Monitoring/ performance Indicators	Frequency	Timing	Responsible party	Incremental Costs (\$)	Capacity Building Requirements
	<p>i.Ensure vehicle and equipment maintenance schedules are followed.</p> <p>ii.<u>Vehicles and equipment generating excessive noise shall not be operated on the project.</u></p> <p>iii.<u>Workers should be provided with appropriate ear protective devices.</u></p>							
25	<p><u>Impact:</u> Disruption of roadside trade</p> <p><u>Mitigation (s):</u> i. Resettlement Action Plan (RAP) will be prepared and implemented to ensure that project affected persons are appropriately compensated ii. Project Affected Persons (PAPs) will be notified and given sufficient time to relocate if their structures are affected</p>	Grievance free communities	Number of unsolved cases	Daily	Construction and Operation	- UNRA	Catered for in item 20 in this ESMMP	None
26	<p><u>Impact:</u> Cliffs resulting from deep cuts</p> <p><u>Mitigation (s)</u> i. Protect road embankments and slopes with stone walls, Gabions, erosion control mats. ii. Plant vegetation on graded embankments and slopes to improve aesthetic beauty</p>	Controlled erosion and sedimentation of water bodies from road embankments and slopes	<p>Rate of siltation in nearby surface water</p> <p>Rate of rill formation on roadsides</p>	Weekly	Construction and operation phases	- Contractors	180,000	None
27	<p><u>Impact:</u> Conflict in water use</p> <p><u>Mitigation (s):</u></p>	Consistent water supply in the communities	Accessibility to water	Daily	Construction and operation	- Contractor	70,000	None

	Impact/ Mitigation/ Enhancement and Commitments	Preferred Outcomes	Monitoring/ performance Indicators	Frequency	Timing	Responsible party	Incremental Costs (\$)	Capacity Building Requirements
	<ul style="list-style-type: none"> iii. Identify and relocate all affected water sources before the project commences. iv. The contractor should arrange his own water supply plan v. Consultation with local authorities before using existing water sources 							
28	<p><u>Impact:</u> Inconveniences due to traffic diversions</p> <p><u>Mitigation (s):</u></p> <ul style="list-style-type: none"> i. Preparation and implementation of Traffic Management Plan ii. Place signs warning road users about traffic detours. iii. Have guides at detours to organize traffic. 	Alternative routes for all road users	Time spent on the road	Daily	Construction	- Contractor	Inbuilt in Contractor's price.	None
29	<p><u>Impact:</u> Increased road accidents</p> <p><u>Mitigation (s):</u></p> <ul style="list-style-type: none"> i. Preparation and implementation of Traffic Management Plan ii. Mark off accident hotspots with appropriate road signs. iii. Provide necessary road signs along the constructed roads. iv. Conduct road safety campaigns for vulnerable groups like children. v. Installation of humps and speed control measures. 	roads safety for all users	Number of road accidents	Monthly	Construction and operation	- Contractor	Catered for in item 18 in this ESMMP	Road safety campaigns for vulnerable groups like School children.

	Impact/ Mitigation/ Enhancement and Commitments	Preferred Outcomes	Monitoring/ performance Indicators	Frequency	Timing	Responsible party	Incremental Costs (\$)	Capacity Building Requirements
30	<p>Impacts : Social discrimination, unequal treatment and harassment at the work place</p> <p>Mitigation(s):</p> <ul style="list-style-type: none"> ▪ Develop policies to promote non-discrimination and promote equal treatment and communicate them to Workers, managers and supervisor ▪ Ensure that decisions on hiring, working conditions, pay benefits, termination are not made based on discrimination grounds. ▪ Ensure that women and men are paid the same wages for work of the same value. ▪ Employ competent Human Resource manager. 	Non-discrimination, unequal treatment and non-harassment at the work place	Policies on non-discrimination, unequal treatment and non-harassment at the work place	Continuous		CContractor	Catered for in item 05 in this ESMMP	
Negative impacts on Biological environment								
31	<p>Impact: Impacts from poor disposal of spoil including; disposal in sensitive ecosystems, interruption of hydrological systems,</p> <p>Mitigations:</p> <ol style="list-style-type: none"> i. Prepare and implement a spoil management plan before commencing earthworks ii. Desired quality materials from earthworks should be filled within the carriage way iii. Use spoil material in borrow pit restoration. 	<ul style="list-style-type: none"> - Resource recovery of spoil materials - Protection of sensitive ecosystems - Maintaining the integrity of the landscape 	<ul style="list-style-type: none"> -Spoil management Plan -Integrity of the ecosystem -Landscape stability 	Daily	Construct ion	Contractor	80,000	

	Impact/ Mitigation/ Enhancement and Commitments	Preferred Outcomes	Monitoring/ performance Indicators	Frequency	Timing	Responsible party	Incremental Costs (\$)	Capacity Building Requirements
	<ul style="list-style-type: none"> iv. Properly store spoil for re-use during rehabilitation of embankments and slope. v. Landscaping along the road vi. Do not stockpile near sensitive environments like wetlands. 							
32	<p>Impact: Spread of invasive/ alien species</p> <p>Mitigation (s):</p> <ul style="list-style-type: none"> i. manage the existing invasive plant species spread through sensitizations ii. Ensure no foreign plant species are introduced in the project area iii. Efforts through mechanical elimination of invasive plants within the project areas should be made 	Invasive species free areas	Diversity and occurrence of invasive species	After every 3 months during audits	Construction and operation	- Contractors' Floral Ecologist	50,000	Sensitize workers on invasive species
33	<p>Impact: Reduction of Muvule Trees and other trees of conservation importance</p> <p>Mitigation (s):</p> <ul style="list-style-type: none"> i. Resettlement Action Plan (RAP) will be prepared to ensure that project affected persons are appropriately compensated ii. Avoid cutting Muvule trees and other trees of conservation importance. iii. Plant trees along the road corridors in communities. 	Maintaining Muvule Tree cover in the project area	Number of Muvule Trees maintained in the project area	Weekly	Construction and operation	- Contractors' Ecologists) - UNRA's Environmentalist	Catered for in item 45 in this ESMMP	None
34	<p>Impact: Accumulation of waste</p> <p>Mitigation (s):</p> <ul style="list-style-type: none"> i. Maintain a realistic buffer distance from the Albert Nile 	Proper waste management	Amount and prevalence of waste generated	Daily	Construction	- Contractors' Environmental Management Team	Catered for in item 12 in this ESMMP	-

	Impact/ Mitigation/ Enhancement and Commitments	Preferred Outcomes	Monitoring/ performance Indicators	Frequency	Timing	Responsible party	Incremental Costs (\$)	Capacity Building Requirements
	<ul style="list-style-type: none"> ii. Develop waste management system. iii. Solid waste disposal sites will be located away from watercourses and have restricted access. iv. Wherever feasible, waste recovery and reuse will be undertaken. 							
41	<p><u>Impact:</u> Pollution of Soil, air and Water</p> <p><u>Mitigation (s):</u></p> <ul style="list-style-type: none"> i. Solid waste disposal sites will be located away from watercourses and have restricted access. ii. Establish a cut off drain on the upper slopes of the site iii. Establish sediment traps/basins on the lower slopes iv. Ensure that potentially contaminated runoff from storage areas should be drained through oil traps. v. Avoid open stock piling vi. Construct silos for long time storage vii. Provide bunded storage for fuels 	Pollutants resulting from warehouse activities do not contaminate the surrounding environment.	Regular audits on performance of pollution control systems	Daily	Quarterly audits	Contractor	Catered for in item 12 in this ESMP	Training hazardous waste handling for warehouse personnel, camp attendants
42	<p><u>Impact:</u> Physical cultural impacts</p> <p><u>Mitigation (s):</u> Construction activities should comply with mitigation actions prescribed in PCR study and Cultural Resources Management Plan (Table 42)</p>	Zero impact on PCR during construction	<ul style="list-style-type: none"> -Training of workers conducted in PCR conservation. - PCR inspection report. 	Daily and quarterly audits	Throughout construction	- Contractors -	20,000 for chance findings & engagement of DMMs	none
44	<p><u>Impact:</u> Contribution to climate change</p> <p><u>Mitigation (s):</u></p> <ul style="list-style-type: none"> i. All combustion equipment on site including operational machinery and generators should be serviced regularly. 	Zero contribution to climate change	<ul style="list-style-type: none"> - Number of Trees planted with the road corridor - Monthly machinery servicing report 	monthly	Construction and operation	Contractor	Inbuilt in Contractor's price for machinery servicing	Basic training in Tree planting

	Impact/ Mitigation/ Enhancement and Commitments	Preferred Outcomes	Monitoring/ performance Indicators	Frequency	Timing	Responsible party	Incremental Costs (\$)	Capacity Building Requirements
	<ul style="list-style-type: none"> ii. Avoid using dilapidated machinery. iii. All on site burning should be done and controlled under a proper chimney. 							
45	<p><u>Climate Change Impacts and Biodiversity Restoration</u></p> <ul style="list-style-type: none"> i). Domestic water shortage; ii). displacement of people due to Severe flooding along the Nile; iii). Food shortages and iv). Distruption of transport activities due to Severe flooding <p><u>Mitigations measures</u></p> <ul style="list-style-type: none"> i). High carbon sequestrating tree planting should be planted along road corridors in communities at an interval of 10m on both sides of the road. ii). Avoid cutting trees as much as possible, Retaining Most trees as much as possible iii). Building resilient road structures iv). Encouraging communities to re-afforestation 	Increased Tree cover within the project area	Number of trees within the project areas	After every rainy season	Rainy seasons	UNRA, Contractor,	\$250,000	Basic Training in tree plant, mass awareness through media

9.5.1 List of Complementary initiatives deduced from ESMMP and other Complimentary Initiatives

Table 51: Estimated costs for proposed complementary initiatives in the ESMMP and other Complimentary Initiatives

SN	Impact/ Mitigation/ Enhancement and Commitments	Estimated Cost in UGX Billion	Estimated Cost in US \$	Capacity Building Requirements
ESMMP				
1	Training of Environment and Social staff on the project	0.22	62,000	Training in OSH, Environment and Social
2	2 Technical consultants in ESHS	0.16	45,000	-
3	Conducting Occupational Safety and Health training: including SOPs for COVID19 pandemic, community awareness on road safety	0.08	22,000	Basic training on OSH for all workers
4	Enhancing Gender and social Development	0.6	150,000	Training in HIV/AIDS counseling, Training in Primary Health Care
5	Increased HIV/AIDs illnesses awareness, HBV, prevention of Prostitution, crime, insecurity and drug abuse due to influx of people	0.05	13,000	Training in HIV/AIDS counseling
6	Prevention of child abuse e.g., child pregnancy/ marriage, sex work, school dropout and defilement	0.25	70,000	None
7	Increase in water availability to reduce water conflict	0.25	70,000	None
8	Climate change and Biodiversity Restoration, Habitat integrity: avoid Spread of invasive/ alien species, Conservation of Muvule Trees and other trees of conservation importance; Comprehensive tree planting and reforestation.	1	383,000	Sensitize workers on invasive species, Basic Training in tree plant, mass awareness through media
9	Protection of physical cultural resources by facilitating chance findings & engagement of DMMs	0.08	22,680	None
10		19. 485	5,524,525	None

SN	Impact/ Mitigation/ Enhancement and Commitments	Estimated Cost in UGX Billion	Estimated Cost in US \$	Capacity Building Requirements
ESMMP				
	RAP implementation and Audits			
11	Sub-Total	22.175	6,362,205	

Complimentary initiative to be included in Works Budget				
1	Refurbishment of a Trauma centre , supply of required medical equipment and ambulance as well as training of staff / Road safety sensitisations and awareness creation	0.8	140, 000	Training will cover health officials in handling post-crash victims & local leadership
2	Construction and Rehabilitation of Community Access Roads, Town roads and street lighting	2	570,000	None
3	Awareness creation on gender and prevention of Gender-Based Violence, strengthening of referral pathways and support to survivors.	0.5	142,000	None
		0.5	142, 000	
4	Construction of road side market stalls in Moyo and Laropi town	2	570,000	None
5	Training of unemployed youth and women in labour based methods and supply of tools	2	570,000	Tooling Women with skills
	Sub - TOTAL	3.7	1,710,000	
	Grand Total	26.14	8,072,205	

Footnote: 1US Dollar =UGX 3527 as at 30 June 2021

The Bank and GOU will finance Complimentary initiatives and the ESMMP.

9.6 Project Decommissioning and Restoration

At project completion, a decommissioning and restoration plan for the auxiliary components (e.g. material source sites, camps, asphalt plant, material stockpile sites etc.) that facilitated construction of this project will be prepared. This shall be reviewed by UNRA and finally submitted to NEMA for approval. This plan will be developed by the contractor in close consultation with the Supervising Consultant, and all the relevant stakeholders, such that the plan addresses all the concerns that need to be considered in the decommissioning and restoration plan. The proposed decommissioning and restoration strategy shall be detailed to consider the prevailing conditions then.

9.6.1 Rehabilitation of Auxiliary facilities

The contracts/lease agreements negotiated with landowners, NEMA conditions of approval and regulatory requirements shall be considered during the process. Where decommissioning is to occur rehabilitation will be necessary in the following areas:

- Concrete and compacted earth platforms set up for temporary structures;
- Removal of temporary ablutions; and
- Access roads running into and through the camps.

The following measures and procedures will be followed.

- Concrete platforms will, be broken up and rubble taken to an appropriate waste disposal site (non-hazardous rubble will be used to backfill quarry pits). The exposed surface will be checked for contaminants and if any is found, the contaminated soil will be removed along with the concrete to the waste disposal site. The re-vegetation process as prescribed below will then be followed.
- Soil containing contaminated soil in the compacted earth platforms will be removed according to the method described above.
- A licensed company shall be contacted to adequately dispose of contaminated soils;
- All agreements signed on this project between the contractor and the locals shall have in them a restoration clause, that will bind the Contractor to undertake adequate restorations;
- All temporary ablutions will be removed from site on dismantling of the construction camp and the pits back filled.
- Compacted and un-compacted earth platforms, as well as temporary access roads required during construction, will be rehabilitated according to the prescribed rehabilitation and re-vegetation method.
- Landscaping and Preparation for Re-vegetation
 - Areas that require reshaping shall be cut, filled and compacted to follow the contours of the surrounding Landscape.
 - Topsoil initially removed will be spread on the subsoil during shaping operations.
 - In areas where a crust has formed on the soil before re-vegetation is commenced, the crust will be loosened by scarifying to a depth of approximately 100 - 150 mm.
 - Topsoil will be replaced at a minimum uniform depth of 150 mm.

9.6.2 Project completion

On completion of the construction phase of the project, all environmental components disturbed by the project shall be restored back to as near as possible their original state in line with provisions of the National Environment Act, Cap 2019 and ESIA conditions of approval. The contractor shall prepare a **Final Mitigations report** indicating how all environmental and social issues of the project have been

managed and mitigated. UNRA and relevant stakeholders shall review the report and inspect the project to verify closure of all outstanding Environment and social concerns. The Contractor shall be required to implement any other before issuance of approval by the Supervising Engineer. The Contractor shall be issued with a Certificate of Compliance to Safeguards which shall be a basis for issuance of the final completion certificate for the project. The final certificate of completion and final payment of the contractor shall not be issued if there are still outstanding environmental and social noncompliance issues.

10. CONCLUSION AND RECOMMENDATIONS

10.1 Conclusion

The proposed Road project will support regional Development and connectivity within West Nile, providing an opportunity for equal development in the Country. This road upgrade is anticipated to result into positive socio-economic impacts including creation of employment opportunities for both skilled and unskilled labor during all project cycles, business opportunities during construction phase, increased income from agricultural produce and trade, improved access and delivery of social services during the operational phase. Furthermore, implementation of Climate change impact mitigations will be advantageous to the project area and entire region.

The major potential socio-economic negative impacts will be the loss of agricultural land, property and perennial crops and population influx and its associated impacts within the host community. Population influx is associated with increased HIV/AIDS and other sexually transmitted diseases, dominance of migrant workers on employment opportunities, prostitution, crime and drug abuse, child abuse, disruption of families and conflict over water resources especially in the water stressed districts. Additionally, cumulative impacts were identified, and their mitigations will need a concerted effort of all developers within the project areas including UNRA and other development partners.

The study recommends active involvement of local leaders, and community members in the process of land acquisition for the project and subsequent project implementation activities. Gender sensitive interventions aimed at improving household livelihoods and a deliberate and effective communication strategy to improve community attitudes about the project is also recommended. Adequate and prompt compensation and resettlement of PAPs should be done before project constructions activities commence as well as timely communication to PAPs on schedules of project activities to enable them to adjust their livelihoods. The project area traverses highly sensitive Physical Cultural Resources which should be preserved, and the proposed Physical Cultural Management and Monitoring Plan should be implemented during construction. Necessary precautions should be taken while working along all identified Physical cultural resources. A chance find procedure should be developed and implemented throughout the project cycle. Climate change interventions have been proposed and these shall be used implemented in close collaboration with Local authorities and National Forestry Authority.

The proposed roads should be designed to support the anticipated traffic demands within the region. Engineering designs adopted should be appropriate for promotions of trade and development. The wilderness and environmental footprint in this area should be maintained as much as possible and safety measures incorporated. As a general mitigation measure, inbuilt speed reduction measures and crossing areas should be incorporated into the designs in all trading centers.

10.2 Compliance assurance

To ensure compliance, the Contractor should be required in the tender documents to prepare Environment and Social Management Frameworks (ESMFs) and standalone Environmental and Social Implementation Plans (ESIPs), Occupational Safety and Health Plan, Waste Management Plan and comprehensive Biodiversity Restoration Plan. The ESMFs and ESIPs should be reviewed and approved by UNRA or its representatives to guide implementation of environmental and social mitigation measures during the project implementation phase. This should be done before commencement of construction activities.

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APPENDICES

Appendix 1: Certificate of Approval of the ESIA from NEMA

Doc Id: 69429

18208

Original **REGISTRY RECEIVED**
Donald
16 OCT 2020
08:50
P.O. BOX 28487, KAMPALA
UGANDA NATIONAL ROADS AUTHORITY

RECEIVED
0015213
16 OCT 2020
P.O. BOX 28487, KAMPALA
UGANDA NATIONAL ROADS AUTHORITY

THE NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)
The National Environment Management Act Cap. 153
The Environmental Impact Assessment Regulations, S.I. No. 13 of 1998

Certificate of Approval of Environmental Impact Assessment
Certificate No. NEMA/EIA/ 15213

This is to certify that the Project Brief/Environmental Impact Statement
received from

M/s. UGANDA NATIONAL ROADS AUTHORITY
P. O. BOX 2848 KAMPALA

submitted in accordance with the National Environment Statute to the National Environment Management Authority (NEMA) regarding:

THE PROPOSED UPGRADING OF ATIAK-MOYO-AFOGI 103KM ROAD
(Title of Project)

briefly described as UPGRADING OF ATIAK-MOYO-AFOGI 103KM ROAD

(Nature, Purpose)
located at TRAVERSING DISTRICTS OF AMURU, ADJUMANI AND MOYO STARTING
FROM ATIAK TRADING CENTRE THROUGH LAROPI FERRY CROSSING POINT
(District/Sub-county/City/Town/Ward) IN MOYO TO AFOGI-SOUTH SUDAN BORDER

has been reviewed and was found to:

**** have significant environmental impacts and the following appropriate mitigation measures were identified and made a condition precedent for approval and implementation:**

= PLEASE TURN OVER =

(Attach relevant details where ne
Dated at KAMPALA
19TH OCTOBER, 2018

Executive Director (NEMA)

ORIGINAL: Developer; DUPLICATE: Authority; QUADRUPPLICATE: Any other relevant agency

RECEIVED
NAME: Hattman
15 OCT 2020
TIME: 12:45
UGANDA NATIONAL ROADS AUTHORITY
MAIN RECEPTION

** Delete whichever is not applicable

CONDITIONS OF APPROVAL
(Additional Information Sheet)

CONDITIONS OF APPROVAL FOR THE PROPOSED UPGRADING OF ATIAK-MOYO-
AFOGI 103KM ROAD

1. This Certificate is issued in accordance with the requirements of the National Environment Act, Cap 153, the Physical Planning Act, 2010 and the National Environment (Environment Impact Assessment) Regulations, S.I.No. 153-1 and any other applicable laws.

2. In addition to implementing the mitigation measures outlined in the Environment and Social Impact Statement, this Certificate of Approval is granted on condition that **M/S UGANDA NATIONAL ROADS AUTHORITY** complies with the approval conditions stated below:

3. ADMINISTRATIVE CONDITIONS OF CERTIFICATE

(i) Issuance of this Certificate of Approval is based on the content of information contained in the Environment and Social Impact Statement as submitted by Uganda National Roads Authority on 24th October, 2017. Uganda National Roads Authority shall be held responsible for any omissions, falsified information or any other anomalies that are contrary to the provisions of the relevant laws governing the proposed project.

(ii) This Certificate of Approval is **VALID for an initial period of 5 years** and thereafter this Certificate will be reviewed every after 5 years.

Dated at KAMPALA on 19TH OCTOBER, 2018 20x

Signed

Executive Director (NEMA)



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

- (vi) Put in place adequate soil stabilisation and erosion control mechanisms along the proposed Atiak-Moyo-Afogi 103Km road in accordance with National Environment Act, Cap. 153.
- (vii) Liaise closely with Authorities responsible for provision of public utilities including water supply, telecommunication amongst others to identify such utility infrastructure, avoid disrupting their functions, services and access by general public during implementation of the project.
- (viii) Apply an appropriate road design that will provide for a natural hydrological flow and drainage patterns along water sources so as to minimize interference with the hydrological and drainage patterns of the project affected areas.
- (ix) Compensate all project affected persons (PAPs) arising from road upgrading, in accordance with national laws governing compensation.
- (x) Obtain all the necessary permits and approvals from this Authority, Ministry of Works and Transport, Department of Occupational Safety and Health (Ministry of Gender, Labour and Social Development), Moyo, Amuru and Adjumani District Local Government Authorities, Directorate of Water Resources Management (Ministry of Water and Environment) and any other relevant authorities, **before commencement of the proposed project activities.**
- (xi) Carry out a comprehensive physical cultural survey along the area traversed by the Atiak-Moyo-Afogi (103Km) road and document the findings to take measures to protect and conserve the cultural heritage components found in accordance with the Historical Monuments Act, 1968.
- (xii) In executing the project along wetland and water resource areas, ensure no degradation or destruction of wetlands and water resources traversed by the Road in accordance with the National Environment (Wetlands, Riverbanks and Lakeshores Management) Regulations, S.I. No. 153-5.
- (xiii) Put in place appropriate and/or adequate on-site sanitary facilities separate for the respective sex of project site workers, and provide safe drinking water for site workers in accordance with the Public Health Act Cap 281 and National Environment (Standards for Discharge of Effluent into Water and Land) Regulations, S.I. No. 153-3.

NEMA House
Plot 17/19/21 Jinja Road
P.O. Box 22255, Kampala Uganda

Tel: +256-414-251064/251065/251068/342758/347259/3242717

Fax: +256-414-257521/232680

E-mail: info@nemaug.org

Website: www.nemaug.org



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

5.0 CONSTRUCTION AND OPERATIONAL PHASE CONDITIONS OF APPROVAL

- (i) In executing the project, the mitigation and environmental and social management plans in the Environmental and Social Impact Statement shall be adhered to at all times.
- (ii) Have in place qualified focal point personnel responsible for workers' occupational health and safety, community affairs and environmental issues.
- (iii) All employees including casual workers should be accorded decent working conditions and clear terms and conditions of employment in accordance with the Employment Regulations, 2011.
- (iv) There shall be no use of child labour during project execution in accordance with the Children Act, 2016.
- (v) Put in place mechanisms for employment of persons with appropriate skills and competence within the community especially women, Persons with Disability and the youth.
- (vi) Put in place measures to protect public utilities in liaison with the authorities responsible for the provision of such facilities during the implementation of project activities.
- (vii) Put in place a grievance handling mechanism in liaison with the respective District Local Government Authorities, this Authority, Uganda Wildlife Authority, National Forest Authority, and any other relevant Lead Agency.
- (viii) Put in place an awareness and prevention program for HIV/AIDS, Sexually Transmitted Diseases (STD) and Hepatitis B, for both the workers and neighbouring community, and programmes for family work life balance and workplace wellness to address impacts of lifestyle and social ill behaviours.
- (ix) Conduct induction and refresher trainings to the contractor and sub-contractor teams on the Environmental and Social Safeguard policy, any other applicable laws, regulations and standards.
- (x) Put in place mechanisms to minimize noise and vibration from the road construction operations and/or from noise generating equipment in accordance



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

CONDITIONS OF APPROVAL FOR THE ENVIRONMENT AND SOCIAL IMPACT STATEMENT FOR THE PROPOSED UPGRADING OF ATIAK-MOYO-AFOGI 103Km ROAD FROM GRAVEL TO PAVED (BITUMINOUS) STANDARDS TRAVERSING DISTRICTS OF AMURU, ADJUMANI AND MOYO, STARTING FROM ATIAK TRADING CENTRE THROUGH LAROPI FERRY CROSSING POINT IN MOYO TO AFOGI-SOUTH SUDAN BORDER AT GPS COORDINATES (3.6985 316792, 3.5518 31.8126, 3.5449 31.8110, 3.6488 31.7302 AND 3.7039 31.6766)

ADMINISTRATIVE CONDITIONS (Cont...d)

- (iii) The project **must commence within the first 24 months** (from the date of approval) of the validity period, failure of which this Certificate shall be varied, cancelled or otherwise dealt with by this Authority.
- (iv) **The Executive Director shall be NOTIFIED** of any transfer of ownership, variation/alteration of the project design or components, or surrender of this Certificate of Approval.

4.0 SPECIFIC CONDITIONS OF APPROVAL

- (i) The entire proposed upgrading of Atiak-Moyo-Afogi 103Km Road project routing must be legally obtained in accordance with the Land Act and other relevant laws of the country.
- (ii) The supporting auxiliary components of the project shall be subjected to separate environmental and social studies in a timely manner.
- (iii) Provisions for designated stop-over rest areas at appropriate intervals must be provided in accordance with the physical developmental plans.
- (iv) Plant appropriate tree species along the whole road corridor in collaboration with the District Forest Services and National Forestry Authority and ensure their survival at 70% by the second year.
- (v) Put in place animal signage along all animal crossing points and speed regulation mechanisms at appropriate locations along the road and in accordance with the Traffic and Road Safety Act, 358.



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

with the National Environment (Noise Standards and Control) Regulations, S.I. No. 30/2003.

- (xi) Put in place measures to ensure that workers and the communities are not exposed to dust emissions in accordance with the Air Quality Regulations, 2018.
- (xii) Put in place a monitoring programme including the frequency and methods for the following parameters.

No.	Parameters	Acceptable limits
1.	Particulate Matter (Dust Emissions)	60 µg/m ³
2.	Noise	75 dB(A)
3.	Vibrations at 10 – 50Hz frequency	12.5 mm/s
4.	Oil and Grease	5.0 mg/l
5.	pH	6.0 – 8.0

- (xiii) Put in place measures or systems for handling both hazardous and non-hazardous waste generated, in accordance with the National Environment (Waste Management) Regulations, S.I. No. 153-2.
- (xiv) Notwithstanding condition (xiii), **ensure that no waste is dumped into water bodies, wetland ecosystems, around settlements and protected areas.**
- (xv) Ensure proper record-keeping as required under Section 77 of the National Environment Act, Cap. 153, and transmit the records to this Authority, as required under Section 78 of the National Environment Act.

6.0 GENERAL CONDITIONS OF APPROVAL

- (i) Obtain written approval from this Authority for any operational changes under this Certificate of Approval.
- (ii) Inform this Authority in writing of any malfunction of any system or project component within 12 hours, and the mitigation measures put in place.
- (iii) In accordance with Section 22(4) of the National Environment Act, Cap. 153, mitigate any other undesirable environmental impacts that may arise during the implementation of the project, but were not contemplated by the time of undertaking the environmental and social impact assessment.

NEMA House
Plot 17/19/21 Jinja Road
P.O. Box 22255, Kampala Uganda

Tel: +256-414-251064/251065/251068/342758/347259/3242717
Fax: +256-414-257521/232680

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E-mail: info@nemaug.org
Website: www.nemaug.org



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

7.0 DECOMMISSIONING AND RESTORATION PHASE CONDITIONS OF APPROVAL

- (i) Ensure that the executors/ contractors/ sub-contractors of all the auxiliary project components decommission them when their lifespan comes to an end as per the decommissioning plan, and/or as will be prescribed by the relevant Lead Agencies.
- (ii) Restore, all scarred areas affected during the conduct of various project activities to their original or near original state as possible, and re-vegetate degraded ground surface with native plant species.
- (iii) Report on the completed decommissioning and restoration activities to NEMA.

8.0 SUSPENSION/WITHDRAWAL/CANCELLATION CONDITIONS

This Certificate shall be suspended/withdrawn/cancelled if:

- (a) there is no compliance with any of the **Specific Conditions** set out in this ESIS Certificate in **Section 4.0 above and of substantive general conditions of the certificate**;
- (b) where there is unauthorized substantial modification of the project implementation or operations which may lead to un-assessed adverse environmental and social impacts that were not evaluated at the time of issuing this Certificate of Approval; and,
- (c) where there arise substantive undesirable effects that were not contemplated during the issuance of this Certificate of Approval.

DATED AT KAMPALA ON 19TH OCTOBER, 2018

Signed:

EXECUTIVE DIRECTOR (NEMA)

NEMA House
Plot 17/19/21 Jinja Road
P.O. Box 22255, Kampala Uganda

Tel: +256-414-251064/251065/251068/342758/347259/3242717
Fax: +256-414-257521/232680

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E-mail: info@nemaug.org
Website: www.nemaug.org



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

- c.c. The Permanent secretary,
Ministry of Water and Environment,
KAMPALA.
- c.c. The Permanent secretary,
Ministry of Works and Transport,
KAMPALA.
- Attn:** Engineer in Chief/Director Engineering
- c.c. The Permanent Secretary,
Ministry of Gender, Labour and Social Development,
KAMPALA.
- c.c. The Permanent Secretary,
Ministry of Lands, Housing and Urban Development,
KAMPALA.
- c.c. The Permanent secretary,
Ministry of Tourism, Wildlife and Antiquities,
KAMPALA.
- c.c. Permanent Secretary,
Ministry of Energy and Mineral Development,
KAMPALA.
- c.c. The Executive Director,
Uganda Wildlife Authority,
KAMPALA.
- c.c. The Executive Director,
Uganda Forestry Authority,
KAMPALA.
- c.c. The Director,
Directorate of Water Resources Management,
ENTEBBE.



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

- c.c. The Chief Administrative Officer,
Moyo District Local Government,
MOYO.
- c.c. The Chief Administrative Officer,
Amuru District Local Government,
AMURU.
- c.c. The Chief Administrative Officer,
Adjumani District Local Government,
ADJUMANI.
- c.c. The District Environment Officer,
Moyo District Local Government,
MOYO.
- c.c. The District Environment Officer,
Amuru District Local Government,
AMURU.
- c.c. The District Environment Officer,
Adjumani District Local Government,
ADJUMANI.

Appendix 2: Water Quality Assessment results



Republic of Uganda

MINISTRY OF WATER AND ENVIRONMENT NATIONAL WATER QUALITY REFERENCE LABORATORY - ENTEBBE

Certificate of Analysis

Client Name : Uganda National Roads Authority
 Client Address : Nakawa Industrial Business Park, Kampala Uganda
 Sample type & Location : Heavy metals analysis for baseline data for Laropi to Afogi border point project
 Date sampled : 09th March 2021
 Analysis Completion Date : 26th March 2021

TEST RESULTS

Source name	Borehole at Gwayi	Borehole at Areja	NWSC tap at UNRA station Moyo	Moyo town council Piped water supply system reservoir	Amuwa stream	River Nile at Laropi
Village	Gwayi	Cinyi East	Moyo town	Moyo town	-	Laropi
Parish	Alimo	Pamoyi			-	Laropi
Subcounty	Koche	Otche	Moyo	Moyo	-	Difule
District	Moyo	Moyo	Moyo	Moyo	Moyo	Moyo
Sample GPS Coordinates	36N 365342E 403601N	36N 366720E 401696N	36N 358759E 403939N	36N 358781E 403684N	36N 365548E 402514N	36N 368160E 392678N
Distance from Afogi to Laropi (km)	17.8	21.0	7.8	8.0	19.0	35.0
Nature of Sample	Ground water	Surface Water	Ground water	Ground water	Surface Water	Surface Water
Lab No.	E45100	E45102	E45098	E45099	E45101	E45103
Manganese	mg/l 0.178	0.087	0.059	0.058	0.018	0.005
Cadmium	mg/l <0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Lead	mg/l 0.0036	0.0054	0.0166	0.0072	<0.002	<0.002
Arsenic	mg/l <0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	mg/l <0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Zinc	mg/l <0.001	0.3570	<0.001	<0.001	<0.001	<0.001
Aluminium	mg/l 0.0153	0.2220	0.1320	<0.0001	0.2340	0.0391

Notes;

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 Tel: 041-321342

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Republic of Uganda

MINISTRY OF WATER AND ENVIRONMENT
NATIONAL WATER QUALITY REFERENCE LABORATORY - ENTEBBE
Certificate of Analysis

Client Name : Uganda National Roads Authority
 Client Address : Nakawa Industrial Business Park, Kampala Uganda
 Sample type & Location : Heavy metals analysis for baseline data for Laropi to Afogi border point project
 Date sampled : 09th March 2021
 Analysis Completion Date : 26th March 2021

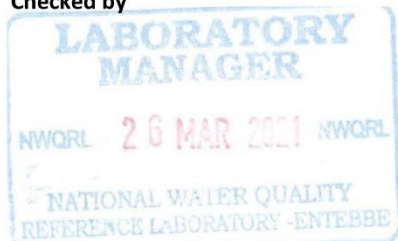
TEST RESULTS

Source name		Borehole at URA customs office at Afogi	Borehole at Afogi trading centre	Borehole at Onyire	Borehole at Kente	Borehole at Volabilinyo Army Barracks	Borehole at VuraOppi
Village		Afogi	Afogi	Onyire	Kente	Volabilinyo	VuraOppi
Parish		Logoba	Logoba	Logoba	Logoba	Logoba	
Subcounty		Moyo	Moyo	Moyo	Moyo	Moyo	Moyo
District		Moyo	Moyo	Moyo	Moyo	Moyo	Moyo
Sample GPS Coordinates		36N 353069E 409536N	36N 354393E 408480N	36N 355538E 407414N	36N 356933E 405999N	36N 356996E 405625N	36N 356735E 404285N
Distance from Afogi to Laropi (km)		0.0	1.7	3.3	5.4	5.6	7.0
Nature of Sample		Ground water	Ground water	Ground water	Ground water	Ground water	Ground water
Lab No.		E45092	E45093	E45094	E45095	E45096	E45097
Manganese	mg/l	0.061	0.021	0.024	0.019	0.027	0.095
Cadmium	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Lead	mg/l	<0.002	<0.002	0.0069	0.0104	0.0117	0.0121
Arsenic	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Zinc	mg/l	0.1505	<0.001	<0.001	0.1587	<0.001	<0.001
Aluminium	mg/l	<0.0001	0.1406	<0.0001	0.0014	0.0103	0.0044

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Client Name : Uganda National Roads Authority
 Client Address : Nakawa Industrial Business Park, Kampala Uganda
 Sample type & Location : Surface Water analysis for baseline data for Laropi to Afogi border point project
 Date sampled : 09th March 2021
 Analysis Completion Date : 26th March 2021

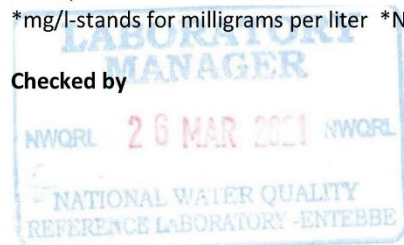
TEST RESULTS

Source name		Amuwa stream	River Nile at Laropi
Village		—	Laropi
Parish		—	Laropi
Subcounty		—	Difule
District		Moyo	Moyo
Sample GPS Coordinates		36N 365548E 402514N	36N 368160E 392678N
Distance from Afogi to Laropi (km)		19.0	35.0
Nature of Sample		Surface Water	Surface Water
Lab No.		E45101	E45103
Temp (0C)		25.4	30.5
pH		8.3	7.6
EC (uS/cm)		108	197
Total dissolved solids	mg/l	76	138
Total Hardness as CaCO ₃	mg/l	88	38
Calcium hardness as CaCO ₃	mg/l	52	17
Magnesium hardness as CaCO ₃	mg/l	36	21
Calcium	mg/l	21	7
Magnesium	mg/l	9	5
Total Alkalinity as CaCO ₃	mg/l	53	75
Bicarbonates as CaCO ₃	mg/l	65	92
Sodium	mg/l	2.3	13
Potassium	mg/l	2.6	5.8
Fluoride	mg/l	4.1	14.0
Chlorides	mg/l	0.16	0.37
Sulphates	mg/l	0.4	0.6
Nitrites as N	mg/l	<0.001	<0.001
Nitrates as N	mg/l	0.63	0.43
Ammonium as N	mg/l	0.09	0.11
Total Nitrogen as N	mg/l	0.721	0.541
Phosphates as P	mg/l	0.10	0.07
Total Iron	mg/l	0.28	0.37

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Certificate of Analysis

Client Name : Uganda National Roads Authority
 Client Address : Nakawa Industrial Business Park, Kampala Uganda
 Sample type & Location : Potable Water analysis for baseline data for Laropi to Afogi border point project
 Date sampled : 09th March 2021
 Analysis Completion Date : 26th March 2021

TEST RESULTS

Source name		NWSC tap at UNRA station Moyo	Moyo town council Piped water supply system reservoir
Village		Moyo town	Moyo town
Parish			
Subcounty		Moyo	Moyo
District		Moyo	Moyo
Sample GPS Coordinates		36N 358759E 403939N	36N 358781E 403684N
Distance from Afogi to Laropi (km)		7.8	8.0
Nature of Sample		Ground water	Ground water
Lab No.		E45098	E45099
Temp (0C)		30.0	29.0
pH		7.3	7.0
EC (uS/cm)		458	410
Total dissolved solids	mg/l	321	287
Total Hardness as CaCO3	mg/l	130	44
Calcium hardness as CaCO3	mg/l	65	21
Magnesium hardness as CaCO3	mg/l	65	23
Calcium	mg/l	26	8
Magnesium	mg/l	16	6
Total Alkalinity as CaCO3	mg/l	170	170
Bicarbonates as CaCO3	mg/l	207	207
Sodium	mg/l	11	1.6
Potassium	mg/l	2.5	0.2
Fluoride	mg/l	8.5	9.5
Chlorides	mg/l	0.51	0.48
Sulphates	mg/l	4.9	5
Nitrites as N	mg/l	<0.001	<0.001
Nitrates as N	mg/l	0.39	0.64
Ammonium as N	mg/l	0.1	0.19
Total Nitrogen as N	mg/l	0.491	0.831
Phosphates as P	mg/l	0.22	0.04
Total Iron	mg/l	0.30	0.33

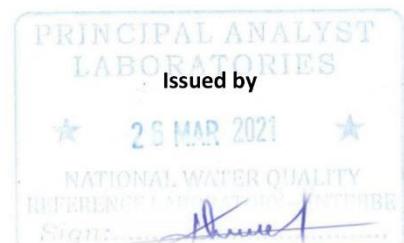
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 Sample type & Location : Ground Water analysis for baseline data for Laropi to Afogi border point project
 Date sampled : 09th March 2021
 Analysis Completion Date : 26th March 2021

TEST RESULTS

Source name		Borehole at VolabilinyoAr my Barracks	Borehole at VuraOppi	Borehole at Gwayi	Borehole at Areja
Village		Volabilinyo	VuraOppi	Gwayi	Cinyi East
Parish		Logoba		Alimo	Pamoyi
Subcounty		Moyo	Moyo	Koche	Otche
District		Moyo	Moyo	Moyo	Moyo
Sample GPS Coordinates		36N 356996E 405625N	36N 356735E 404285N	36N 365342E 403601N	36N 366720E 401696N
Distance from Afogi to Laropi (km)		5.6	7.0	17.8	21.0
Nature of Sample		Ground water	Ground water	Ground water	Surface Water
Lab No.		E45096	E45097	E45100	E45102
Temp (OC)		28.9	28.8	28.9	28.4
pH		6.6	6.6	7.0	6.9
EC (uS/cm)		241	475	495	456
Total dissolved solids	mg/l	169	333	347	319
Total Hardness as CaCO3	mg/l	78	170	170	150
Calcium hardness as CaCO3	mg/l	47	100	90	82
Magnesium hardness as CaCO3	mg/l	31	70	80	68
Calcium	mg/l	19	40	36	33
Magnesium	mg/l	7	17	19	16
Total Alkalinity as CaCO3	mg/l	105	170	235	210
Bicarbonates as CaCO3	mg/l	128	207	287	256
Sodium	mg/l	4.6	11	34	54
Potassium	mg/l	0.7	1.3	4.2	2.5
Fluoride	mg/l	13	40	71	53
Chlorides	mg/l	0.39	0.57	0.62	0.61
Sulphates	mg/l	2.9	38	2.1	8.7
Nitrites as N	mg/l	0.03	0.13	<0.001	0.03
Nitrates as N	mg/l	2.97	1.96	0.23	3.05
Ammonium as N	mg/l	0.09	0.07	0.06	0.25
Total Nitrogen as N	mg/l	3.09	2.16	0.291	3.33
Phosphates as P	mg/l	0.17	0.13	0.04	0.15
Total Iron	mg/l	0.03	1.02	1.19	1.30

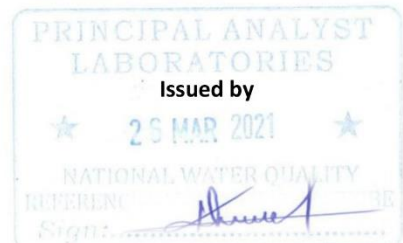
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TEST RESULTS

Source name		Borehole at URA customs office at Afogi	Borehole at Afogi trading centre	Borehole at Onyire	Borehole at Kente
Village		Afogi	Afogi	Onyire	Kente
Parish		Logoba	Logoba	Logoba	Logoba
Subcounty		Moyo	Moyo	Moyo	Moyo
District		Moyo	Moyo	Moyo	Moyo
Sample GPS Coordinates		36N 353069E	36N 354393E	36N 355538E	36N 356933E
		409536N	408480N	407414N	405999N
Distance from Afogi to Laropi (km)		0.0	1.7	3.3	5.4
Nature of Sample		Ground water	Ground water	Ground water	Ground water
Lab No.		E45092	E45093	E45094	E45095
Temp (0C)		26.4	27.3	28.2	28.8
pH		6.6	7.1	6.1	5.9
EC (uS/cm)		301	117	205	303
Total dissolved solids	mg/l	211	82	144	212
Total Hardness as CaCO3	mg/l	81	43	64	91
Calcium hardness as CaCO3	mg/l	43	27	42	71
Magnesium hardness as CaCO3	mg/l	38	16	22	20
Calcium	mg/l	17	11	17	28
Magnesium	mg/l	9	4	5	5
Total Alkalinity as CaCO3	mg/l	110	82	82	88
Bicarbonates as CaCO3	mg/l	134	100	100	107
Sodium	mg/l	22	14	11	17
Potassium	mg/l	2.5	1.4	0.8	2.2
Fluoride	mg/l	27	6.7	11	56
Chlorides	mg/l	0.67	0.3	0.4	0.34
Sulphates	mg/l	1.6	1.1	1.8	8.6
Nitrites as N	mg/l	0.08	<0.001	0.02	0.03
Nitrates as N	mg/l	7.86	0.34	3.9	6.42
Ammonium as N	mg/l	0.11	0.08	0.08	0.06
Total Nitrogen as N	mg/l	8.05	0.421	4	6.51
Phosphates as P	mg/l	0.01	0.11	0.23	0.08
Total Iron	mg/l	0.54	1.21	0.18	0.27

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Appendix 3: Vegetation Species List

Family	Species	Growth Form	IUCN	MTWA 2018
Acanthaceae	<i>Asystasia gangetica</i>	Herb	LC	NA
Acanthaceae	<i>Asystasia mysorensis</i>	Herb	LC	NA
Acanthaceae	<i>Barleria submollis</i>	Herb	NA	NA
Acanthaceae	<i>Barleria ventricosa</i>	Herb	NA	NA
Acanthaceae	<i>Blepharis maderaspatensis</i>	Herb	LC	NA
Acanthaceae	<i>Dyschoriste nagchana</i>	Herb	NA	NA
Acanthaceae	<i>Justicia exigua</i>	Herb	NA	NA
Acanthaceae	<i>Ruellia patula</i>	Herb	NA	NA
Acanthaceae	<i>Thunbergia alata</i>	Herb	NA	NA
Amaranthaceae	<i>Achyranthes aspera</i>	Herb	NA	NA
Amaranthaceae	<i>Alternanthera pungens</i>	Herb	LC	NA
Amaranthaceae	<i>Gomphrena celosioides</i>	Herb	NA	NA
Amaryllidaceae	<i>Gloriosa simplex</i>	Herb	NA	NA
Anacardiaceae	<i>Rhus natalensis</i>	Shrub	NA	NA
Anacardiaceae	<i>Anacardia occidentalle</i>	Tree	LC	NA
Anacardiaceae	<i>Lannea barteri</i>	Tree	NA	NA
Anacardiaceae	<i>Lannea schweinfurthii</i>	Tree	NA	NA
Anacardiaceae	<i>Mangifera indica</i>	Tree	DD	NA
Anacardiaceae	<i>Sclerocarya birrea</i>	Tree	NA	NA
Annonaceae	<i>Annona senegalensis</i>	Tree	LC	NA
Annonaceae	<i>Uvaria schweinfurthii</i>	Tree	NA	NA
Apiaceae	<i>Steganotaenia araliacea</i>	Tree	NA	NA
Apocynaceae	<i>Ectadiopsis oblongifolia</i>	Herb	NA	NA
Apocynaceae	<i>Cascabela thevetia</i>	Shrub	LC	NA
Arecaceae	<i>Borassus aethiopum</i>	Tree	LC	NA
Asparagaceae	<i>Asparagus africanus</i>	Shrub	LC	NA
Asteraceae	<i>Aspilia africana</i>	Herb	LC	NA
Asteraceae	<i>Aspilia kotschy</i>	Herb	LC	NA
Asteraceae	<i>Bidens pilosa</i>	Herb	NA	NA
Asteraceae	<i>Chrysanthellum americana</i>	Herb	NA	NA
Asteraceae	<i>Conyza aegyptiaca</i>	Herb	NA	NA
Asteraceae	<i>Sonchus schweinfurthii</i>	Herb	NA	NA
Asteraceae	<i>Synedrella nodiflora</i>	Herb	NA	NA
Asteraceae	<i>Tridax procumbens</i>	Herb	NA	NA
Asteraceae	<i>Vernonia auriculifera</i>	Shrub	NA	NA
Asteraceae	<i>Vernonia amygdalina</i>	Tree	NA	NA
Bignoniaceae	<i>Kigeria africana</i>	Tree	NA	NA
Bignoniaceae	<i>Stereospermum kunthianum</i>	Tree	NA	NA
Boraginaceae	<i>Cynoglossum lanceolatum</i>	Herb	NA	NA

Family	Species	Growth Form	IUCN	MTWA 2018
Boraginaceae	<i>Cordia</i> sp	Tree	NA	NA
Capparaceae	<i>Capparis erythrocarpos</i>	Woody Climber	NA	NA
Caricaceae	<i>Carica papaya</i>	Tree	NA	NA
Celestraceae	<i>Maytenus senegalensis</i>	Shrub	NA	NA
Celestraceae	<i>Maytenus undata</i>	Shrub	NA	NA
Combretaceae	<i>Combretum aculeatum</i>	Shrub	NA	NA
Combretaceae	<i>Combretum adenogonium</i>	Tree	NA	NA
Combretaceae	<i>Combretum collinum</i>	Tree	NA	NA
Combretaceae	<i>Combretum molle</i>	Tree	NA	NA
Combretaceae	<i>Combretum</i> sp	Tree	LC	NA
Combretaceae	<i>Terminalia brownii</i>	Tree	NA	NA
Combretaceae	<i>Terminalia glaucescens</i>	Tree	LC	NA
Commelinaceae	<i>Commelina beghalensis</i>	Herb	LC	NA
Commelinaceae	<i>Murdannia simplex</i>	Herb	NA	NA
Convolvulaceae	<i>Dichondra repens</i>	Herb	NA	NA
Convolvulaceae	<i>Merremia tridentata</i>	Vine	NA	NA
Convolvulaceae	<i>Ipomoea batatus</i>	Vine	LC	NA
Cucurbitaceae	<i>Coccinia grandis</i>	Herbaceous Climber	NA	NA
Cucurbitaceae	<i>Cucumis figarei</i>	Herbaceous Climber	NA	NA
Cucurbitaceae	<i>Mukia maderaspatana</i>	Herbaceous Climber	NA	NA
Cyperaceae	<i>Abildgaardia ovata</i>	Herb	NA	NA
Cyperaceae	<i>Bulbostylis filamentosa</i>	Herb	LC	NA
Ebenaceae	<i>Euclea recimosa</i>	Shrub	NA	NA
Ebenaceae	<i>Diospyros mespiliformis</i>	Tree	NA	NA
Euphorbiaceae	<i>Acalypha villicaulis</i>	Herb	NA	NA
Euphorbiaceae	<i>Euphorbia hirta</i>	Herb	NA	NA
Euphorbiaceae	<i>Euphorbia indica</i>	Herb	NA	NA
Euphorbiaceae	<i>Micrococca mercurialis</i>	Herb	NA	NA
Euphorbiaceae	<i>Erythrococca bongensis</i>	Shrub	NA	NA
Euphorbiaceae	<i>Manihot escelenta</i>	Shrub	NA	NA
Euphorbiaceae	<i>Croton</i> sp	Tree	NA	NA
Euphorbiaceae	<i>Euphorbia candelabulum</i>	Tree	NA	NA
Fabaceae	<i>Alysicarpus glumacea</i>	Herb	LC	NA
Fabaceae	<i>Clitoria ternata</i>	Herb	NA	NA
Fabaceae	<i>Eriosema glomeratum</i>	Herb	NA	NA
Fabaceae	<i>Senna obtusifolia</i>	Herb	LC	NA
Fabaceae	<i>Tephrosia linearis</i>	Herb	NA	NA
Fabaceae	<i>Teramnus labialis</i>	Herbaceous Climber	NA	NA
Fabaceae	<i>Vigna unguiculata</i>	Herbaceous Climber	NA	NA
Fabaceae	<i>Acacia hockii</i>	Shrub	NA	NA
Fabaceae	<i>Cajanus cajan</i>	Shrub	LC	NA

Family	Species	Growth Form	IUCN	MTWA 2018
Fabaceae	<i>Desmodium velutinum</i>	Shrub	NA	NA
Fabaceae	<i>Eriosema psoraleoides</i>	Shrub	NA	NA
Fabaceae	<i>Indigofera arrecta</i>	Shrub	NA	NA
Fabaceae	<i>Acacia gerrardii</i>	Tree	NA	NA
Fabaceae	<i>Albizia coriaria</i>	Tree	LC	NA
Fabaceae	<i>Albizia grandibracteata</i>	Tree	LC	NA
Fabaceae	<i>Dalbergia melanoxylon</i>	Tree	NT	VU
Fabaceae	<i>Daniellia oliveri</i>	Tree	NA	NA
Fabaceae	<i>Delonix baccal</i>	Tree	NT	NA
Fabaceae	<i>Erythrina abyssinica</i>	Tree	NA	NA
Fabaceae	<i>Erythrina sp</i>	Tree	LC	NA
Fabaceae	<i>Senna siamea</i>	Tree	LC	NA
Fabaceae	<i>Tamarindus indica</i>	Tree	LC	VU
Fabaceae	<i>Abrus precatorius</i>	woody Climber	NA	NA
Fabaceae	<i>Brachiaria jubata</i>	Grass	LC	NA
Fabaceae	<i>Alysicarpus rugosus</i>	Herb	LC	NA
Fabaceae	<i>Desmodium gangeticum</i>	Herb	NA	NA
Fabaceae	<i>Desmodium tortuosum</i>	Herb	NA	NA
Fabaceae	<i>Desmodium triflorum</i>	Herb	NA	NA
Fabaceae	<i>Indigofera spicata</i>	Herb	NA	NA
Fabaceae	<i>Galactia tenuiflora</i>	Herbaceous Climber	NA	NA
Fabaceae	<i>Vigna parkeri</i>	Herbaceous Climber	NA	NA
Fabaceae	<i>Acacia brevispica</i>	Shrub	NA	NA
Fabaceae	<i>Pseudarthria hookeri</i>	Shrub	NA	NA
Fabaceae	<i>Acacia sieberiana</i>	Tree	NA	NA
Fabaceae	<i>Philenoptera laxiflora</i>	Tree	LC	NA
Fabaceae	<i>Piliostigma thonningii</i>	Tree	NA	NA
Hymenocardiaceae	<i>Hymenocardia acida</i>	Shrub	NA	NA
Hypericaceae	<i>Psorospermum febrifugum</i>	Shrub	NA	NA
Lamiaceae	<i>Leonotis nepetifolia</i>	Herb	LC	NA
Lamiaceae	<i>Hoslundia opposita</i>	Shrub	NA	NA
Lamiaceae	<i>Tectona grandis</i>	Tree	LC	NA
Lamiaceae	<i>Vitex doniana</i>	Tree	NA	NA
Lamiaceae	<i>Basilicum polystachyon</i>	Herb	NA	NA
Lamiaceae	<i>Fuerstia africana</i>	Herb	NA	NA
Lamiaceae	<i>Leucas martinicensis</i>	Herb	NA	NA
Lauraceae	<i>Persea americana</i>	Tree	LC	NA
Malvaceae	<i>Sida micrantha</i>	Herb	NA	NA
Malvaceae	<i>Sida rhombifolia</i>	Herb	NA	NA
Malvaceae	<i>Triumfetta rhomboidea</i>	Herb	NA	NA
Malvaceae	<i>Urena lobata</i>	Herb	NA	NA

Family	Species	Growth Form	IUCN	MTWA 2018
Malvaceae	<i>Gossypium hirsutum</i>	Shrub	VU	NA
Malvaceae	<i>Grewia bicolor</i>	Shrub	NA	NA
Malvaceae	<i>Grewia submollis</i>	Shrub	NA	NA
Malvaceae	<i>Grewia trichocarpa</i>	Shrub	LC	NA
Malvaceae	<i>Grewia mollis</i>	Tree	NA	NA
Meliaceae	<i>Azadirachta indica</i>	Tree	LC	NA
Meliaceae	<i>Ekebergia capensis</i>	Tree	LC	NA
Meliaceae	<i>Khaya senegalensis</i>	Tree	VU	EN
Menispermaceae	<i>Cissampelos mucronata</i>	Herbaceous Climber	NA	NA
Moraceae	<i>Antiaris toxicaria</i>	Tree	LC	NA
Moraceae	<i>Ficus glumosa</i>	Tree	NA	NA
Moraceae	<i>Ficus natalensis</i>	Tree	LC	NA
Moraceae	<i>Ficus platyphylla</i>	Tree	NA	NA
Moraceae	<i>Ficus sur</i>	Tree	NA	NA
Moraceae	<i>Ficus sycomorus</i>	Tree	NA	NA
Moraceae	<i>Milicia excelsa</i>	Tree	NT	EN
Musaceae	<i>Musa paradisiaca</i>	Herb	LC	NA
Musaceae	<i>Musa sp</i>	Herb	NA	NA
Myrtaceae	<i>Eugenia capensis</i>	Shrub	NA	NA
Myrtaceae	<i>Eucalyptus sp</i>	Tree	LC	NA
Myrtaceae	<i>Psidium guajava</i>	Tree	LC	NA
Olacaceae	<i>Ximenia americana</i>	Shrub	NA	NA
Olacaceae	<i>Jasminium abyssinicum</i>	Woody Climber	NA	NA
Orobanchaceae	<i>Cycnium tubulosum</i>	Vine	NA	NA
Phyllanthaceae	<i>Phyllanthus somalensis</i>	Herb	NA	NA
Phyllanthaceae	<i>Flueggea virosa</i>	Shrub	NA	NA
Phyllanthaceae	<i>Phyllanthus ovalifolius</i>	Shrub	NA	NA
Phyllanthaceae	<i>Phyllanthus sp</i>	Shrub	NA	NA
Phyllanthaceae	<i>Margaritaria discoidea</i>	Tree	LC	NA
Poaceae	<i>Brachiaria brizantha</i>	Grass	LC	NA
Poaceae	<i>Brachiaria comata (Kotschyana)</i>	grass	LC	NA
Poaceae	<i>Chloris gayana</i>	Grass	NA	NA
Poaceae	<i>Cymbopogon nardus</i>	Grass	NA	NA
Poaceae	<i>Cynodon dactylon</i>	Grass	NA	NA
Poaceae	<i>Dactyloctenium aegypticum</i>	Grass	NA	NA
Poaceae	<i>Digitaria abyssinica</i>	Grass	NA	NA
Poaceae	<i>Digitaria longiflora</i>	Grass	NA	NA
Poaceae	<i>Digitaria ternata</i>	Grass	LC	NA
Poaceae	<i>Eleusin africana</i>	Grass	NA	NA
Poaceae	<i>Eragrostis ciliaris</i>	Grass	NA	NA

Family	Species	Growth Form	IUCN	MTWA 2018
Poaceae	<i>Eragrostis racemosa</i>	Grass	NA	NA
Poaceae	<i>Eragrostis tenuifolia</i>	Grass	NA	NA
Poaceae	<i>Heteropogon contortus</i>	Grass	NA	NA
Poaceae	<i>Hyparrhenia cymbaria</i>	Grass	NA	NA
Poaceae	<i>Hyparrhenia filipendra</i>	Grass	NA	NA
Poaceae	<i>Hyparrhenia rufa</i>	Grass	NA	NA
Poaceae	<i>Hyperthelia dissoluta</i>	Grass	NA	NA
Poaceae	<i>Imperata cylindrica</i>	Grass	NA	NA
Poaceae	<i>Loudetia arundinacea</i>	Grass	NA	NA
Poaceae	<i>Melinis repens</i>	Grass	NA	NA
Poaceae	<i>Panicum maximum</i>	Grass	NA	NA
Poaceae	<i>Pennisetum polystachion</i>	Grass	NA	NA
Poaceae	<i>Perotis patens</i>	Grass	NA	NA
Poaceae	<i>Sorghum bicolor</i>	Grass	NA	NA
Poaceae	<i>Spolobolus festivus</i>	Grass	NA	NA
Poaceae	<i>Sporobolus pyramidalis</i>	Grass	NA	NA
Poaceae	<i>Sporobolus stapfiana</i>	Grass	NA	NA
Rhamnaceae	<i>Ziziphus abyssinica</i>	Shrub	NA	NA
Rhamnaceae	<i>Ziziphus pubescens</i>	Shrub	NA	NA
Rubiaceae	<i>Mussaenda sp</i>	Shrub	NA	NA
Rubiaceae	<i>Tarenna graveolens</i>	Shrub	NA	NA
Rubiaceae	<i>Gardenia ternifolia</i>	Tree	NA	NA
Rutaceae	<i>Clausena anisata</i>	Shrub	NA	NA
Rutaceae	<i>Harrisonia abyssinica</i>	Shrub	NA	NA
Rutaceae	<i>Vepris nobilis</i>	Tree	NA	NA
Salicaceae	<i>Trimeria grandifolia</i>	Shrub	NA	NA
Sapindaceae	<i>Cardiospermum grandiflorum</i>	Herbaceous Climber	NA	NA
Sapindaceae	<i>Allophylus africanus</i>	Shrub	LC	NA
Sapindaceae	<i>Allophylus macrobotrys</i>	Shrub	LC	NA
Sapotaceae	<i>Vitellaria paradoxa</i>	Tree	VU	EN
Solanaceae	<i>Solanaum inguivi</i>	Herb	LC	NA
Solanaceae	<i>Solanum taitense</i>	Herb	LC	NA
Solanaceae	<i>Solanum incanum</i>	Shrub	NA	NA
Strychnaceae	<i>Strychnos innocua</i>	Tree	LC	NA
Verbenaceae	<i>Clerodendrum rotundifolium</i>	Shrub	LC	NA
Verbenaceae	<i>Lantana camara</i>	Shrub	LC	NA
Vitaceae	<i>Cyphostemma adenocaula</i>	Herbaceous Climber	LC	NA
Zygophyllaceae	<i>Balanites aegyptiaca</i>	Tree	LC	NA

Appendix 4: Birds encountered along the project corridor

Atlas No.	Sp NAME b	Code	IUCN
13	BLACK-CROWNED NIGHT HERON <i>Nycticorax nycticorax</i> 40	p,W	LC
26	BLACK-HEADED HERON <i>Ardea melanocephala</i> 27	w	LC
28	HAMERKOP <i>Scopus umbretta</i> 42	w	LC
30	AFRICAN OPEN-BILLED STORK <i>Anastomus lamelligerus</i> 43	A,w,G	LC
39	HADADA IBIS <i>Bostrychia hagedash</i> 51	w	LC
54	AFRICAN PYGMY GOOSE <i>Nettapus auritus</i> 77	W	LC
75	BLACK KITE <i>Milvus migrans</i> 138	p,A	LC
76	AFRICAN FISH EAGLE <i>Haliaeetus vocifer</i> 137	W	LC
86	BROWN SNAKE EAGLE <i>Circaetus cinereus</i> 98	R-NT	LC
109	LIZARD BUZZARD <i>Kaupifalco monogrammicus</i> 129	f	LC
110	COMMON BUZZARD <i>Buteo buteo</i> 122	P	LC
143	COMMON QUAIL <i>Coturnix coturnix</i> 165	p,	LC
270	TAMBOURINE DOVE <i>Turtur tympanistria</i> 357	F	LC
283	RED-EYED DOVE <i>Streptopelia semitorquata</i> 350	f	LC
284	AFRICAN MOURNING DOVE <i>Streptopelia decipiens</i> 347		LC
285	VINACEOUS DOVE <i>Streptopelia vinacea</i> 353		LC
286	RING-NECKED DOVE <i>Streptopelia capicola</i> 346	f	LC
289	LAUGHING DOVE <i>Streptopelia senegalensis</i> 351		LC
296	GREAT BLUE TURACO <i>Corythaeola cristata</i> 372	F	LC
305	EASTERN GREY PLANTAIN EATER <i>Crinifer zonurus</i> 376		LC
309	RED-CHESTED CUCKOO <i>Cuculus solitarius</i> 399	A,F	LC
310	BLACK CUCKOO <i>Cuculus clamosus</i> 396	A,f,FF	LC
311	COMMON CUCKOO <i>Cuculus canorus</i> 395	P	LC
317	AFRICAN EMERALD CUCKOO <i>Chrysococcyx cupreus</i> 389	F	LC
319	KLAAS' CUCKOO <i>Chrysococcyx klaas</i> 391	f	LC
338	AFRICAN WOOD OWL <i>Strix woodfordii</i> 416	F	LC
358	AFRICAN PALM SWIFT <i>Cypsiurus parvus</i> 452	Ae	LC
365	LITTLE SWIFT <i>Apus affinis</i> 443	Ae	LC
369	SPECKLED MOUSEBIRD <i>Colius striatus</i> 459		LC
383	PIED KINGFISHER <i>Ceryle rudis</i> 465	W	LC
384	BLACK BEE-EATER <i>Merops gularis</i> 484	FF	LC
385	LITTLE BEE-EATER <i>Merops pusillus</i> 491	G	LC
387	CINNAMON-CHESTED BEE-EATER <i>Merops oreobates</i> 488	F	LC
391	LITTLE GREEN BEE-EATER <i>Merops orientalis</i> 489	P	LC
419	CROWNED HORNBILL <i>Tockus alboterminatus</i> 515	f	LC

Atlas No.	Sp NAME b	Code	IUCN
455	GREATER HONEYGUIDE <i>Indicator indicator</i> 563	f	LC
456	LESSER HONEYGUIDE <i>Indicator minor</i> 566	f	LC
512	ANGOLA SWALLOW <i>Hirundo angolensis</i> 627	w,Ae	LC
520	AFRICAN PIED WAGTAIL <i>Motacilla aguimp</i> 991	w	LC
562	COMMON BULBUL <i>Pycnonotus barbatus</i> 732	f	LC
573	CAPE ROBIN CHAT <i>Cossypha caffra</i> 749	f	LC
579	FIRE-CRESTED ALETHE <i>Alethe diademata</i> 734	FF	LC
612	AFRICAN THRUSH <i>Turdus pelios</i> 801	f	LC
639	SINGING CISTICOLA <i>Cisticola cantans</i> 852		LC
640	WHISTLING CISTICOLA <i>Cisticola lateralis</i> 864		LC
647	WINDING CISTICOLA <i>Cisticola galactotes</i> 860	w	LC
720	SWAMP FLYCATCHER <i>Muscicapa aquatica</i> 937	W	LC
732	AFRICAN BLUE FLYCATCHER <i>Elminia longicauda</i> 963	f	LC
739	AFRICAN PARADISE FLYCATCHER <i>Terpsiphone viridis</i> 968	f	LC
771	BLACK TIT <i>Parus leucomelas</i> 666	f	LC
778	GREEN SUNBIRD <i>Anthreptes rectirostris</i> 1087	FF	LC
779	LITTLE GREEN SUNBIRD <i>Anthreptes seimundi</i> 1121	FF	LC
780	GREY-HEADED SUNBIRD <i>Deleornis fraseri</i> 1081	FF	LC
781	GREEN-HEADED SUNBIRD <i>Cyanomitra verticalis</i> 1130	F	LC
782	BLUE-THROATED BROWN SUNBIRD <i>Cyanomitra cyanoaema</i> 1097	FF	LC
783	BLUE-HEADED SUNBIRD <i>Cyanomitra alinae</i> 1090	FF	LC
784	OLIVE SUNBIRD <i>Cyanomitra obscura</i> 1112	FF	LC
788	PURPLE-BREASTED SUNBIRD <i>Nectarinia purpureiventris</i> 1117	F	LC
801	BEAUTIFUL SUNBIRD <i>Cinnyris pulchella</i> 1116		LC
808	VARIABLE SUNBIRD <i>Cinnyris venusta</i> 1128	f	LC
812	COMMON FISCAL <i>Lanius collaris</i> 1029	G	LC
814	MACKINNON'S SHRIKE <i>Lanius mackinnoni</i> 1035	f	LC
841	TROPICAL BOUBOU <i>Laniarius aethiopicus</i> 1004	f	LC
854	VELVET-MANTLED DRONGO <i>Dicurus modestus</i> 644	F	LC
855	PIED CROW <i>Corvus albus</i> 654		LC
881	GREY-HEADED SPARROW <i>Passer griseus</i> 1206	R-RR	LC
892	GREY-HEADED SOCIAL-WEAVER <i>Pseudonigrita arnaudi</i> 1201		LC
896	BLACK-NECKED WEAVER <i>Ploceus nigricollis</i> 1176		LC
897	SPECTACLED WEAVER <i>Ploceus ocularis</i> 1177	f	LC
898	BLACK-BILLED WEAVER <i>Ploceus melanogaster</i> 1174	f	LC
908	BLACK-HEADED WEAVER <i>Ploceus cucullatus</i> 1165	f	LC
927	BLACK BISHOP <i>Euplectes gierowii</i> 1144	w	LC

Atlas No.	Sp NAME b	Code	IUCN
933	YELLOW-MANTLED WIDOWBIRD <i>Euplectes macrourus</i> 1148	w	LC
934	WHITE-WINGED WIDOWBIRD <i>Euplectes albonotatus</i> 1138	G	LC

Appendix 5: Records of Stakeholder Engagement (Minutes)

District:	Moyo
Venue	Moyo Local District Council Hall 8 th /12/2020
Date:	
Members present: District technical and Political team	
AGENDA	
<ol style="list-style-type: none"> 1. Opening Prayer 2. Introductions 3. Opening remarks by the LC V. 4. Communication from the UNRA Team 5. Concerns and responses 6. Communication and closing remarks from the CAO. 	
Prayer:	
The engagement started with an opening prayer that was given by a volunteer .	
Introductions from the members present	
Members present introduced themselves one after another themselves.	
Remarks from the CAO.	
<p>The district chairperson Mr. Anyama Williams in his opening remarks, thanked the UNRA team for organizing the meeting. He applauded the district technical and political leaders for setting aside their busy schedules to attend the meeting considering the timing of the activities and political demands during the election period for this he said it was a very big sacrifice. He informed participants that although there were two meetings taking place at the same time and venue, he prioritized UNRA because of the poor road network in the district that had crippled service delivery. He said with infrastructure development, the living conditions of the Madi people shall improve and Moyo will develop like other parts of the country. He called for active participation of all members present in the engagements and asked the participants to be precise in the interest of time. He highlighted the purpose of the meeting which he said was to update the district leaders on the proposed upgrade of Laropi –Moyo- Afoji road project and informed them that sensitizations of stakeholders were to be undertaken at district, subcounty and community level. The district chairperson officially opened the meeting at 09:30 am</p>	
Presentation by UNRA officials	
Presentation by UNRA TEAM	
<p>The Social Development Specialist UNRA, Ms Enid Kansiiime gave a presentation on the purpose of the visit which she said was to engage and inform the stakeholders on the proposed upgrade of the Laropi-Moyo –Afoji road and said, it was pertinent that the leaders and communities are informed about the proposed development to stimulate their participation as well as provide them with project information and give them the opportunity express their concerns, views and fears about the project. She further highlighted the UNRA mandate which she said is to develop, manage and maintain the national roads and bridges, the operation and maintenance of the ferries among others. Participants were informed that the construction of the Atiak-Laropi road had commenced and government had secured financing from the African Development Bank to finance the upgrade of the Laropi-Moyo-Afoji road project. She said, the development of this project will introduce safety features for all road users and the road which is currently a gravel road will be upgraded to tarmac. Members were informed that a bridge shall be constructed across the Nile that will connect the river from Umi to Laropi. Members were informed that the upgrade is intended to improve the pavement structure; safety aspects; improve traffic management; cater for Environmental and social safeguards on the project and expand the road from 7m to 11m width. She said that, upgrading the road shall require extra land take and as required by law, the persons affected by the project shall be compensated for the properties that shall be affected. She said that UNRA shall undertake engagements at District, Subcounty and community level before the Surveyors commence demarcations to ascertain the extent of the land take. She stated that Socio Economic Surveys that identifies different categories of people who shall be affected by the project shall be undertaken and detailed vulnerability studies conducted to inform resettlement planning by identifying different categories of people who may require extra support to be able to manage the resettlement process i.e elderly persons, chronically ill, child headed households among others. The leaders were informed that it's a requirement by law and AFDB financing requirements that with developments of such magnitude , stakeholders must be engaged to inform the implementing local governments and host communities about the proposed development, get their concerns and the likely impacts and seek for their support and participation in all the project activities. She said that all the properties that shall be affected by the</p>	

road project shall be assessed and compensated for and upon compensation the project affected persons shall be given a grace period of either 3 months or 6 months to relocate before actual civil works commence. During the process of Land acquisition and RAP implementation it is anticipated that there are likely to be grievances and there fore UNRA shall support the community to form Grievance Management Committees to ensure that project related concerns and complaints are addressed .

The process and construction of the proposed road project shall be inline with the financing and safeguard requirements of the funder, the African Development Bank which among others include the Environment and Social Safe Guards as well as physical cultural resources management. She stressed the need to work with all stake holders involved to ensure a successful project implementation

she finally informed the meeting that t a RAP was prepared in 2016 that covered the road from Atiak to Afoji as it had earlier been planned to be implemented as one project . However, only financing was secured for a section from Atiak-Laropi under the EU financing . She further said that due to time lapse, there was need to update the RAP report because land ownership may have changed , new developments come up and other social dynamics and setups. In a participatory way were asked to list the likely impacts and these were the responses;

Anticipated Impacts

Positive impacts

- Movement is going to be made easy due to the good road.
- Employment opportunities will be created for the youth.
- The affected people will not lose out completely because all their affected properties will be compensated.
- Peoples businesses in the whole district will be boosted due to the easy transportation of goods and services.
- There will be an increase in the land values due to the good road.
- Reduction in transport costs.
- The social services will be brought near to the people.

Negative

- There might be an increase in the number of accidents due to a good road.
- Increased prevalence of HIV/AIDs because of new people in the area.
- Family breakdowns and conflicts due to the contractor workers that will confuse the community members most especially the women.
- School dropouts as some of the children will get out of the schools to look for quick money and some young girls might become pregnant then become single mothers.
- Defilement of the young girls by the new people in the area.
- Air pollution brought about by the dust during the actual construction.
- Destruction of vegetation cover especially trees that have been planted along the road

The team leader led the members in a participatory manner to come up with the mitigation measures that should be put in place to reduce on the likely impacts and these were the responses.

Suggested solutions.

- Strict management measures on how workers must behave should be put in place for all employees of the contractors and UNRA should monitor to ensure that the contractors put in place a mechanism of enforcing discipline amongst its workers.
- A grievance redress mechanism should be put in place that should involve the community members to act as a link between the community and UNRA to help solve the problems that may arise during the actual road construction.
- To reduce on accidents, humps should be put in the trading centers and school areas, road safety measures like sign posts and enforcement of traffic rules and regulations be put in place in liason with the district traffic police.
- Sensitization of schools and community about the road and its benefits and impacts, road reserve and road safety HIV/AIDS and other STDs, the district stakeholders were informed that the contractor will have a clinic that will be responsible for managing and referring workers with medical emergencies and First Aid, provision of HIV counseling and testing, distribution of condoms and treatment of the STDs. The Nominated service provider shall also undertake community mobilization and sensitization to create aware ness on the impacts of the road, child protection and gender based violence. These activities are geared to empowering communities to participate in the project activities, promote and protect the rights of vulnerable groups and address and refer grievances.
- Trees seedlings be supplied to communities and schools to plant along the roads and also establish woodlots
- Watering the road to minimize on dust pollution

Stakeholder concerns, fears and responses

Key Issue	Description	Responses to Issues/Concerns
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Road Maintenance	The roads in Moyo district are in a very bad condition and become impassable during the rainy season. Why does it take long for UNRA to maintain the roads since its their mandate	The maintenance of all existing national road network is UNRA's mandate, It should be noted that it is not only Moyo district facing this challenge during the rainy season but also other districts. The station is trying as much as possible to ensure that the district is not cut off
Road name and end point	The road name is Laropi-Moyo-Afoji. Does it mean that the road is ending at Afoji ? The road should end at Jale.	According to the road design, the road shall end at the border with South Sudan. The road length is 36.6Km
Labour based contractors	The labour Based contractors procured by the Moyo UNRA station are not posted to sections of the road where they bid for works.	The UNRA Moyo station team shall be notified about this concern and feedback shall be provided to stakeholders on mechanism of engagement of LBCs..
Selection of Grievance Management Committee's	What shall be the criteria for selection of grievance management committees.	The members of the Grievance Management Committee shall be selected by the community basing on UNRA GRM guide.
Compensation for land& buildings	How will land and buildings in the same location be compensated	Land shall be valued differently from the buildings. The land rates and /or values are guided by the prevailing market rates in an area at a given time whereas rates for the buildings or structures assessed are approved by Chief Government Valuer.
Assessment of property in 2016	there are some people whose property was assessed in 2016 and were asked not to undertake any developments. However, they have never been compensated and hence loss of income. What will happen to such people?	It's very unfortunate that some people left their buildings after the first assessment. However fresh valuation and assessment is going to be undertaken by the valuation team for the entire project.
Fluctuating land rates	The rates of land keep changing. How is this going to be handled?	During the valuation, UNRA uses the current prevailing market prices in that particular area. So the fluctuating land prices don't affect the valuation process
Commencement of the project	When is the project starting?	The project shall commence upon compensation of project affected persons and procurement of the contractor. This project is anticipated to commence in a period of 2-3 years
Compensation of PAPs	Will the people who will be affected by the project be compensated	Yes, the government of Uganda through UNRA is going to compensate all the persons that will be affected by the project. Compensation shall cater for the affected buildings, homes, land, crops among others.
Destruction of water sources/ pipes	In the event that the water source or pipe along the project is affected, what happens?	The contractor will be required to relocate such facilities before the commencement of works. The contractor shall work with the utility providers like UMEME, National Water& Sewerage Corporation to ensure that utilities for example the water pipes, power lines are well relocated before the works begin. These are relocated to the road reserve which is also paid for during the compensation period.

Environment	Many projects do not put into consideration the environment aspects, during your projects many trees are cut down which eventually affects the climate of our area, how is this going to be addressed?	UNRA always does an Environment Impact Assessment for its projects to anticipate the likely impacts and come up with mitigation measures. UNRA has a GROW programme where trees are nurtured and planted along the newly constructed roads aimed at conserving the environment , beautification and protecting the road reserve.
Closing remarks the chief administrative officer		
Mr. Patrick Olila the Chief administrative officer thanked the district technical and political team for turning up for the engagement and also thanked the UNRA team for responding to all issues raised. The local leaders were encouraged to work with UNRA to ensure that the project is executed successfully. The meeting was declared closed at 2:30Pm		
STAKEHOLDER:	Moyo Subcounty	
Date:	8/12/2020	
Venue:	Moyo subcounty Headquarters	
AGENDA		
<ol style="list-style-type: none"> 1. Opening Prayer 2. Introductions 3. Opening remarks and communication from the Sub County Chief 4. Overview of the project, UNRA Team 5. Discussions 6. Closing remarks by the Chairperson LC3 		
Prayer		
The subcounty engagement started with an opening prayer led by one of the participants		
Introductions from the members present		
Members present introduced themselves one after another.		
Opening remarks and communication from the Sub county chief		
The Acting Subcounty Chief, Mr. George Ambama welcomed the members present and thanked them for responding to the invitation to attend the meeting. He informed members present that he had met the UNRA team earlier and was given a brief about the proposed road project. He said, as a subcounty, they fully supported the government intervention geared towards uplifting the social economic conditions of the people in the West Nile Region and urged members present to provide detailed information about the social set up of the project area, he anticipated that , cases of gender based violence may rise when the civil works for the project commence. He implored the UNRA team to form community support structures to address conflicts and grievances that may arise in the community during project implementation. He declared the meeting open at 2.43pm .		
Presentation by UNRA officials		
Edward Juuko , the Social Development Specialist UNRA, informed members present that a diverse team of experts comprising of Valuers , Engineers, Environmentalist ,Surveyors and Sociologists would from time to time undertake engagements and field activities during studies for project activities on the proposed upgrade of Laropi-Moyo- Afoji road project. He informed members present that the meeting was in regard to the proposed upgrade of the road from Laropi ro Afoji. He said that the mandate of UNRA is to manage, develop and maintain all national roads in Uganda. He reminded members that in 2016, the Authority had planned to upgrade Atiak-Moyo Afoji road as one project, However, this has been split into two sections i. e Atiak- Laropi, Laropi Bridge and Laropi-Moyo- Afoji and this shall be from different financing. He informed members that the civil works commenced on the section from Atiak - Laropi after detailed studies were undertaken and the project affected persons compensated. He noted that the subcounty local government is a key stakeholder and hence the need to inform them about the proposed project; introduce the project team, seek for support and go to the community and sensitize them about the project. Get views on how to plan the project better particularly in knowing the negative impacts of the project on the project affected persons and the entire community.		

He informed members present that, the upgrade is intended to improve the pavement structure; safety aspects; improve traffic management; cater for Environmental and social safeguards on the project and expand the road from 7m to 11m width. He said that , upgrading the road shall require extra land take and as required by law, the persons affected by the project shall be compensated for the properties that shall be affected. He informed that UNRA shall undertake engagements at District, Subcounty and community level before the Surveyors commence demarcations to ascertain the extent of the land take. He stated that valuation and Socio Economic Surveys that identifies different categories of people who shall be affected by the project shall be undertaken. This he said in the end would help identify different categories of people who may require extra support to be able to manage the resettlement process i.e elderly persons, chronically ill, child headed households. Members were informed that Grievance Management Committees (GMCs) shall be formed to address all grievances that may arise during the process of Land Acquisition and project implementation. He noted that in case people are not satisfied with compensation values, there shall be a reassessment and upon compensation of all project affected persons, civil works shall commence. Mr. Edward Juuko informed the members present that the team would come back for detailed assessments.

Anticipated Impacts

In a participatory way, the members were asked to list the likely benefits and negative impacts or any fears about the proposed road project and these were the responses

Benefits

- Development of the area since there will be many people from Sudan accessing the district
- There shall be reduction in transport costs
- Employment opportunities for the local people shall be available
- There shall be improved market for the agricultural produce
- The value of land shall increase due to high demand

Negative impacts

- Increase in cases of early girl child drop out due to pregnancy
- Children shall drop out of school to participate in road activities
- Increased dust
- There will be spread of HIV/AIDs and other sexually transmitted diseases
- Increased cases of family break down as a result of women opting for construction workers who may have a lot of money

Discussions, Concerns and Responses

Key Issue	Description	Responses to Issues/Concerns
1. Water pipes	Ministry of Water and Environment has just installed and extended water pipes in the area. The contractor be informed earlier and have them relocated before disruption of water supply to the community.	Normally, where there are utilities i.e. internet cables, electricity lines and water pipes. UNRA identifies the utility owners and they jointly work together to have them removed from the right of way, in case the utilities are outside the ROW they are usually not relocated.
2. Point where the road terminates	Where does the road project terminate? The road ends at Jale at the border with South Sudan but the road name is Laropi-Moyo –Afoji. Does it mean the road is to end at Afoji. The road should end at Jale which is the actual boarder	According to the design, the road ends at the border with South Sudan and it is 36.6Km from Laropi.
Compensation for affected persons	People who will be severely affected by the project are women and children. Shall the project affected persons be compensated before works begin or compensation shall be after road is upgraded	Compensation for project affected persons shall be undertaken before commencement of civil works. There are few exceptions like when we fail to identify the land owners i.e absentee land lords and with such people, we usually advertise in the media houses and look for them. After a given time period and fail to identify them, the project proceeds. Similarly, if the PAP is very stubborn and having professionally done assessments, we advise the PAP to go to the courts of law while the project proceeds.

Construction of bridges	Shall new bridges be constructed along the road since the existing ones are narrow and may not be of the same width with the road?.	Bridges shall be constructed. The scope of works shall cover all aspects of the road including the bridges. If there is a requirement for widening the bridge because the existing one does not meet the specifications, this shall be implemented during construction. This road project has three bridges and all these shall be constructed if they do not meet the required specifications.
Commencement	When is the project starting?	The project has already commenced. The activities that the team is undertaking are feasibility studies that shall input into design of the project and also guide the compensation process for the project affected persons. However, actual civil works shall commence upon compensation of the project affected persons and this may take a period of 2-3 years from now..
Compensation for titled and untitled land	Shall compensation rates be the same for titled and untitled land?	The compensation rates for titled land is different from one without a title deed. Therefore, the value of land with the title shall be more than one without a title.
Sitting tenants	In the event that the land owner or property owner is not around, who will be compensated? We are likely to have impersonators.	In case the property owner is not around, compensation is made to the next of kin or someone who has powers of attorney by the property owner to transact business on their behalf.
Negative impacts	There are a number of likely negative impacts of the road i.e increase in Sexually transmitted diseases, Gender based violence, early pregnancy, displacement, Enviromental degradation, increase in road accidents among others. How shall these be mitigated?	There shall be intensive community mobilization and sensitization to create awareness about the negative impacts of the road and mitigation measures in place. On HIV/AIDs and GBV, a nominated service provider shall be procured to work with the district and subcounty local government structures to undertake testing, referral and management. Tree planted shall be undertaken by UNRA to replace the trees that shall be affected by the road project

Closing remarks by the chairperson LCIII

Mr. Daniel Buni the subcounty chairperson thanked all the technical and political team for turning up for the meeting which to him was a clear sign that the stakeholders are ready to support the project. He said that UNRA should this time take the project seriously as there were mixed feelings from the community due to the fact that the road stopped at Umi landing site , in Adjumani district , yet the community expected the road to end in Jale at the border with South Sudan. He sarcastically noted that during election period, surveyors come and a lot is done but after elections, they disappear as has been the case with 2016. He hoped that there shall not be any more excuses since the community had suffered a lot due to a very bad road and many people had lost lives due to road accidents. He said that the road must end in Jale that is only 2kms from Afoji for which he said wasn't negotiable due to insecurity caused by Sudanese insurgents. For the road shall enhance security at the boarder point and increase trade between the two countries. He said as we wait for the road upgrade, the road needs to be routinely maintained to make it motorable since there are so many potholes hence the road unsafe for the road users. He committed to work with the UNRA team and asked team to undertake massive community sensitization to create awareness on the proposed road development , its impacts and the mitigation measures

METU SUBCOUNTY

District:	Moyo
Venue	Metu subcounty
Date:	8/12/2020
Members present: Subcounty technical and political team	
AGENDA	
<ol style="list-style-type: none"> 1. Opening Prayer 2. Introductions from the member's present 3. Welcome remarks by the Sub-county Chief 4. Presentation from the UNRA Team 5. Discussions 6. Closing remarks 	

Prayer
The engagement started with an opening prayer which was given by one of the members.
Introductions from the members present
All members present introduced themselves one after another.
Opening remarks
The Ag. Sub-county Chief Mr. Jonathan Agwe welcomed all participants to the meeting and informed the UNRA team about the excitement the people of Metu have upon hearing that government has finally secured money to tarmac the road. He remarked that construction of the road is going ease movement as well as other advantages which come with a good road. He called for active participation from all participants and officially declared the meeting opened at 2:00Pm.
Presentation by UNRA officials
<p>Enid Kansime UNRA Social Development Specialist thanked the subcounty leadership, for hosting the team and informed members present that that the Government of the Republic of Uganda put priority on the road infrastructure development as a precursor for Social Economic Development of the country. She said that that upgrading LMA road shall be meaning less if the bridge across the Nile is not constructed . She noted that, although the ferry is operational there are many challenges that the travelers experience especially time wastage and scheduled movements. Originally Atiak-Moyo- Afoji was meant to be one project EU had expressed interest in financing for the road project. However, it turned out that the available resources would only cover up to Umi in Adjumani district. She informed the subcounty leadership that the African Development Bank has expressed interest in financing the Laropi-Moyo-Afoji road as well as construction of the Bridge across the Nile, Laropi Bridge.</p> <p>On why UNRA engages the subcounty leadership, she said, subcounty local governments are partners in development and hence the need to give them project information, introduce the project to stakeholder, support participation in project activities, get critical issues which should be addressed so that they don't present challenges . She called upon local leaders to support the team while undertaking various studies for the RAP update as well as the actual implementation of the project. She said that the land tenure system in the area is not known and hence called upon the local leaders to support the team to avoid conflicts. She informed members that the purpose of the visit was to introduce the project, identify the likely impacts, and the conflict redress mechanism in place.</p> <p>In her presentation, Ms. Enid informed participants that initially the Government had intended to upgrade Atiak-Laropi-Moyo –Afoji road as one project under European union support . However, European union support was only able to support upgrade of the road section from Atiak – Umi in Adjumani (63km) District. She informed the subcounty leaders that parliament had approved a loan request from the African Development Bank to finance the upgrade of Laropi –Moyo- Afoji road project and Laropi Bridge with the purpose of upgrading it from the current gravel condition to bituminous standards thereby increasing the pavement life to 20yrs; improve geometric alignment of the road and hence improve safety through introduction of safety features on the road among others.</p> <p>Members were informed that while implementing the project the safeguard requirements of the African Development Bank and the laws of land regarding land acquisition and involuntary resettlement shall adhere to that includes among others Environmental protection, stakeholder engagements, compensation, protection of sites of historical and cultural significance among others.</p> <p>The Metu staff members were informed about the Grievance Redress Mechanism and how UNRA has to ensure that the grievance management committees (GMCs) are formed to handle the project related concerns and complaints. These committees will be operational for the entire project cycle to ensure that all the project related grievances are handled accordingly.</p> <p>Enid informed that before implementation of the project of such magnitude there is need to undertake it is a requirement that stakeholder consultations are undertaken to inform stakeholders at all levels about the proposed road development; the likely impacts and seek their views and concerns to input and incorporate into the design of the project.</p>
Anticipated Impacts (discussion)
<p>Participants were asked to mention what they thought were the likely impacts of the road and the following were their responses.</p> <p>Positive</p> <ul style="list-style-type: none"> • The number of vehicles will increase thus boosting business because of accessibility • There will be a reduction in accident rates. • Increased revenue to the district. • Increased and improved income of the local people • Creation of employment opportunities • Improved security by the soldiers at the border.

- Increased access to commodities outside the region.
- It will attract investment opportunities in the area.
- Increase in the number of tourists in the area, they gave an example of the Emin Pasha site and Metu community Museum.
- Enriching their culture by interacting with other cultures.
- Reduction in air pollution brought about by too much dust.

Negative

- Loss of their heritage which money cannot buy.
- Loss of land and crops
- Increase in accidents because of over speeding.
- Compensation will cause bad relations because of the land that was acquired through friendship.
- Loss of land to investors which will leave the local community people homeless.
- Increased crime rates because new people will come into the area.
- Prostitution , new people who come with lots of money in the area.
- Environmental impacts because of stone blasting at the quarries.
- Increase in waste disposal.
- The presence of so many people in the area might lead to the easy spread of HIV.
- Family breakdowns due to the contractor workers that will confuse the women.
- School dropouts as some of the children will get out of the schools to look for quick money.
- Defilement of the young girls due to the big population and also the project workers.
- There might be increased insecurity in the area leading to robberies.
- Cracking of the buildings during construction.

Suggested mitigation measure for the negative impacts.

- Strict management measures should be put in place for all employees of the contractors with help of UNRA.
- A grievance management committee will be elected by the community members to act as a link between the community and UNRA to help solve the problems that may arise during the land acquisition process and road construction.
- Sensitization of schools and community about the road reserve and how many meters should be left near the road reserve.
- Vulnerability is very key and UNRA will need to assess the vulnerable people and see how to help them relocate. Among those that are considered vulnerable are; the widows, the orphans, the chronically ill, the physically impaired, the child headed households and also the drunkards.
- UNRA has to ensure that such people are well resettled by the project. A team from UNRA will thus map out the vulnerable PAPs for the entire project with the help of the local leaders to ensure that the compensation money goes to the right persons who might stand in on their behalf to ensure that the money is put to good use. This will help in not making these people further vulnerable but ensure that they benefit from the project.
- The contractor will have a clinic that will be responsible for managing first aid, emergencies before referral. At project level, some of the services that will be provided by the clinic will be provision of free HIV counselling & testing, free distribution of condoms and treatment of the STD.
- The Nominated service provider will also ensure that massive community sensitization is regularly conducted on aspects regarding child protection, sexual and gender based violence, social inclusion and HIV/AIDs
- Communities be sensitized on financial literacy so that the money received is put to use.

Concerns and Responses

Key Issue	Description	Responses to Issues/Concerns
Road design	Can the road design be diverted because it is passing through the Metu trading centre. Many commercial buildings and residential houses shall be affected	The design will minimize the effects of displacement to the extent possible .
Land Conflicts	What if there are two parties having land conflicts since most of our land is customary land, how will this case be handled?	As long as there is a conflict and it has not been resolved, then that property will not be compensated until a resolution is made with the LC as a witness.

Composition of GMC's	The community members needed clarification on the criteria that will be used in selecting the GMC members	The members of the GMC will come from the community members. The UNRA team will guide the communities on how to select the various members but the choice of the members will entirely come from them.
Compensation of land & buildings	How is land and buildings in the same location compensated	land will be valued differently from the buildings. The land rates are guided by the prevailing market rates in an area and the rates for the buildings come from the Chief Government Valuer. The person will get a total sum of the two properties but the valuation is done differently.
Prior assessment of property	Some people abandoned their property during the first assessment. What will happen to such people?	It's very unfortunate that some people left their buildings after the first assessment. However fresh valuation and assessment is going to be undertaken by the valuation team for the entire project.
Fluctuating land rates	The rates of land keep changing. How is this going to be handled?	During the valuation, UNRA uses the current prevailing market prices in that particular area. So the fluctuating land prices don't affect the valuation.
Commencement of the project	When is the project starting	The project is now at the initial stages. As soon as the RAP, ESIA reports are updated, PAPs compensated and procurement process completed the works shall begin
Compensation of PAPs	Will the people who will be affected by the project be compensated	Yes, the government of Uganda through UNRA is going to compensate all the people that will be affected by the project.
Destruction of water resources/ pipes	In the event that the water resource or pipe along the project is affected, what happens	The contractor will be required to relocate such resources before the commencement of works. For instance, the contractor works with the utility providers like UMEME, National Water & Sewerage Corporation to ensure that the utilities for example the water pipes, power lines are well relocated before the works begin. These are relocated to the road reserve which is also paid for during the compensation period.
Closing remarks from the chairperson LCIII		
The subcounty chairperson Mr Peter Ogoro , thanked his team for turning up for the engagement. He thanked the UNRA team for the elaborate explanation about the project. The local leaders were encouraged to work with UNRA to ensure that the project is executed successfully. He declared the team closed at 5:30pm		

MOYO T/C Community Engagement.

District:	Moyo
Venue :	Town council Hall
Date:	9/12/2020
AGENDA	
<ol style="list-style-type: none"> 1. Opening Prayer 2. Introductions 3. Opening remarks and communication from Town Clerk 4. Brief from UNRA Team 5. Discussions 6. closing remarks by the Town council Chairperson 	
Prayer	
The engagement started with an opening prayer led by one of the participants	
Introductions	
Members present introduced themselves one after another.	
Opening remarks by the Town clerk	

The Town Clerk, Chota Vivien welcomed the team for the meeting and informed members present that she had received a letter informing her office about the planned upgrade of the Laropi-Moyo Afoji road project. She noted that, this road and the Laropi Bridge have been long overdue and the UNRA team should inform the community when the civil works component of the road shall start. She said the interest that the community has is knowing when the road works are to start. She said that her office is committed to supporting the project and asked the UNRA team whether the town roads had a component of street lighting and junction improvements within the town council. She finally re echoed that this project had been long overdue and hoped that it does not take again more five years as has been the case before. She declared the meeting opened at 9.30 am.

Presentation by UNRA officials

Esther Kitui, the Senior Sociologist UNRA, thanked the Town Clerk, the technical and political team for setting aside their busy schedules and attending the meeting. She said the purpose of the meeting was in regard to the proposed upgrade of the road from Laropi-Moyo -Afoji, she said that in 2016, the Authority had planned to upgrade Atiak-Moyo Afoji road as one project, However, the financing was not adequate to finance the entire road project under European union support. She informed members that the AfDB had expressed interest in financing the upgrade of the Laropi Bridge and Laropi-Moyo Afoji road section. She said that as one of the conditions, was to update the Resettlement Action Plan for the road project which had been earlier made, 2016. she informed members that the civil works commenced on the section from Atiak - Laropi after detailed studies were undertaken and the project affected persons compensated.

she said that the upgrade of Atiak-Moyo-Afoji road is intended to improve the pavement structure; safety aspects; improve traffic management; cater for Enviromental and social safeguards on the project and expand the road from width from the existing 7 meters to 11 meters . Upgrading of the road shall require extra land take and as required by law, the persons affected by the project shall be assessed and compensated for the properties that shall be affected. She informed that it's a requirement by law that the developer, UNRA undertakes stakeholder engagements as part of the RAP update exercise with the ultimate goal of informing stakeholders about the project, seek their views and concerns and seek for stakeholder support to ensure smooth implementation of the project. She said a diverse team of experts shall be undertaking various activities and among others she noted establishment of the right of way, asset inventory and data capture ,Socio Economic Surveys that shall identify different categories of people who shall be affected by the project, understand their socio- economic profile i. e widows, child headed households, literacy levels, econ activities etc.

Members were informed that Grievance Management Committees (GMCs) shall be formed to address all grievances that may arise during the process of Land Acquisition and project implementation. She noted that in case people are not satisfied with compensation values, there shall be a reassessment and upon compensation of all project affected persons, civil works shall commence.

Anticipated Impacts

Participants were informed that road upgrade projects have both the positive and negative impacts on both the community and environment and said that its good to anticipate the impacts to come up with mitigation and enhancement measures. Participants were asked to mention what they thought are the likely positive and negative impacts and the following were their responses;

Positive

- Employment opportunities will be created for the local people.
- There will be development in the area.
- The compensation will also boost people's incomes.
- Increased business opportunities in the area
- Reduced travel expenses and time

Negative

- Increased degradation of the environment ie dust and pollution
- Spread of sexually transmitted diseases
- Displacement
- Increased cases of gender based violence
- There will be low compensation rates and hence failure to replace property affected
- Early pregnancy especially for girls due to sexual relationships with road construction workers
- Destruction of trees

Grievance Redress Mechanisms

Participants UNRA shall sensitize and support the community to form Grievance Management Committees (GMCs) to address all grievances that may arise during the process of Land Acquisition and project implementation. She informed members that if a PAP is not satisfied with compensation values, there shall be a reassessment and upon compensation of all project affected persons, civil works shall start.

Discussions, Concerns and Responses

Key Issue	Description	Responses to Issues/Concerns
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Delayed upgrade of the road	This road has been used for electioneering since 1962. It has been noted that every other electoral year, a team of surveyors and engineers come to the project, do surveys and studies and disappear. What assurance is there that this road shall be constructed following the previous trends since 1996. The community need to be engaged to build confidence and trust that the road is for real and shall be worked on.	Government of the Republic of Uganda has now secured financing for this project and African Development Bank has expressed interest in financing the road and this RAP update is one of the conditions for financing.
Town roads	The 1.6km allocated to the road project is very small, can UNRA increase to at least 3-4km	This request was made in the district engagement. The Town Council leadership or Moyo District Local Government can formally communicate to the MoWT .
Road Design	Is the road design ready? Can it be shared with the Town Council	The road design is a public document, when final designs are approved UNRA shall share this with the district and town council.
Project Name	The project name should be clear. Is it Laropi-Moyo-Afoji, or Laropi- Moyo -Jale. The road ends at Jale which is the boarder.	The road project is Laropi- Moyo- Afoji and the road shall end at Jale which is in Afoji . The entire road length is 36kms
Storm Water Management	During construction of the road, there is a lot of surface water generated. How will this be mitigated	The Hydrology team undertook studies along the road project and the drainage pattern and system has been taken into the design of the road. Drainage structures shall be put in place to minimize run off.
Compensation rates	Will compensation be the same as the ones of Koboko and Yumbe. Is it sensible to have different compensation rates	Districts have different compensation rates that have been determined by the respective district land boards . The rates in Yumbe may not necessarily be the same as the ones in Moyo or Koboko
Accesses	Shall access to peoples residences and property be made?	Access to homes, properties and other socio economic facilities have been catered for in the design of the road and therefore during and after civil works there is a provision for access.
Laropi Bridge	Is the bridge component part of the road project?	Laropi bridge shall be constructed under the same financing. However, they shall be implemented as different projects.
Tree Planting	A number of trees shall be destroyed during bush clearing, shall you plant trees as a way of conserving the environment	Trees shall be planted along the road upon completion of upgrade. UNRA has a programme called GROW (Green Right of Way). Trees are raised in tree nurseries are nurtured and maintained by UNRA in collaboration with NFA , up to when they gain a maximum girth and planted along newly completed roads, as of now, 725Kms of the road network has been planted.
Vulnerable persons	There are elderly, widows child headed households and PWDs along the proposed road project. how shall they be helped?	During detailed socio economic studies persons we consider vulnerable shall be profiled and shall be assessed and offered with the necessary support to support resettlement. If there are some individuals who you think are very vulnerable should be brought to the attention of the local leaders and UNRA social team.
Employment Opportunities	The unemployment rates amongst the youth in the town council and district are very high. While recruiting labour force for the civil works component priority be given to the local people.	UNRA has a policy that while undertaking road development and rehabilitation projects works in a given project area, 60% of the casual jobs be given to the local people.
Squatters	There are a number of people operating businesses in the road reserve. These should be considered during compensation because they shall be inconvenienced too through economic loss	The licensees and squatters shall be profiled during data capture. Those who have put up structures, shall be compensated for the developments on land only.
Closing remarks by the Town Council Chairperson		

In his closing remarks, the Town council chairperson ...thanked the UNRA team for organizing the engagement . He noted that dust nuisance shall all be gone when the road is upgraded. He said that while campaigning in 2001, His excellency the president of the republic of Uganda pledged to have the road tarmacked and its close to two decades now and the people of Moyo are still waiting. The Teams presence in the project area was a sign that the road is to be constructed as promised by the President. He made an appeal to the UNRA Laropi-Moyo –Afoji project team to expedite the process of land acquisition, and this he said would build trust from the communities instead of continuous planning. He said , wished to see machines on the ground and project implemented before he leaves office in May 2021 .

LAROPI SUBCOUNTY ENGAGEMENTS

District:	Moyo
Venue:	Subcounty HQs
Date:	9/12/2020

AGENDA

1. Opening Prayer
2. Introductions from the member's present
3. Opening remarks and communication from the Sub county chief
4. Overview of the project, UNRA Team
5. Discussions
6. closing remarks by the chairperson LC3

Prayer

The engagement started with an opening prayer led by the subcounty chief, Asienzo Catherine

Introductions from the members present

Members present introduced themselves one after another.

Opening remarks and communication from the Sub county chief

The Subcounty Chief, Catherine Asienzo welcomed the members present to Laropi subcounty , whose location she said is where the road starts. She informed members present that Laropi subcounty has four parishes and 21 villages .She informed the UNRA team that the subcounty had "given birth" to the Town Council, Laropi and shall become operational in the next financial year(2021/2022). She said that the subcounty leadership welcomes the project which she said was a blessing for the new Town Council. She said, construction of the Atiak-Laropi-Moyo-Afoji road was as way back as 1962 and to her it's been long overdue and she was optimistic that government this time is committed to have the road upgraded as evidenced by a number of activities taking place along the road. She urged all village local council chairpersons in attendance to mobilise communities most especially the project affected persons to attend inception meetings . through these meetings , she said the local communities can receive first hand information on all the project milestones including compensation and relocation. She finally informed the UNRA team that with the subcounty technical and political team on board, the project will be implemented to the end. She thanked the UNRA team for scheduling the meeting and asked for active participation by all and officially opened the meeting at 11:00am,

Presentation by UNRA officials

Enid Kansiiime UNRA Social Development Specialist thanked the subcounty leadership, for hosting the team and said it was not her first time in Laropi and said aspects discussed shall be different from what had earlier been discussed. SHE stated that the Government of the Republic of Uganda put priority on the road infrastructure development as a precursor for Social Economic Development of the country. She said that that upgrading the road shall be meaning less if the bridge across the Nile is not constructed . She noted that, although the ferry is operational there are many challenges that the travelers experience especially time wastage and scheduled movements. Originally Atiak-Moyo Afoji was meant to be implemented as one project, but when financing secured from EU could only cover the road section from Atiak-Umi.

On why UNRA engages the subcounty leadership, she said, subcounty local governments are partners in development and hence the need to give them project information, introduce the project to stakeholders and stimulate their participation in project activities, get critical issues which should be addressed so that they don't present challenges . She called upon local leaders to support the team while undertaking various studies for the RAP update as well as the actual implementation of the project. She said that the land tenure system in the area is not known and hence called upon the local leaders to support the team to avoid conflicts. She informed members that the purpose of the visit was to introduce the project, identify the likely impacts, and the conflict redress mechanism in place.

She informed members present that, the upgrade is intended to improve the pavement structure; safety aspects; improve traffic management; cater for Enviromental and social safeguards on the project and expand the road from 7m to 11m width. she said that , upgrading the road shall require extra land take and as required by law, the persons affected by the project shall

be compensated for the properties that shall be affected. She informed that UNRA shall undertake engagements at District, Subcounty and community level before the Surveyors commence demarcations to ascertain the extent of the land take. She stated that valuation and Socio Economic Surveys that identifies different categories of people who shall be affected by the project shall be undertaken. This he said in the end would help identify different categories of people who may require extra support to be able to manage the resettlement process i.e elderly persons, chronically ill, child headed households. Members were informed that Grievance Management Committees (GMCs) shall be formed to address all grievances that may arise during the process of Land Acquisition and project implementation.

Anticipated Impacts (discussion)

participants were informed that road development projects come with both positive and negative impacts and it was the responsibility of the stakeholders to identify the likely negative impacts and come up with mitigation measures. She asked participants to mention what they think are likely to be the impact of the road project and the following were the responses.

Positive

- Ease of mobility in the area due to good roads
- Creation of employment opportunities for local people
- Increased business opportunities in the area
- Development in the area
- Improved market for agricultural produced
- Increased business opportunities

Negative

- Sexual exploitation of women and girls
- Displacement as there will be widening of the road
- Enviromental degradation as a result of cutting down trees and dust pollution
- There will be domestic violence as some of the women might be tempted to go in with the project workers.
- Girl child drop out
- Increased cases of HIV/AIDs and other sexually transmitted diseases.

measures whereas the negative impacts there shall be mitigation measures to ensure that the proposed project does not leave the community in a worse off situation than they were got.

He further informed members that during the process of land acquisition and implementation of the road project, there are likely to be grievances and hence there was need to have a grievance redress mechanism in place to handle, resolve and refer cases before they impact on project milestones. He said that UNRA shall support the community to form grievance management committees on the road project.

Discussions, Concerns and Responses

Key Issue	Description	Responses to Issues/Concerns
Existing concrete section on Pkwembele Hill	There is a concrete section of the road on Pkwembele hill. shall this road section also be redone or it will be skipped?	The entire road section shall be redone basing on the project design and specifications.
Landing Site	Which section of the landing site shall be worked upon, there are 2 landing sites	The lower side of the existing landing site is where the road shall start.
Material Sources	will you import materials or will be sought locally	the materials shall be sourced locally so long as they meet the required specifications. Materials that may not be got within the project area or country shall then be imported.
Right Of Way	the right of way shall be 30m, the road reserve , hence displacement of	All people who shall be affected by the road project shall be compensated. There shall be continuous sensitisation

	communities, there are people staying very close to the road and hence fear of displacement	and follow up to all project affected persons to prepare them before displacement
HIV/AIDs	There will be an increase in HIV infections in the area due to new people coming into the district seeking for job opportunities	UNRA shall procure services of Nominated Service Provider to sensitize the community and workers about the negative impacts of the road, undertake VCT and referral services.
Employment opportunities	for work that requires casual labour, the local people who reside within the project area be employed on the road project	people from within the project area shall be employed if they express interest and qualify for the jobs advertised. UNRA has a policy that if a project is being implemented in a given area, residents of the area should be given first priority when recruiting
Environmental degradation	During bush clearing trees shall be cut, the habitat for fish and hippos on the Nile shall be affected. There is a forest reserve along the road at Laropi, these trees are likely to be affected too and there is need to plant new trees to replace those that shall be affected by the road project.	UNRA has a programme called the green right of way(GROW) , aimed at planting trees on all the upgraded road projects in the country. So there shall be tree planting on the road when works are complete
Gender Based Violence	There is need for UNRA to continuously sensitize workers and community to create awareness on the forms, impacts and structures for addressing Gender Based Violence	UNRA and the district shall continuously mobilize and sensitise the communities on issues pertaining to GBV. This is aimed at creating awareness on the forms, impacts, reporting and the referral pathways
Child Labour	There is likely to be employment of children on the road project due to available opportunities to earn a living	Although there will be many employment opportunities on the project, persons below the age of 18 years shall not be allowed to work on the road.
Family Breakdown	Married women might be lured to have sexual relationships with construction workers because their spouses don't provide for them leading to family breakdown	There shall be a programme to sensitize and prepare communities especially families on both the benefits and negative impacts of the proposed road project. All workers shall sign a code of conduct and sexual harassment policy and these may act as a deterrence since there shall be sanctions therein.
Un wanted pregnancies	It is common that our girls prefer having love affairs with men from outside than the local men. Hence likelihood of having fatherless children	If this happens, girls be encouraged to know the background of the persons they are engaging with by their names, district, subcounty and village of origin, next of kin and contacts. This in a way shall help in tracing for the relatives of the children
Land wrangles	Customary land ownership is common in our district. there is likely to be land wrangles because everyone shall want to get part of the compensation payments.	Its true there are likely to be cases of conflict due to the type of land ownership. However, we encourage the clans to identify persons who they trust to receive compensation payments and replace the affected land without causing family conflict or disunity.
HIV/AIDS	The HIV/AIDs prevalence rate in the district was low. However, the rate rose to 1.2% when Spencon was constructing bridges along this road. We have the fear that when the road works begin, the cases are likely to increase.	HIV/AIDs is a very big challenge in the construction industry due to the migrant nature of the workers and their lifestyle. We shall work with the district to ensure that we undertake HIV/AIDs related activities on the project. This in away can reduce spread of the disease through adoption of the ABC strategy.
Financing	Have funds for the project been secured? Previously surveyors came, established the right of way in 2016 and they disappeared. this never happened, now again you have come, it's a great fear that you will also not come back after these elections	The government has secured financing for this road project from AfDB and within a period of three months we expect the bank to come for the appraisal mission for the project.

Responsibilities of local councils	what shall be the role of the Local Council 1 Chairperson?	The local council 1 chairpersons are very key stakeholders in implementation of the project. The local council leaders shall support UNRA during sensitization and mobilization, provide information on ownership, verification and disclosure
Budget of the road	What is the actual budget for this road so that we inform the community	We are currently in the stage of planning for the construction of the road and have not yet determined the cost. To get the cost, we have to go through the procurement process which stage haven't reached.
Town roads	Will Laropi subcounty benefit from the 1.6km awarded to town roads	This requires consultation. It is the district to select the town roads that shall be constructed

Closing remarks by subcounty chairperson

The chairperson LCIII Laropi subcounty..... thanked UNRA for inviting the subcounty leadership for the meeting. He said calling them in advance before engagements showed respect to the leadership of the subcounty. He said, that although previous teams had asked for the same information it's very important to update data and shall be available to get people to avail information as and when it is required. He thanked His Excellency the president of the republic of Uganda for making his promise fulfilled. He remarked that, "better late than never". He asked the team to assign at least 1 or 2kms of the road for Laropi Twn Council, which is to commence next financial year. In his closing remarks, he noted that issues of Amwa bridge where peoples trees were cut down and never compensated be followed up by the UNRA team. He finally wished members journey mercies and declared the meeting closed at 4p.m.

COMMUNITY ENGAGEMENTS

District:	Moyo
Date:	10/12/2020
Villages; Erepi South, Ori, Owoale, Cinyi East, Cinyi West, Palabori ,Kendi	
AGENDA	
<ol style="list-style-type: none"> 1. Opening Prayer 2. Introductions from the member's present 3. Opening remarks Overview of the project, UNRA Team 4. Discussions 5. closing remarks 	
Prayer	
The engagement started with an opening prayer led by one of the participants	
Introductions from the members present	
Members present introduced themselves by villages of attendance	
Opening remarks and communication from the local council 1 chairperson	
The Local Council 1 Chairperson Erepi South welcomed members present to the area and said was thankful about the development agenda. He asked community members present to actively participate in the discussions by asking questions and responding to issues brought to their attention. He opened the meeting at 2:00pm and wished the team fruitful deliberations.	
Presentation by UNRA officials	
Edward Juuko gave a brief description of the project and said that the government of Uganda identified infrastructure development as a key in enhancing productivity and efficiency that are an engine for development. He informed community members that Government with financing from African Development Bank is to upgrade Laropi Moyo Afoji from the current gravel condition to bituminous standards. He said the upgrade shall increase the pavement life to 20yrs; improve geometric alignment of the road and hence improve safety by introducing safety features on the road among others. He said, the community are key stakeholders and hence need to be engaged to provide information about the project; enable UNRA and the benefitting local government work together since both are government entities; community members are the ones to be affected by the project; give communities time to plan ahead for the upcoming changes; ensure community members make well informed decisions during the project period regarding their day to day lives.	

Solomon alinaitwe senior land valuer, gave a presentation on land acquisition issues and the main areas of focus were; the land acquisition process; how compensation values are arrived at; who qualifies for compensation; the land interests to be compensated; mode of compensation and options; requirements to possess during assessment and valuation and what to possess during identification, verification and disclosure; causes of delayed compensation etc. The facilitator informed community members that road infrastructure development projects has both the positive and negative impacts and said it's crucial that the communities be informed by the changes to ensure that they are protected so that they are not adversely affected.

Anticipated Impacts (discussion)

Edward Jjuuko asked members present about what they anticipated as the positive or negative impacts of the road and these were their responses;

Positive

- The cost of transport shall be low and hence there will be easy movement
- The local people shall undertake income generating activities along the new road since there will be market as a result of many vehicles crossing the region.
- The area shall develop because people will start taking up business activities
- The local people shall get jobs on the road

Negative

- Increased cases of domestic violence because married women might engage in sexual relationships with construction workers because they are believed to have more money than their spouses.
- Low compensation rates for the affected properties and hence may not be able to buy alternative land somewhere else.
- Many people are going to be displaced by the project and some may misuse the money and fail to replace the affected property hence poverty shall increase in those homes
- Increased cases of defilement and early pregnancy.
- Dust
- Cutting down of trees and hence affect environment
- Contamination of water sources
- Destruction of people's land and gardens
- Road accidents are likely to increase
- Increase in HIV/AIDs cases

The community members were informed that UNRA has structures in place to deal with the negative related impacts of the project. This is because UNRA's aim is that once a development is in an area, it should ensure that people's lives are made better and not worsen their standards of living. The community members were informed that to handle community grievances that may arise due to the project, UNRA shall support communities to form and train grievance management committees. He informed members that the committee shall comprise of 6 members from within the implementing villages to receive, mediate and escalate grievances.

Discussions, Concerns and Responses

Key Issue	Description	Responses to Issues/Concerns
vote of thanks	Iraga Godfrey a community member from Itia village thanked the UNRA team for having shared vital information about the project with the community. however, as local leaders wanted to know whether they would be paid and how much	Local leaders shall be facilitated with a transport refund when participating in project activities. There will be no salary for this work since its part of their mobilization activities.
Porous Boarders	the governments of Uganda and Sudan should address the issue of the boarder at Jale. When the borehole was being drilled for UPDF the workers were chased . even the road might face similar threats from the Sudanese insurgents.	this shall be escalated to top management for communication to the line ministry
doubts about the road	for the last 20yrs , this road has been discussed and it has never been tarmaked.	Key project activities have commenced and this project is for real . The road shall be upgraded since financing for the project has been approved.

	The community needs an assurance that the road this time shall be worked upon.	
land tenure	land in this community is customarily owned, during compensation the UNRA team will ask for a document to prove ownership. suppose you don't have, what shall be used to show proof that you truly own the land	We shall use letters from the local leaders and subcounty area land committees in confirming ownership of the affected land. So even if you do not have a land title or lease so long as you truly own the land you will be compensated
HIV/AIDs	HIV infections are likely to increase in the area since they do not know the status of workers. Its human to develop feelings for the opposite sex	UNRA shall work with the existing government structures to sensitise the community and workers on HIV/AIDs. There shall also be HIV counselling, testing and referral mechanisms in the project area.
Employment Opportunities	what assurance is there that people from within the community shall be given jobs? We have a fear that labour shall be go from outside the community	UNRA has a policy that people within the project area with qualifications if express interest, should be given first priority. This is intended to mitigate against the negative impacts of the project i.e sexual abuse, theft and abnormal behavior.
School dropout rate	A number of girls dropping out of school may increase in the area during implementation of the project. We anticipate that they may fall in love with project workers.	This is likely to happen on the project and we shall undertake comprehensive mobilization and sensitization in communities targeting parents, school administration and school children targeting girl children to protect them from all forms of abuse and exploitation
Compensation for trees	A PAP may have planted trees for timber in future i.e teak, how will valuation be done. Will it be valued at the current size or when at maturity	valuation shall be as is or the stage the trees were at the time of assessment. To compensate for the affected trees , UNRA shall use the district compensation rates.
border conflict	the issue of border with South Sudan is a big issue that requires resolution by government before any activity takes place in the contested area. Sudanese attack any time any development project is implemented .	This issue was raised in earlier engagements and we shall communicate to management for further guidance on the matter.
Closing remarks by area councilor		
<p>The area subcounty Councilor Ms. Gabioni, thanked the UNRA team for sensitizing the community about the proposed road project and said Moyo District Local Government welcomes the project and asked all people who may have grievances to follow the right channels and procedures . she requested for continuous feedback to stakeholders for the purpose of letting them know what is happening on the project or any problem, thanked the subcounty for organizing the meeting and declared meeting closed at 5:00pm</p>		

COMMUNITY ENGAGEMENTS

District:	Moyo
Date:	10/12/2020
Villages; Ramogi South, Ramogi North Erepi East, Erepi West	
AGENDA	
<ol style="list-style-type: none"> 1. Opening Prayer 2. Introductions from the member's present 3. Opening remarks Overview of the project, UNRA Team 4. Discussions 5. closing remarks 	
Prayer	

The engagement started with an opening prayer led by one of the participants
Introductions from the members present
Members present introduced themselves by villages of attendance
Opening remarks and communication from the local council 1 chairperson
The Local Council 1 Chairperson Ramogi South , Simon Mzee welcomed the team from UNRA and members present to the meeting and said that the community was prepared and ready to listen to the presentation to be delivered by the UNRA team. He wished everyone nice deliberations and declared the meeting opened at 2: 00PM
Presentation by UNRA officials
Edward Juuko informed members present that the government of Uganda identified infrastructure development as a key in enhancing productivity and efficiency as an engine for development . He said that the Government of the republic of Uganda with financing from the African Development Bank is to upgrade Laropi –Moyo- Afoji road project with the purpose of upgrading it from the current gravel condition to bituminous standards thereby increasing the pavement life to 20yrs; improve geometric alignment of the road and hence improve safety and introduce safety features on the road among others. He said community members are key stakeholders because that's where the project is to be implemented and they are to be impacted by the proposed development and therefore they ought to be provided with information about all project activities and the implications on their livelihood among others. By providing them with information, he said would help them plan ahead of time for the upcoming changes; ensure community members make well informed decisions during the project period regarding their daily lives. He remarked that, success of the project would depend on their cooperation and support to the project implementation teams and the community members. He informed members that road development projects come along with both positive and negative impacts and he said that it is important to anticipate the likely impacts and come up with mitigation measures. In his presentation Mr Juuko asked members present to list the likely impacts of the project and these were their responses; Solomon alinaitwe senior land valuer, gave a presentation on land acquisition issues and the main areas of focus were; the land acquisition process; how compensation values are arrived at; who qualifies for compensation; the land interests to be compensated; mode of compensation and options; requirements to possess during assessment and valuation and what to possess during identification, verification and disclosure; causes of delayed compensation etc. The facilitator informed community members that road infrastructure development projects has both the positive and negative impacts and said it's crucial that the communities be informed by the changes to ensure that they are protected so that they are not adversely affected.
Anticipated Impacts (discussion)
<p>Positive</p> <ul style="list-style-type: none"> • Improved road safety • Employment opportunities for local people • Improved access • Reduction in travel time • Reduction in motor vehicle maintenance costs • Increase in business activities • Development in the area <p>Negative</p> <ul style="list-style-type: none"> • Displacement • Accidents shall increase • Increase in cases of gender based violence • Spread of HIV/AIDS by new people in the community • Early pregnancy • Increased cases of child labour <p>The community members were informed that UNRA has structures in place to deal with the negative related impacts of the project. This is because UNRA's aim is that once a development is in an area, it should ensure that people's lives are made better and not worsen their standards of living. The community members were informed that to handle community grievances that may arise due to the project, UNRA shall support communities to form and train grievance management committees. He informed members that the committee shall comprise of 6 members from within the implementing villages to receive, mediate and escalate grievances.</p>
Discussions, Concerns and Responses

Key Issue	Description	Responses to Issues/Concerns
Compliment	odong martin thanked government for the proposed road development. , said that they have been leaving in an unhealthy environment due to dust. He stated that His Excellency , the president pledged to upgrade the road in the last 20years and he was optimistic this project has eventually come to pass.	information
Doubts about the road	during elections, surveyors move around with equipment convincing the community that the road is to be worked on. however, after elections they disappear. We hope that this time the shall not be deceived.	The road is to be upgraded . This road is among the priority roads to be upgraded in the country
Cracked houses/impacts	During road construction, heavy machinery are used to compact the road. As they vibrate, houses usually crack due to tremors caused by these earth moving equipment. shall affected houses be compensated.	baseline assessments shall be conducted to profile the condition of the houses before civil works commence. This data helps to assess the condition of the house before, during and after the project. Those that shall be affected due to vibrations shall be repaired.
Compensation for donated land	suppose land has been donated by a community member to an institution , who shall be compensated	the institution shall be the one to receive compensation payments. For this the land now belongs to an institution since it changed ownership
Compensation for trees	In 2014 a UNRA contractor installed culverts during the process, our trees were destroyed and have never been compensated even as we made a formal complaint to UNRA	This shall have to be followed up with the Moyo station since a complaint was formally communicated
Compensation for land affected	Will you compensate for affected land	All land developed or undeveloped that shall be affected by the road project shall be compensated for.
Bank Accounts	In your presentation you said that payments shall be effected in PAPs accounts. In our community we have people who are weak and they may not be able to go to the town to open accounts. how shall they be helped.	We shall contact banks during that stage to extend services close to the community to enable them open bank accounts without travelling to town.
Closing remarks		
<p>The LC 1 chairperson appreciated the UNRA team and the subcounty leadership for organizing the engagement aimed at creating awareness about the project. He said, by having community engagements, awareness is created about what is going to happen so that they can plan ahead of time. He noted that the people of moyo are tired of waiting to see their road tarmacked , He assured the team that those with structures and land are not worried about the loss but want the road to be tarmacked. He said this may not be the last meeting, asked UNRA to come and sensitize communities on how to behave, and should not focus on only STDs but also COVID 19 which is a new diseases with myths. He said the road shouldn't only be mentioned about during campaigns, and when road is made shall get more votes. The district and community is gratified that the bridge across the Nile shall also be constructed, he said this would help improve mobility Laropi-Moyo-Afoji road is the shortest route to Juba.</p>		

District: Moyo	
Date: 10/12/2020	
Villages: Fodia, Afoji, Drazibar, Madagascar, Onyire	
AGENDA	

1. Opening Prayer
2. Introductions from the member's present
3. Opening remarks and communication from the Sub county chief
4. Overview of the project, UNRA Team
5. Discussions
6. closing remarks by the chairperson LC3

Prayer

The engagement started with an opening prayer led by one of the participants

Introductions from the members present

Members present introduced themselves by villages of attendance

Opening remarks and communication from the local council 1 chairperson

The Local Council 1 Chairperson Erepivi village Pianica Dbulu welcomed the team from UNRA and members present to the meeting and said that the community was prepared and ready to listen to the presentation to be delivered by the UNRA team. He wished everyone nice deliberations and declared the meeting opened at 10:00am

Presentation by UNRA officials

Edward Juuko in his project overview gave a brief description of the project and informed the community members that initially Government of the republic of Uganda had intended to upgrade Atiak-Laropi-Amoyo Afoji as one project under European Union funding. He said European Union support could only support the upgrade of the road from Atiak-Umi (63km). He informed the community members that the Government of the Republic of Uganda had secured financing from the African Development Bank to upgrade Laropi- Moyo- Afoji with the purpose of upgrading it from the current gravel condition to bituminous standards thereby increasing the pavement life to 20yrs; improve geometric alignment of the road and hence improve safety and introduce safety features on the road among others. He said the community, are very key stakeholders in the implementation of the road project, hence need to be engaged to provide information about the project. He said the community are very key stakeholders in project implementation because they are the ones to be directly or indirectly affected by the project and there was therefore need to avail them with the required information about the road –how it will affect them and how they can benefit from the road. He said it was crucial that communities are given ample time to plan ahead for the upcoming changes; ensure community members make well informed decisions during the project period regarding their day to day lives.

In his presentation, he stated that the road development projects come with both the positive and negative impacts and it was the responsibility of the stakeholders to develop mitigation measures to reduce on the negative impacts and enhancement measures for the positive impacts, he said persons whose land shall be affected by the project shall be compensated. Community members were informed that compensation shall take two forms, majority would be cash whereas a small number of persons who may not receive cash shall be supported to resettle.

Solomon Alinaitwe, the senior land valuer, gave a presentation on land acquisition issues and the main areas of focus were; the land acquisition process; how compensation values are arrived at; who qualifies for compensation; the land interests to be compensated; mode of compensation and options; requirements to possess during assessment and valuation and what to possess during identification, verification and disclosure; causes of delayed compensation etc.

Anticipated Impacts (discussion)

Edward asked participants what they anticipated to be benefits/ positive or negative impacts of the road and these were their responses:

Positive

- Accidents shall reduce on the road
- It will be easier for the community to move from one place to another
- The time of moving to your destination shall be shorter when the road is upgraded
- There shall be reduced dust in the area
- There will be jobs for the unemployed people in the area

Negative

- Displacement of people who stay where the road shall be constructed
- Accidents shall increase on the road because of over speeding
- Increase in cases of gender based violence because of money
- Land grabbing shall increase

- Early pregnancy and dropout rates shall increase especially amongst the school going children
- Cutting down trees and hence Environmental destruction
- Dust
- Theft shall increase
- HIV/AIDs infections shall increase

Discussions, Concerns and Responses

Key Issue	Description	Responses to Issues/Concerns
Titled land	In the community there are people who have acquired title deeds for their land while others haven't, shall they be treated equally?	compensation rates shall be different for titled and untitled land. Those with titled land shall get 100% of the land value because they own the land.
Doubts about the road	Wanjo Lawrence a community member said that the road has been a promise since Yoweri Museveni came to power. In 2016 a team from UNRA did surveys and disappeared after elections. A number of roads have been upgraded in different parts of the country compared to Moyo and the greater west Nile region. He tasked the team to give an assurance that the road shall be worked on.	In 2016, the idea was to have entire corridor that's from Atiak-moyo-afoji financed as one project. At that time, government had got commitment from European union to finance construction of the project. It turned out in the process that the money EU offered was not enough to construct the road for Atiak –Laropi-Moyo. Now there is commitment from African Development Bank to support construction of Laropi-Moyo-Afoji road and the bridge across the Nile.
Person to be compensated	suppose, I bought land from someone before the assessment. Who will be compensated by UNRA, is it me or the person I bought land from.	in this case there was change of ownership of land. The person who bought the land shall be the one to be compensated
Employment opportunities	what assurance is there that people from within the community shall be given priority while recruiting. Have a fear that labour shall be go from outside the community	It's a policy of UNRA that when works are being undertaken in a given project area, priority be given to residents of the area in case the local people express interest .

Closing remarks by area councilor

The area Councilor Anna Ateeme thanked the UNRA officials for inviting the community for sensitization about the road and how its to affect or benefit persons who shall be affected. She said the community is very ready to allow project commence, he assured the UNRA team that there will be no corruption and other malpractices on the project since the members of the community are God fearing. The meeting was closed at 1:30pm

District:	Moyo
Date:	11/12/2020
Villages: Allu, Gwayi, Ubbi North, Ubbi South	
AGENDA	
<ol style="list-style-type: none"> 1. Opening Prayer 2. Introductions from the member's present 3. Opening remarks LC 1 Chairperson 4. Overview of the project, UNRA Team 5. Discussions 6. closing remarks 	
Prayer	
The engagement started with an opening prayer led by one of the participants	

Introductions from the members present
Members present introduced themselves by villages of attendance
Opening remarks and communication from the local council 1 chairperson
The Local Council 1 Chairperson Gwayi village Ivu Leku welcomed the team from UNRA and members present to the meeting and urged community members to feel free, ask questions about the road its benefits , compensation, relocation and how the road is going to affect them. He said responses shall be provided by either party. He finally called for active participation from all participants and said that the road upgrade was long overdue and asked the community to support government to ensure that the road is completed as planned. He declared the meeting opened at 02:00pm
Presentation by UNRA officials
Edward Juuko in his project brief gave a description of the Laropi-Moyo-Afoji road project. He said that Government of the Republic of Uganda had planned to upgrade Atiak-Laropi-Moyo –Afoji as one project under European Union funding . He said , European Union support was only able to support upgrade of the road section from Atiak –Umi (63km). Members were informed that Government had secured financing for upgrade of Laropi –Moyo- Afoji road project to bituminous standards thereby increasing the pavement life to 20yrs; improve geometric alignment of the road and hence improve safety through introduction of safety features on the road among others. He said communities are key stakeholders and hence need to be engaged to provide information about the project; enable UNRA and the benefitting local government structures in Moyo district work together since both are government entities ; communities are the ones who are directly affected by the project and therefore it is pertinent that they are given ample time to plan ahead for the upcoming changes; ensure community members make well informed decisions during the project period regarding their day to day lives. Edward informed members that the project is at planning stage which is very critical stage of the project cycle where the communities and project affected persons are given the opportunity to ask questions, express their views, fears and ask the likely impacts and the available mitigation measures. He informed members that Road construction is very easy but planning is the most difficult stage because if this stage is not handled well, the project can never be successful. He informed community members that the Road shall be tarmacked after addressing all impacts and community concerns and this he included compensation and livelihood restoration and plans to mitigate against the likely negative impacts and vulnerability assessment that is aimed at identification of persons whose livelihoods shall be adversely affected by the project and supported to resettle. He further informed community members that road development projects come with both positive and negative impacts and therefore a likelihood of emergence of grievances. He said that UNRA shall put in place a mechanism for receiving , sorting, escalating grievances that may arise in the process of land acquisition, resettlement and road development. He urged the community and most specifically the project affected persons not to be agitated and resort to violent means of expressing grievances since there shall be structures for reporting and conflict resolution. Edward informed community members that all persons to be affected or displaced by the project shall be given adequate compensation to replace the affected properties but said the compensation money is not for addressing pending problems . He further informed them that after compensation, the affected households shall be given a grace period of either 3 months or 6 months to relocate. On Covid 19, he asked community members to continue wearing face masks and follow the SOPs that have been given by the ministry of health
Anticipated Impacts
In a participatory manner, participants were asked to list what they anticipated to be the positive or negative impacts of the road and these were their responses
Positive
<ul style="list-style-type: none"> • improved road safety • improved access to hospitals and the markets • reduction in travel time • Employment shall be available for local people • There shall be market for our goods • The area shall develop
Negative
<ul style="list-style-type: none"> • displacement of people • accidents shall increase on the road • increase in cases of gender based violence • increased dust • trees shall be cut down and therefore degradation of the environment • early marriages for girl children • family break down due to workers eloping with married women • HIV/AIDs and Covid 19 shall spread in our community

- Child abuse and child labour

Edward informed participants road development projects come with both benefits and negative impacts and therefore it was the responsibility of the all stakeholders to develop mitigation measures to reduce on the negative impacts . He said persons whose land would be affected by the project shall receive adequate compensation that shall take two forms , cash or full replacement of the affected property . He noted that majority would be cash whereas a small number of persons who may not receive cash shall be supported to resettle to ensure re intergration and livelihood restoration

Discussions, Concerns and Responses

Key Issue	Description	Responses to Issues/Concerns
Compliment	appreciated the government for all the projects that are being implemented and assured the team that the community shall avail land and other support to ensure successful implementation of the project. Expressed gratitude that hat all persons affected by the project shall be compensated and assured UNRA team that the money received shall be used for the intended purpose and any balance shall be used to meet other family obligations.	
previous assessment	A team from UNRA came in 2014 and did assessments. are compensation payments going to be based on previous assessments	Assessments are going to be done afresh and therefore compensation rates shall base on the current market value of the property
Job opportunities	The Madi community are usually neglected in case there are jobs on project implemented in the area. its usually either Acholi or Baganda who are employed. How will UNRA ensure that the local people get jobs on the project?	While implementing projects of this nature, UNRA has a policy that local people should be given the first priority.
District compensation rates	The district has never informed us about compensation rates. We are afraid that the rates might be very low and hence affect us	We have been reliably been informed that the district updated and revised the compensation rates and submitted to the Ministry of Lands.
Tree planting	Some of us planted trees along the road some time back, this was for firewood. Widows and elderly persons may not be able go to the bush to get firewood. How will they be helped?	The project has inconveniences, the relatives will have to help. People have to bear with the project, the trees to be cut are young so you can use them for firewood
Death of PAP	Suppose the PAP dies before compensation for the affected property. What happens to the money?	If the Person had been captured, his/or her next of kin or the administrator of the estate shall receive the compensation payments

Closing remarks

the Local council 1 chairperson appreciated the patience the community exhibited and the active participation by all members in attendance. He said the community had received knowledge about the project , its impacts and the process of compensation. He noted that the community doubts the road shall be upgraded because in 2016, UNRA land acquisition team assessed the property and they were never compensated nor the road tarmacked . He said , the dream of the Madi community in Moyo is to have their road tarmacked so that they can develop like other parts of the country. The chairperson urged the UNRA team to train the project affected persons on financial literacy to support the community to have sound financial decisions. He finally declared the meeting closed at 6.00pm

Consultations on Safety and Security in Moyo District

No.	Name	Title	Contact
1	Mr. Modo David Lometo	Resident District Commissioner (RDC)	0772651519
2	Mr. Matia Ibanda	Detective Assistant Superintendent of Police	0783832902

Record of Outcome of TeleConsultations

- The project area borders with Kajokeji county of the Republic of South Sudan. Road works currently takes place in the border area beyond the Afoji border post on the Uganda side.
- The two neighboring countries enjoy good relations. The District Leaderships of the border including Moyo, Yumbe and Koboko are enjoying good relations with South Sudan. The border area is peaceful.
- There are coordinated regular security patrols in the area by both governments to maintain security.
- Quarterly cross-border meeting take place between government security officials of the two countries with view to reviewing the security situation at the border of the 2 countries.
- There is free movement of persons and good across the border. Checks are conducted to ensure safety of both goods and persons.
- There is a security committee in Moyo District constituted of the political leadership, the Ministry of Defense(Uganda Peoples Defense forces), the Internal and External Security Agencies, Ministry of Internal Affairs (the Uganda Police Force(UPF), Uganda Prisons and the Department of Immigration), Uganda Revenue Authority (URA) and Cultural Leaders.
- Influx of Refugees is supported by the United Nations High Commission for Refugees (UNHCR).
- The area is clear of any land mines and explosives and it has enjoyed peace for over 20 years. No explosions have been experienced in the area.
- Generally, Moyo district has low crime rate without serious security incidents reported and noticed due to effective community policing and sensitization activities.
- Past experience of insecurity in the area during the past regimes tend to model the society in line with maintenance of peace.
- There is respect for cultural institutions such as Chiefdoms which always call for community responsibility and conflict resolution and maintenance of peace.

Appendix 6: Attendance lists

REGISTRATION FORM

Activity: Community engagement Along LMA Date: 11.12.2020

District/Municipality: Moyo (New & Primary school) Sub County/Ward: Metro

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	ASIERUZO STELA	PALOPURI	F	0784512573	A.S
2.	BAKU SAVERIO	CINYI WEST	M		B.B.
3.	TADRUPASI JEFFRY	CINYI WEST	M	-	T.O.J
4.	BAJIDA ELIZA ASIGWA	CINYI EAST	F	-	E.I.A
5.	Alia Sarafina Lotu	ORI	F	0782914161	(Signature)
6.	IGA BAZILO	ORI	M	-	(Signature)
7.	RALEO GRACE	ORI	F	-	(Signature)
8.	OSHO Pashwatiza Lyo	CINYI WEST	F	0773203790	(Signature)
9.	AMBATYO JUAKIND	ORI	M	0777450185	(Signature)
10.	ARIKATELO ODU	CINYI EAST	M	-	(Signature)
11.	Eruwaga Thomas	PALOPURI	M	-	(Signature)
12.	VUCIPI ANTHON	CINYI WEST	M	0774295387	(Signature)
13.	VUMUBWO GLOBREY	CINYI EAST	M	0774802100	(Signature)
14.	ERUWAGA STEPHEN	AWAOLE	M	-	(Signature)
15.	Ali Moses Sanywa	AWAOLE	M	-	(Signature)
16.	MAMGBI LAZERWA	PALOPURI	M	0781013644	(Signature)
17.	Guma Geofry	ORI	M	-	(Signature)
18.	ANYANZO PIONE	AWAOLE	M	0785311338	(Signature)
19.	IRAGA STEPHEN	PALOPURI	M	0773251365	(Signature)



REGISTRATION FORM

Activity: Community engagement along Lma Date: 11.12.2020

District/Municipality: Moyo (Mus. P. mag. school) Sub County/Ward: Meb

SN	NAME	VILLAGE/ ZONE	SEX MT	PHONE CONTACT	SIGNATURE
1.	EDEMA JAMES EDMA	Paloburi	M	07788817	<i>[Signature]</i>
2.	GERIGA -G.	paloburi	F	-	<i>[Signature]</i>
3.	FELICINA ONIGO	Cinyi East	F	0774415733	<i>[Signature]</i>
4.	SERENA A.	paloburi	M F	0780894683	<i>[Signature]</i>
5.	Madekesi B.	- ##	F	-	<i>[Signature]</i>
6.	MADRARA THOMAS	Awado	M	-	<i>[Signature]</i>
7.	DGOMU peter	cinyi East	M	-	<i>[Signature]</i>
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REGISTRATION FORM

Activity: COMMUNITY ENGAGEMENT ALONG LMA Date: 11.12.2020

District/Municipality: Moyo (Lama Pungu (Lod)) Sub County/Ward: Metu

SN	NAME	VILLAGE/ ZONE	SEX MT	PHONE CONTACT	SIGNATURE
1.	MASUDIO IRENE LEKY	ORI	F	0774531870	<i>[Signature]</i>
2.	Ali Paul	ORI	m	0775257858	<i>[Signature]</i>
3.	Jaize Ofusi	Cinyi East	F		<i>[Signature]</i>
4.	Nyalibichi Kisita Oosima	Cinyi west	m	0780540932	<i>[Signature]</i>
5.	LINZIA Sedina	Cinyi west	F	0786753253	<i>[Signature]</i>
6.	ABIO RABECA	AWOLE	F	-	AR.
7.	BAYOA RABECA	CINYI EAST	F	0777930355	BR.
8.	DRADIA KARULINA	PALOBURI	F	0786597935	DK
9.	LINDRIO FRANCIKA	AWOLE	F	0788223544	LF
10.	KAREO MILANIA	AWOLE	F	-	KM
11.	CIRIKU GEORGE	ORI	M	0789074055	CG.
12.	AMBAYO CHRISTOPHER	AWOLE	m	-	<i>[Signature]</i>
13.	ABOLONIYA ANNA	AWOLE	F	-	<i>[Signature]</i>
14.	KONYIA PETRONIO	PALOBURI	m	0791643162	<i>[Signature]</i>
15.	WILL Gaudino	Paloburi	M	0784656644	<i>[Signature]</i>
16.	MAARARA PAGESIMO	AWOLE	m	078225153	<i>[Signature]</i>
17.	MAWABRI GEOPREY	CINYI WEST	M	0780101822	<i>[Signature]</i>
18.	KARODE CEASER	ORI	M	0784656644	<i>[Signature]</i>
19.	ADRAWA A. IFFERI	PALOBURI	M	0704923237	<i>[Signature]</i>



REGISTRATION FORM

Activity: Community Engagement Meeting LMA Date: 11.12.2020

District/Municipality: Moyo (Amwa Primary School) Sub County/Ward: Mech

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	VUKONI STEPHEN WIRI	CINTY EAST VILLAGE	M	0786218022	
2.	LEKU STEPHEN	CINTY EAST	M	0780966180	
3.	ANZOULU STEPHEN	PALOBURI	M	-	
4.	ASIOKPO RICHARD	PALOBUBRI	M	077061944	
5.	AYIASI ANDREW	CINYI WEST	M	0788988893	
6.	PASSI GODEFRET IZAMA	CINYI EAST	M	0774132183	
7.	BUNI ALI SIMON	CINYI EAST	M	0778019702	
8.	OLIMA ONORATE	CINYI WEST	M	0770767873	
9.	ALUMAI JOAN	CINYI WEST	M	0773892447	
10.	ANYANZO PHILIP	CINYI WEST	M	-	
11.	LULUA DOMITILA	CINTY EAST VILLAGE	F	-	N/A
12.	ELIYA JOSEPH	AWAOLE	M	-	
13.	KELEMETINA KOMAA	CINYI EAST VILLAGE	F	0786218022	K-K
14.	IMMA DAVID	CINYI EAST	M	0789227927	
15.	IRRA MICHAEL	AWAOLE	M	-	
16.	DAMQDU SAMUEL	AWAOLE	M	0781677505	
17.	ANYANZO WILLIAM	AWAOLE	M		
18.	IZAMA TABAZO	AWAOLE	M		
19.	ZEMA RICHARD	AWAOLE	M	0787573172	



REGISTRATION FORM

Activity: Community engagement day km Date: 11.12.2020

District/Municipality: Moyo (Moyo Piny, School) Sub County/Ward: netu

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	UJIGA FRIMINO	PALOBURI	M	0786088582	<i>[Signature]</i>
2.	ALUMAI PATRICK	CINYI WEST	M	0775816321	<i>[Signature]</i>
3.	OPI DJIA DELI LUKERE II	ORI	M	0782781810	<i>[Signature]</i>
4.	MALWABESIA MARGRET	ORI	F	0777136279	<i>[Signature]</i>
5.	KANYABA SAVERIO LUKERE II	ORI	M	0784295542	<i>[Signature]</i>
6.	DRAPARU DENIS	CINYI WEST	M	—	<i>[Signature]</i>
7.	DRAMU MICHAEL	CINYI EAST	M	0782803666	<i>[Signature]</i>
8.	ALARU FRED	PALOBURI	M	0787755234	<i>[Signature]</i>
9.	OBUNI LAWRENCE AWADLE	ORI	M	—	<i>[Signature]</i>
10.	ORUSULA FIBERU	ORI	F	—	<i>[Signature]</i>
11.	ALIANZI OZAMA A.	CINYI EAST	M	0777707085	<i>[Signature]</i>
12.	DRICHI GEORGE	CINYI EAST	M	0786598326	<i>[Signature]</i>
13.	ACIBRIA ELIAKIM	ORI	M	0777881111	<i>[Signature]</i>
14.	OGORO SEORINDU	CINYI WEST	M	—	<i>[Signature]</i>
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REGISTRATION FORM

Activity: Community Engagement Initiative Date: 09.12.2020

District/Municipality: Karongi Sub County/Ward: Lwopi

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	Magwe Gilbert	Ubbi South	M	0784518182	
2.	ALIMAKU VERONICA	UBBI SOUTH	F	0774089146	AVI
3.	Drakamate Josephine	do	F	0775300095	
4.	MADRA ANNA	Ubbi South	F	-	ANNA
5.	BAZIO CHRISTINE	Ubbi South	F	0789394895	B.C.
6.	MURAA HELLEN	Ubbi South	F	0778390968	HUG
7.	OKUO ROSE	Ubbi South	F	0787337148	
8.	MORIKU BIANCA	UBBI SOUTH	F	-	MB
9.	WEHA VERONIKA	UBBI SOUTH	F	-	WV
10.	DIPID FLORA	UBBI SOUTH	F	-	D.F
11.	JUDITH LETIO	UBBI SOUTH	F	-	J.L
12.	MAZAPKWE HILWAN	UBBI SOUTH	F	-	M.L
13.	ASERUA GLORIA	UBBI SOUTH	F	0755556713	
14.	ANYAMA-ALEX	'' ''	M	-	
15.	UMUNZI AMUKO ROBERT	''	M	0703803094	
16.	AGUA PERINA	''	F	-	
17.	BAATIO HELEEN	UBBI SOUTH	F	-	
18.	JANE ACIAI	UBBI SOUTH	F	0786188442	
19.	TIBNDI DAVID BRICHI	UBBI SOUTH	M	-	



REGISTRATION FORM

Activity: Community engagement UBB South Date: 09.12.202

District/Municipality: Karori Sub County/Ward: Karori

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	AMOLY MOSES IDDHA	UBBI SOUTH	M	0786151942	
2.	WELI JOHN PAUL	UBBI SOUTH	M	0774428496	
3.	ANYAMA WODPREY	UBBI SOUTH	M	0781446553	
4.	IRANTA RICHARD	UBBI SOUTH	M	0777417826	
5.	MAWABRI PATRICK	UBBI SOUTH	M	0777645412	
6.	TIMI JOHN BOSCO	UBBI SOUTH	M		
7.	LEJOPUKU RONALD	UBBI SOUTH	M	0785339491	
8.	KHAKA ISAAC	UBBI SOUTH	M	0771880499	
9.	ANYOVI NEOPREI	UBBI SOUTH	M	0781385462	
10.	MWERA ABU	UBBI SOUTH	M	0775925227	
11.	SWADIK ALMAHAD	UBB NORTH	M	0781277888	
12.	IDDA DOMINIC	UBBI SOUTH	M		
13.	ARIKU WILSON	UBBI SOUTH	M		
14.	OBUKESO ALEX	UBBI SOUTH	M	-	
15.	KOLIBA RAACE	UBBI SOUTH	F	-	
16.	MARIDIO KEVIN	UBBI SOUTH	F	-	
17.	LIMIO CHRISTINE	UBBI SOUTH	F	0773406650	
18.	LOWIAGO JAMES	UBBI SOUTH	M	0782600840	
19.	OSABA AGNES	UBBI SOUTH	F	0788746243	



REGISTRATION FORM

Activity: Community Engagement Ubbi South Date: 09.12.2020

District/Municipality: Karopi Sub County/Ward: Karopi

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	ANZOO JANE	UBBI S.	F	0786932593	<i>[Signature]</i>
2.	AMBATO GODFREY	UBBI SOUTH	M	0771852646	<i>[Signature]</i>
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REGISTRATION FORM

Activity: community Engagement of Metu Subcounty Date: 11th/12/2020
 District/Municipality: Metu (Pancu Parish) Sub County/Ward: Metu

SN	NAME	VILAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	ADIBAKU LEONARD	MINYA	M	0778338428	<i>[Signature]</i>
2.	ALARU PASCAL MONDO	PAGERIBE	M	0789398544	<i>[Signature]</i>
3.	ADAKU HASSAN	met T.C.	M	0782974915	<i>[Signature]</i>
4.	MADRARA ANGELUS	MINYA	M	0784637075	<i>[Signature]</i>
5.	DRANI TRES	MINYA	M		<i>[Signature]</i>
6.	CIRIKU ZAKIRO	M.T.C.	M	0788817006	<i>[Signature]</i>
7.	ESEMA ZACHARY	ZREPI SULTU	M	0716557185	<i>[Signature]</i>
8.	DRIBAREO ROSE	METU T.C	F	0778471526	<i>[Signature]</i>
9.	APIKU SCONDO	MINYA	M	0784637057	<i>[Signature]</i>
10.	ANDROGA JOSEPH	M.T.C	M		<i>[Signature]</i>
11.	Andriata Gobi	M.T.C	F		<i>[Signature]</i>
12.	BAATIYO JOYCE CHRISTABEL	M.T.C	F	0782167796	<i>[Signature]</i>
13.	DRIWALE JOHN BOSCO	M.T.C	M	0773836446	<i>[Signature]</i>
14.	AURELIR GOBI	M.T.C	F		<i>[Signature]</i>
15.	ADRAWA PATRICK	M.T.C	M	0787449919	<i>[Signature]</i>
16.	AMADRA INYASIO	MINYA	M	0780626060	<i>[Signature]</i>
17.	KONTIO MARGRET	M.T.C	F		<i>[Signature]</i>
18.	VUCHIRI RONALD	M.T.C	M	0785559329	<i>[Signature]</i>
19.	BUDI SUNDUF	MINYA	F	0775345483	<i>[Signature]</i>



REGISTRATION FORM

Activity: Community engagement Part 6 Date: 12.12.2020
Mayo

District/Municipality: Mek. Lamwo Sub County/Ward: Mayo

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	Unzi Kenneth	Pageribe	m	0785678478	
2.	Esther Maku	Pakeribe	F	—	EM.
3.	Mesiku Lucio	M TIC	F	—	M.L
4.	Idda Recheed	"	m	—	IR.
5.	Rajina Tiondi	"	F	—	RJ.
6.	Lina Bugon	"	F	—	L.B
7.	Lavini Ingaga	"	F	—	L.I
8.	Nataline Uule	m i c	F	—	M.V
9.	Ulee foranesisika	m i c	F	—	U.F.
10.	Magnelty Agusi	Pageribe	F	—	M.A.
11.	Drakumbi & Rueli	m i c	F	078972672	
12.	Judidi Jagu	Pakeribe	F	—	J.I
13.	Jagu Gabriel Lagugut	Pakeribe	m	07878245	57 L.I
14.	Dravunga Tarapkwé testa	Minya	F	—	T.T.A
15.	IN-CADJ JOSEPH	M i c	m	071098800	
16.	INYASIO ANDEMA	Pageribe	m	0758959602	
17.	LEKU KIZIIO	M i c	m	0773915972	
18.	JOT LARECH	Minya	F		
19.	ANDAKU KAMILO UREU	MINYA	m	0774423878	



REGISTRATION FORM

Activity: Community Engagement of metv ^{Subcounty} Date: 11.12.2020

District/Municipality: Moyo (Piner Area) Sub County/Ward: metv

S/N	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	MAKPE ZACHARY	PAGERIBE	M	0784642228	<i>[Signature]</i>
2.	BOYU MATHEW	MEIU TRADING C	M	0777334459	<i>[Signature]</i>
3.	UKUNI STEPHEN	- DZ -	M	-	<i>[Signature]</i>
4.	TABO DRILE	MEIU TRADING C	M	0785895466	<i>[Signature]</i>
5.	JOICE TIOMBI	MINYA	F	0778905013	<i>[Signature]</i>
6.	AYIKOBWA SABIT	Julukwe	M	0773024204	<i>[Signature]</i>
7.	GANYARA BABO	MINYA	M	077577780	<i>[Signature]</i>
8.	Lya Luke Sule	minya	M	0786614088	<i>[Signature]</i>
9.	ULISA FRANCISKA	M.TC	F	0773280674	<i>[Signature]</i>
10.	ATUBAICU MOSES	M.TC	M	0777193323	<i>[Signature]</i>
11.	OUYUWA PERINA	M.TC	F	-	<i>[Signature]</i>
12.	ANJANO STEPHEN	M.TC	M	0781621047	<i>[Signature]</i>
13.	VUNYA SUNDA	MINYA	M	0789970345	<i>[Signature]</i>
14.	FILICHINO	MTC	F	0776666303	<i>[Signature]</i>
15.	AMAYO CHRISTOPHER	MTC	M	0781140136	<i>[Signature]</i>
16.	Endreyo MAGY	MONDI	F	-	<i>[Signature]</i>
17.	EDEA LILLY KINYAA	MINYA	F	0771641221	<i>[Signature]</i>
18.	KINYA DIXON	EREPI	M	0782029183	<i>[Signature]</i>
19.	MALE SIMON	PAGERIBE	M	0770601913	M.S.



REGISTRATION FORM

Activity: Community Engagement of Metu subcounty Date: 11th/12/2020
 District/Municipality: Moyo (Lumei, Metu) Sub County/Ward: Metu

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	APIKU SCORUDO	MINYA	M	0784637057	<i>[Signature]</i>
2.	ALI NYAA SYLVIA	METU TRAINING CENTRE	F	0785637146	<i>[Signature]</i>
3.	Mandera Kanta Madra	Metu Trading Cen	F	0782318612	<i>[Signature]</i>
4.	DRAOLEGA PASTORE KOMA	METU T. CENTER	M	0774052394	<i>[Signature]</i>
5.	AKRITI PAULINO	Metu s/c	M	0279581150	<i>[Signature]</i>
6.	ERIKU CHARLES	GWERE: Luzira	M	0770457916	<i>[Signature]</i>
7.	MADRARA JOSEPH	C/PERSON M.T.C.	M	0775045537	<i>[Signature]</i>
8.	ADINAN SILLIMAN	MINYA	M	0776734585	<i>[Signature]</i>
9.	DRACHO MESIKU REGINA	M.T.C	F	0779082444	<i>[Signature]</i>
10.	CHANDIA AGNES	M.T.C	F	0784581533	<i>[Signature]</i>
11.	MANGWI MICHEAL	MINYA	M	-	<i>[Signature]</i>
12.	AMONDI BEN KOMA	M.T.C	M	-	<i>[Signature]</i>
13.	ARIKU DENIS	MINYA	M	0770976420	<i>[Signature]</i>
14.	IBAGA John	MINYA	M	-	<i>[Signature]</i>
15.	MANGA ANDREW	M.T.C	M	0785242646 07852042646	<i>[Signature]</i>
16.	MALE JOSEPH	P.A.C.R.I.B.E	M	-	<i>[Signature]</i>
17.	ODDI JULIUS	'	M	077278502	<i>[Signature]</i>
18.	Male Jose				
19.	AMALI STEPHEN	MINYA	M	0775713041	<i>[Signature]</i>



REGISTRATION FORM

Activity: Community Engagement Date: 11.12.2020
 District/Municipality: PAMEA Sub County/Ward: Metu. Old

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	KAREO MARGRET MINYA		F	0785641733	
2.	NYADRU GEDFREY	M.F. centre	M	0784295321	
3.	CEREGO ALFRED	M.T.C	M	0789380900	
4.	RALED LILIAN	MINYA	F	—	
5.	NANISERA HELEN UEGO	M.T.C	F	—	
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REGISTRATION FORM

Activity: Community ENGAGEMENT Date: 10.02.2020

District/Municipality: Nakasongola Sub County/Ward: Moyi

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	Idwalu Andrew	KYIRA	M	0772877160	
2.	ASIKU BAZIL	ONYIRE	M	0892156279	AB
3.	DRAGO MIKE	BILINYO	M	-	
4.	LILLET ABIO	KEDI	F	0774598597	
5.	EBENIA CHRISTOPHER	BILINYO	M	0785711957	Eben
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REGISTRATION FORM

Activity: Community Engagement For Loropi Moyo Date: 10th / 12 / 2020

District/Municipality: Moyo Sub County/Ward: Moyo

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	ASARA OLIGA	ONYIRE	F	0774206710	<i>[Signature]</i>
2.	OPIKA CHARLES	BILINYO	M	0782544402	<i>[Signature]</i>
3.	LUCY INYA	BILINYO	F	0779580728	<i>[Signature]</i>
4.	MAWA SAMUEL	KENDI	M	0782692313	<i>[Signature]</i>
5.	ABRAM IZAMA	BILINYO	M	0779580722	<i>[Signature]</i>
6.	ATIUB JUMA SIRASI	BILINYO	M	0786 017423	<i>[Signature]</i>
7.	IGAMA DENIS	BILINYO	M	0772169727	<i>[Signature]</i>
8.	IDRIFUA FRANCIS	KENDI	M	079 39 29 004	<i>[Signature]</i>
9.	ADURARE PHILIP	ONYIRE EAST	M	0780272884	<i>[Signature]</i>
10.	MATLO DENIS	ONYIRE EAST	M	0777911802	<i>[Signature]</i>
11.	AZULE HERBERT	ONYIRE EAST	M	0773217373	<i>[Signature]</i>
12.	MARWA TERENCE	KENDI	M	0776157215	<i>[Signature]</i>
13.	AMUKO GEOFFREY	KENDI	M	07827818415	<i>[Signature]</i>
14.	TABO GEOFFREY	MADULU	M	0772284788	<i>[Signature]</i>
15.	CIRILO CECE JOSEPH	BILINYO	M	—	<i>[Signature]</i>
16.	ROSEMARY ACIDRIA	ONYIRE	F	0785628289	<i>[Signature]</i>
17.	MARGRET TATLO	ONYIRE	F	0785898997	<i>[Signature]</i>
18.	DOMINICA ARABA MO	ONYIRE	F	0782849822	<i>[Signature]</i>
19.	EDEA REGINA	ONYIRE	F	—	EDEA



REGISTRATION FORM

Activity: Community Engagement for herop1 Mojo Atogi 10th /12/2020 Date:

District/Municipality: Mojo Sub County/Ward: Mojo

SN	NAME	VILLAGE / ZONE	SEX / M/F	PHONE / CONTACT	SIGNATURE
1.	OCHAN ROBBIN	KENDI	M	0773724520	<i>[Signature]</i>
2.	TAKO ERAMANIEL	KENDI	M	0788546792	<i>[Signature]</i>
3.	KOBAE PATRICK	VURA BILLINTO	M	07732270A7	<i>[Signature]</i>
4.	LUCY DRACHO	KENDI	F	0777370437	<i>[Signature]</i>
5.	IZAMA CENSOR	KENDI	M	0773017587	<i>[Signature]</i>
6.	EBERU MASIMO A	KENDI	M	0779580787	<i>[Signature]</i>
7.	DAWA IRENE	KENDI	F	0771093149	<i>[Signature]</i>
8.	LAGU JOSEPH	KENDI	M	0785940881	<i>[Signature]</i>
9.	AMEGOVU SUNDAY	KENDI	M	0776026627	<i>[Signature]</i>
10.	ERWAGA PASTOR	DALYIRE EAST	M	0778422895	<i>[Signature]</i>
11.	IDHA GODFREY	KENDI	M	—	<i>[Signature]</i>
12.	KOCETA KOMAA	KENDI	F	—	<i>[Signature]</i>
13.	RUZETA DRACHU	KENDI	F	—	<i>[Signature]</i>
14.	AMIZUKU HENRY	KENDI	M	077239312	<i>[Signature]</i>
15.	OJALE MOSES	KENDI	M	0789780472	<i>[Signature]</i>
16.	ALUMPAI BOSCO	KENDI	M	0773223619	<i>[Signature]</i>
17.	ELIZED IZULE	KENDI	M	0777237674	<i>[Signature]</i>
18.	AMALE NORBERT	KENDI	M	0778453408	<i>[Signature]</i>
19.	OSULETO OPILI	VURA	M	—	<i>[Signature]</i>



REGISTRATION FORM

Activity: Community Engagement Date:

District/Municipality: Moyo Sub County/Ward: Metho

SN	NAME	VILLAGES/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	LAURENINA DPKO	EREPI SOUTH	F	—	LD
2.	ANGONA UWA	EREPI SOUTH	F	—	AN
3.	KEMAA SHARON	EREPI SOUTH	F	0987056102	KES
4.	RABECA ONDGA	EREPI SOUTH	F	—	RO
5.	AMADORI WILLY	EREPI WEST	F	—	AW
6.	ANICE ANUHE	EREPI EAST	F	—	AN
7.	IZARUKU JOHN	EREPI WEST	M	0783202309	IZ
8.	Anderuku Pataik	EREPI R. SOUTH	M	074457517	AP
9.	AGNES ANZO	EREPI EAST	F	—	A.A.
10.	KAREO VIRGINIA	EREPI EAST	F	—	K-V
11.	ANGELINA AGAW	EREPI EAST	F	—	AA
12.	IZAMA RICHTAR	EREPI R. WEST	M	—	IR
13.	CIZARIA ISDA	EREPI EAST	F	—	CI
14.	EMANI JOSEPHINE	EREPI EAST	F	—	EM
15.	DRIBAREO NICKY	EREPI EAST	F	0786324112	DN
16.	ROSE CHANDI	EREPI EAST	F	—	RC
17.	VERONICA ANBY	EREPI EAST	F	—	VA
18.	ANEOO BETTY	EREPI EAST	F	—	AB
19.	LATHALINA ADIRUA	EREPI EAST	F	—	LA

S/NO	NAME	VILLAGE/ZONE	TELE NO	SIGN
21	ANNA MICKARINA	EREPI SOUTH	—	AK
22	Chandia Korina	EREPI East	0789870685	
23	TEOPISIA	DRAMWI EREPI EAST	0788719539	
24	HONI ANNE TAME	EREPI EAST	0782030581	
25	OGWA RAY	EREPI SOUTH	—	O.R.
26	ANZO LAWRENCE	EREPI RADUMU South	0782403606	
27	ONIKU MIKE	EREPI RADUMU EAST	0782241859	
28	ANICE UKA	EREPI WEST	—	AK
29	AGNES BUCHE	EREPI EAST	—	AK
30	ANGUA XOPHER	EREPI EAST	—	AK
31	AMANBURY BENSON	EREPI EAST	—	AK
32	BIANCA OKURWA	EREPI EAST	—	AK
33	ROMANA BARI	EREPI WEST	0783615500	<u>Re</u>
34	VALERIA NY	EREPI EAST	—	V
35	KARULA ABU	EREPI WEST	—	KA
36	MINARA ANYORA	EREPI EAST	—	MA
37	JOYCE IYA	EREPI EAST	—	JI
38	GHADYS APIMU	EREPI EAST	—	GA
39	JANE KOSIGA	EREPI EAST	—	JK
40	ABIRI FAUSIND	EREPI EAST	—	AF
41	SISLY DRABAT	EREPI EAST	—	SD
42	SALLY ERWAGA	EREPI EAST	—	SE
43	ANNA CHRISTINE	EREPI SOUTH	—	AC
44	ROSE AMBAYO	EREPI EAST	—	R.A
45	GLORIA EBOMA	EREPI EAST	—	GE
46	DEIDRA ANGELIKA	EREPI EAST	—	DA
47	JUPITINE MANSERA	EREPI EAST	—	JM
48	AMELIA AMADRI	" EAST	—	AA
49	AGNES ANYAMA	EREPI WEST	—	AW
50	TANIA EMMANUEL	EREPI WEST	—	TA



REGISTRATION FORM

Activity: Community Sensitization RAP Study Date: 11/12/2020

District/Municipality: Mayo Sub County/Ward: Metu

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	DIPID SANTINA OKUMU	EREPI SOUTH	F	0777710722	<i>[Signature]</i>
2.	OAMU WIKUNI JAMES	EREPI EAST	M	0785033085	<i>[Signature]</i>
3.	DERA MICHAEL	EREPI WEST	M	0774921435	<i>[Signature]</i>
4.	VUKU FRANCIS	EREPI EAST	M	0724859687	<i>[Signature]</i>
5.	GUMA JOHN DAVID	EREPI EAST	M	0784504384	<i>[Signature]</i>
6.	OBUNZO GEORGE OBEAD	EREPI R. EAST	M	0772090535	<i>[Signature]</i>
7.	ANACHA ROBERT	EREPI R. EAST	M	0781106713	<i>[Signature]</i>
8.	A IJJO ALEX	EREPI R. EAST	M	0788523919	<i>[Signature]</i>
9.	ISIA ROBERT	EREPI EAST	M	078521256	<i>[Signature]</i>
10.	INEBWA EMMANUEL	EREPI R. EAST	M	—	<i>[Signature]</i>
11.	TIONAL HENRY	EREPI R. WEST	M	—	<i>[Signature]</i>
12.	ANDANZO BEN FRANCIS	EREPI W	M	0786045648	<i>[Signature]</i>
13.	ENLIKU PATRICK	EREPI R. EAST	M	075389328	<i>[Signature]</i>
14.	LULUA JANET DRANDA	EREPI SOUTH	F	—	<i>[Signature]</i>
15.	JUGIA MAGRET	EREPI WEST	F	077834940	<i>[Signature]</i>
16.	OPIA GRACE	EREPI WEST	F	0778403818	<i>[Signature]</i>
17.	MUNDA GRACE	EREPI WEST	F	0777813277	<i>[Signature]</i>
18.	ATAYO GRACE	EREPI SOUTH	F	0781836066	<i>[Signature]</i>
19.	VUSTA PATRICIA	EREPI WEST	F	07—	<i>[Signature]</i>

S/NO	NAME	VILLAGE/ZONE	TER NO	SIGN
53	GRACE MATAMA	ZAZA WEST	-	G-M
54	AGNES EBERU	EREPI EAST	-	AE
55	MURAD KIRODIA	EREPI EAST	-	LD
56	LAZEA SIDORIA	EREPI EAST	-	LD
57	Abio Rebecca	Erepi East	-	LD
58	ANZOO GLADYS	Erepi East	-	AB
59	BESSY ANUNA	EREPI EAST	-	FE
60	THORA EBENE	EREPI EAST	-	FR
61	HARJET SETHA	" "	-	HR
62	ABIO FELISA	" "	-	AF
63	RJOD SUZAN	EREPI WEST	-	RS
64	LILLY HARUKU	EREPI SOUTH	-	LD
65	AGNES TGA	EREPI EAST	-	LD
66	ANZOYO CARL LILLIAN	EREPI R. SOUTH 0781792750	-	LD
67	ILLA EPIPHANY	EREPI R. WEST	-	LD
68	DRAJU PANARAZO	" EAST	-	DT
69	SIMON ONZO	" "	-	LD
70	HARUKU JOHN BESCO	EREPI R. SOUTH	-	LD
71	Ogwa MENCY	EREPI R. WEST	-	LD
72	Onia Rose	" " South	-	LD
73	DRAHA SHAROT	" " South	-	LD
74	UJEO NATALINE	" " South	-	LD
75	NICKY ANNA	" " WEST	-	LD
76	BEATRICE ODUJI	" " EAST	-	LD
77	BEATRICE MORIO	" " SOUTH	-	LD
78	MINUSIA SARETI	" " SOUTH	-	MJ
79	ANIA DOROTHY ZEMA	" " SOUTH	-	LD
80	AMARLO ARDOLINA			LD



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Logoba Catholic Church

REGISTRATION FORM

Activity: Engagement with commuters Date: _____
 District/Municipality: Moyo, Moyo subcounty Sub County/Ward: Agoba Parc

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	UHZI AURELIO	ONYIRE	M	0773165420	<i>[Signature]</i>
2.	OKUO PALIMA	ONGIKE	F	0785115764	<i>[Signature]</i>
3.	Odendi Zakoo	fodia	M	0778380443	<i>[Signature]</i>
4.	BUDRIGA FRANCIS	ITIA	m	0785884203	<i>[Signature]</i>
5.	FARTINO TONDUA	ONYIRE	M	-	<i>[Signature]</i>
6.	BUNI SIMON	"	"	0777182932	<i>[Signature]</i>
7.	UBIKU DANIEL	"	"	-	<i>[Signature]</i>
8.	DNADOGA LAWRENCE	ONYIRE	F	077292502	<i>[Signature]</i>
9.	OKUNZI ARIKANJELO	ONYIRE	M	0779581535	<i>[Signature]</i>
10.	ALUMAI PATRICK	ITIA	m	0774737653	<i>[Signature]</i>
11.	SHABAN TAKO	ONYIRE	M	0773273426	<i>[Signature]</i>
12.	IBRIFUA RONALD	FODIA	M	0786260503	<i>[Signature]</i>
13.	MOHAMMAD SWAB	"	M	0785971843	<i>[Signature]</i>
14.	ALUA ALICE	ONYIRE	F	0774915427	<i>[Signature]</i>
15.	SAFI NASUR	FODIA	M	0783263544	<i>[Signature]</i>
16.	DNOMA PATRICK	AFOZI	M	0770519004	<i>[Signature]</i>
17.	AMOXO JACKSON	AFOZI	M	0784553657	<i>[Signature]</i>
18.	ALUMAI HENRY	MINZE	m	0775356724	<i>[Signature]</i>
19.	UNRIMAT MICHAEL	ENTIRE	M	0781501318	<i>[Signature]</i>

21.	WANI CHARLES	ONTIRE	M	077905758	Thund
22.	DRICHI GEDFRY	MINZE	M	07843103325	Q
23.	MAMANI KERUBIN	ITIA	M	0788985736	manb
24.	DRACIKI EMMANUEL	ONTIRE	M	0782600827	A
25.	AMGBUA MARGARET	ONTIRE	F	0775544721	Angie
26.	JOSPHEM ASIO	ONTIRE	F		
27.	ARUBAKU ZAKARY-L	MINZE	M	0787388601	Amir
28.	EDZMA LUCIO	MINZE	M	-	Am
29.	CHARLES OBUJA	ITIA	M	-	A
30.	WAIBO JAMES	FOOIA	M	-	Am
31.	MURAA OLGA DRAMUNDU	DALTRE	F	-	Am
32.	ASIANZU GRACE	ONTIRE	F	0781741198	Am
33.	APOLONIA KOTICH	ONTIRE	F	-	ASIE
34.	MARY BAYDA	MINZE	F	-	Am
35.	EITU JOYCE	ONTIRE	F	-	Am
36.	Maiku Edward	ITIA		0788811334	Am
37.	MOCIRUKU CHRISTINE	ONTIRE	F	-	Am
38.	GRACE WAIYA	II	F	-	Am
39.	VUCIRI MALAGA	ONTIRE	M	0772923538	Am
40.	Gabina R. Okuga	ONTIRE	M	0772967998	Am



REGISTRATION FORM

Activity: Community Angelenes Date:

District/Municipality: Moyo Sub County/Ward: Moyo

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	ALLI BIAJU AFRED	ONTIRE	M	-	
2.	ISADRU KERINO	"	M	-	
3.	MAKU TOBILO	ITIA	M	-	
4.	ROSE SEMA	ONTIRE	F	0781957997	ROSE
5.	OLIMA SIMON	ONTIRE	M	0789409558	
6.	DOMINIKA DRANTA	"	F	-	DOMI
7.	KONGWIA KELEMENIA	"	"	-	KKZ
8.	ANTAMA MICHAEL	"	M	-	
9.	HARUNA KHEMIS	EDIA	M	-	-
10.	LEKU INNOCENT	MINZE	M	0173602959	
11.	LAKITO JANE	ONTIRE	F	077564718	
12.	MAHA HELEN	"	F	077710411	
13.	ANGELINA DIPIO	"	"	-	
14.	MARIDIO PATRICIA	"	"	073916462	
15.	AIMPRA BEATRICE	MINZE	F	-	
16.	RISOO FLORA	ITIA	F	0772062399	FR
17.	ANGUA ROSE	ONTIRE	F	079013683	
18.	PALMIRA WANYA	ONTIRE	F	-	-
19.	OLOBOTO PALMIRA	"	F	-	-



REGISTRATION FORM

Activity: community engagements Date:

District/Municipality: Moyo Sub County/Ward: Moyo

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	ROKARI ANJEL	ITIA	M	0784898619	RFA
2.	IWA FRANCIS	MINZE ONTIRE	M	—	[Signature]
3.	MUNDRUOMAPKWE EMMA	ITIA	M	0778043493	[Signature]
4.	IDA MOSES	ONTIRE	M	—	[Signature]
5.	AKUTI GAUNDEZIO	"	M	—	M.G.
6.	ANDEVI PATRICK	"	M	0782040882	[Signature]
7.	ANZO EMMANUEL	MINZE	M	—	[Signature]
8.	AMBARDI MYABO	ONTIRE	M	0785508933	[Signature]
9.	JUMA BALI	AFOJI	M	0782635059	[Signature]
10.	ACIGA GERALD	ONTIRE	M	0774923366	[Signature]
11.	ORUWEO PARKER	ONTIRE	M	0774151886	[Signature]
12.	JOHN ALI	ONTIRE	M		[Signature]
13.	CHADIGA CHARLES	AFOJI	M	0772159188	[Signature]
14.	ABGIZU EDDIE GERSHOM	"	"	0783129322	[Signature]
15.	YAYA WILLIAM ASOBASI	FODIA	M	0999141703	[Signature]
16.	ABOSHI MULJANI	FODIA	M	0392949424	[Signature]
17.	AMANZURU GEOFFREY	ONTIRE	M	0789373264	[Signature]
18.	AKUTI MASENZIO	MINZE	M	0777450108	[Signature]
19.	DRICHI JAMES	"	"	—	[Signature]
20.	12...				

21	DRIBAREO	CHRISTINE	ONYIRE	F	0772501717	---
22	KELEMBENTINA	BRACRI	LI	LI	0782600827	---
23	ANGELA	BAYOA	AFOJI	F	---	---
24	ABABIKU	GLADYS	FODIA	F	---	LAJIS
25	LETIO	JULIET	ONYIRE	F	0781125332	---
26	CÉLINA	MURAA	ONYIRE	F	0719217173	---
27	CHANNIA	JANE	ONYIRE	F	---	---
28	ANET	KOMWIGWU	MINZE	F	0788858935	---
29	DIPLO	GRACE	MINZE	F	---	---
30	ATA TO	ROSE	LI	F	---	---
31	MAZAPKWE	JOSEPHINE	LI	F	0784972171	---
32	KONTIO	RATTIMA	LI	F	0779749318	---
33	VUSIA	MARY	FODIA	F	---	---
34	AMADRIU	NORAA	FODIA	F	---	---
35	MINDRAA	MAGADLANE	MINZE	F	---	---
36	MODONG	PAIBE	AFOJI	F	0771936312	---
37	IGTMA	DOMINIC	ONYIRE	F	---	---
38	KUJU	RICHARD	ITIA	M	0775654166	---
39	UNZIMAI	NAPOLÉON	MINZE	M	---	---
40	UNZIMA	SAVIDUR	ITIA	M	---	---
41	TABO	FRANCIS	ONYIRE	M	0776132136	---
42	BAJALE	PATRICK	LI	LI	0778997886	---
43	IWA	CEASER	MINZE	LI	0780627654	---
44	DIGAMAI	METHOD	LI	LI	0785564316	---
45	IDRIFUA	SOSITINE	LI	LI	0786806334	---



REGISTRATION FORM

Activity: Community Engagement For Laropi Ayei Date: 9th/12/2020

District/Municipality: Moyo Sub County/Ward: Obi South

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	ADAWA JONAS BOSCO	LEBBI-NORTH	M	0781624589	Jonas
2.	MAWADI FRED	"	M	0786031086	F
3.	CHANDIGA MARK	"	M	0775222064	C.M.
4.	MARADRI GREGORY	"	M	0774553070	Gregory
5.	GUMA CHARLES	"	M	"	Charles
6.	REGINA ONENITH	"	F	"	Regina
7.	ANGUA JOYCE	"	F	"	Joyce
8.	ADANZOA ROSE	"	F	0770519181	Rose
9.	BRALWI SUNDAY	"	M	0783550101	Sunday
10.	IRAGA SAMUEL	"	M	0779189880	Iraka
11.	ASIENTO JULIET	"	F	0785983519	Juliet
12.	BRADERE AGNES	"	F	0785566859	Drallhand
13.	MASUPIO BRATRICE	"	F	0778361719	Bratrice
14.	QIJA SUNDAY	"	M	0786085863	Sunday
15.	INKAVURE ISAAC	"	M	0770547744	Isaac
16.	MAWADI GREGORY	"	M	0781053596	Gregory
17.	MORIKU PAIRICA	"	F	0775429202	Pairica
18.	ARICHALE JAMES	"	M	0779462813	Arichale J.
19.	LUSJA KARAKPNE	"	F	—	Karakpne
20.					



REGISTRATION FORM

Activity: Community Engagement Date: 10th/12/2020
 District/Municipality: Moyo (Pamoti East) Sub County/Ward: Pamoti East

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	AZA STEPHEN		M	0973953914	[Signature]
2.	MOSES AMYAZO	MBOPI	M	078782162	[Signature]
3.	DANZIMA SANDICK	MBOPI	M	088220013	[Signature]
4.	ANJAMA JACKSON	MOUPI	M	0786782618	[Signature]
5.	EREKU NONANI	MOUPI	M		[Signature]
6.	DRODIA HARRIET	MOUPI	F	0781480208	[Signature]
7.	IRAMA GODFREY	MOUPI	M	0787504634	[Signature]
8.	MASUDRO LIDIYA	MOUPI	F		[Signature]
9.	ROZALBA MURRA	PAMOTI	F		[Signature]
10.	KLAUDIO APPE	MOUPI	F		[Signature]
11.	ETIGA FRANCIS	MOUPI	F	072301715	[Signature]
12.	OBUTI JIMMY	MOUPI	M	0770708333	[Signature]
13.	OBUMAI LAZERUS	PAMOTI	M	0786699521	[Signature]
14.	MANKWI DENIS	MOUPI	M	-	[Signature]
15.	IGA TIASURB	PAMOTI	M	-	[Signature]
16.	IRAMA GODFREY	MOUPI	M	0787504634	[Signature]
17.	AMAYO VICTOR	PAMOTI EAST	M	0783503455	[Signature]
18.	DARLOU MASENZIO	EBITWA	M	0783375480	[Signature]
19.	BAJALE HEBERI	MADAGASCAR	M	0779569879	[Signature]



REGISTRATION FORM

Activity: COMMUNITY ENGAGEMENT FOR KAROMI AFDG, MOYO Date: 9th/12/2020

District/Municipality: MOYO Sub County/Ward: UBBI-NORTH

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	IDRIFUA MOSES	UBBI SOUTH	M	0781996443	<i>[Signature]</i>
2.	DROPIA BEATRICE	UBBI-NORTH	F	—	<i>[Signature]</i>
3.	EDUMA GEORGINA	UBBI-NORTH	M	0772991026	<i>[Signature]</i>
4.	KADOBARA INNOCENTI	U	M	0775429202	<i>[Signature]</i>
5.	OJJA STEPHEN	LOGOBU SOUTH	M	—	<i>[Signature]</i>
6.	VUZIGA NILIBERI	UBBI-NORTH	M	0785926113	<i>[Signature]</i>
7.	AMATO SUNDAY	U	M	—	<i>[Signature]</i>
8.	ALUMAI GODFREY MASHI	U	M	0789035343	<i>[Signature]</i>
9.	DABA KPWEE GLORIA	U	F	0779378401	<i>[Signature]</i>
10.	MAZA KPWEE FLORA	U	F	0785921430	M.F
11.	ONZIMAI JACKSON	U	M	—	<i>[Signature]</i>
12.	ARAZI JEREMIA	U	M	—	<i>[Signature]</i>
13.	BRWILI SLOWO	U	M	—	<i>[Signature]</i>
14.	MORIKU STELLA	U	F	0785904948	<i>[Signature]</i>
15.	RIFOD SERENA	U	F	—	<i>[Signature]</i>
16.	ASIGACHI EMILIE	U	M	—	A.E.
17.					
18.					
19.					



REGISTRATION FORM

Activity: Community Engagement Date: 10/11/2020
 District/Municipality: Mojo Sub County/Ward: Modogara

SN	NAME	VILLAGE/ ZONE	SEX MT	PHONE CONTACT	SIGNATURE
1.	KOKUA ORSOLA	Pamati East	F	0772952535	<i>[Signature]</i>
2.	Klaigo Nobsent	MOIPI ILLI	M	0779210059	<i>[Signature]</i>
3.	ABERIGA CHARLES	MOIPI ILLI	M		<i>[Signature]</i>
4.	ABEBASIKU DENIS	MOIPI ILLI	M		<i>[Signature]</i>
5.	ROKAWI DENIS	Pamti East	M	0783377249	<i>[Signature]</i>
6.	Chandia PAUL	Pamoti East	F	0786761808	<i>[Signature]</i>
7.	DOMAIKA RIZOYO	Pamoti East	F		D.R
8.	OTUA RABEKA	MOYIPI ILLI	F		O.R
9.	ENERIKA TIRI	MOYIPI ILLI	F		
10.	BERACE OJJA	MOYIPI ILLI	F		
11.	PALIMIRA MOSIKO	Pamoti	F		
12.	WIMBO Rebecca	MOIPI ILLI	F	0783763593	<i>[Signature]</i>
13.	SAMUEL BAKER	MOIPI ILLI	M	077050705	<i>[Signature]</i>
14.	NYANBA ROBERT	MOIPI ILLI	M	0770726842	<i>[Signature]</i>
15.	Ycha BOSCO	MOYIPI ILLI	M		
16.	IRA - BERO DENIS	"	M	07827192	<i>[Signature]</i>
17.	MUROGA ALFRED	MOIPI ILLI	M		<i>[Signature]</i>
18.	DRANI CHRISTOPHER	MOIPI ILLI	M	0788586863	<i>[Signature]</i>
19.	CIZEHLA BARISSO	MOIPI ILLI	F		<i>[Signature]</i>



REGISTRATION FORM

Activity: Community Engagement Date: 11/12/2020

District/Municipality: MOTD Sub County/Ward: ME?U, Allu, Gw

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	OVIZIO DOROTHY	ALLU	F	0771816144	
2.	SANTINA KAREO	"	"	0772646173	SK
3.	VIRGINIA BAULE	"	"	077	BV
4.	BUNIA MARIAA	GWAY	u	0773078243	Bunia
5.	LILY OSEMUNJI	ALLU	u	-	LO
6.	KONBU ROBERT MARRAMA	GWAY	M	0773-886203	
7.	MARIA RAKETE	"	F	0779579085	Raki
8.	DIDIO PAIRICIA	"	"	0778515450	D.P.
9.	AIRYO FRANCISCA	"	"	-	PA
10.	IOBU WAZARENO	"	M	-	
11.	AGIOLU ESTHER	ALLU	F	-	AG
12.	RUZINA DRALUDU	GWAYI	F	-	RD
13.	IVU VEN LEKU	GWAYI	M	0783406944	
14.	MUUSA LAZARO	ALLU	M	-	ML
15.	ROSE NYUMAA	"	F	0771639905	
16.	DRADIMU FLORENCE	"	"	0788518488	
17.	ABLO GRACE	"	"	0774466335	
18.	ALOPIA TEDDY	"	"	0775948921 077480921	
19.	UNZIA EUBAYOE	"	"	-	



REGISTRATION FORM

Activity: Community Engagement Date: 11/12/2020
 District/Municipality: Moyo Sub County/Ward: M.F.T.U, A.I.I.U, 16

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	IDRO CHARLES	GWAYI	MALE	0771314827	<i>[Signature]</i>
2.	OBULEJO MICHAEL	"	"	0771246612	<i>[Signature]</i>
3.	GODIA CELINA	Alley	Female	0774575158	CC
4.	KARAMUNO MAUDINA	"	"	-	KM
5.	LAGHU STEVEN BUA	GWAYI	MALE	0781904170 0785688542	<i>[Signature]</i>
6.	MAWAZALI GODEFREY	GWAYI	"	0779362966	<i>[Signature]</i>
7.	AMANZURU BELIFANO	GWAYI	"	-	AS
8.	DRABARI AURELIA	Alley	Female	-	<i>[Signature]</i>
9.	MARY ABRAHAM	GWAYI	"	0772681700	<i>[Signature]</i>
10.	ABIO KAROLINA	"	"	-	AB
11.	ALICE ALIKU	"	"	-	<i>[Signature]</i>
12.	RABECA ERUKU	ALLEY	"	-	RO
13.	D.PIO ADDUNIKTA	"	"	-	<i>[Signature]</i>
14.	TAUKUBA TEDDY	"	"	-	TT
15.	CONCY DRAGUKU	"	"	-	CA
16.	MURAA RUZWA	"	"	-	<i>[Signature]</i>
17.	MABUDIO LETISIA	GWAYI	"	-	BA
18.	ESHER ERWALAA	ALLEY	"	-	ES
19.	JOYCE DRAGO M.	"	"	0775283175	<i>[Signature]</i>



REGISTRATION FORM

Activity: Community Engagement Date: 11/12/2020
 District/Municipality: Moyo Sub County/Ward: netu Allu/Gwayi

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	DROMA YUA TA	ALLU	MARE	0774814562	<i>[Signature]</i>
2.	MORALI MICHAEL	"	"	0772339031	<i>[Signature]</i>
3.	DAMA FRANCIS	ALLU	"	0789663206	<i>[Signature]</i>
4.	IZALE GODFREY	ALLU	M	-	<i>[Signature]</i>
5.	IDRIFUA JOHN	ALLU	M	0771984349	<i>[Signature]</i>
6.	VLICIKI THOMAS	ALLU	m		<i>[Signature]</i>
7.	AMAGA TINARO	Gwayi	m	/	<i>[Signature]</i>
8.	ROBERT JOSEPH	Allu	"	-	Tobs
9.	OBENDI WILLIAM	GWAYI	"	0787332548	<i>[Signature]</i>
10.	DRAGURA GAETANO	Allu	"	-	<i>[Signature]</i>
11.	DRAMUYO WILLIAMS	Allu	"	-	<i>[Signature]</i>
12.	AKOMU HENRY	Allu	"	0784008732	<i>[Signature]</i>
13.	JRAB-IA CHARLES	Allu	"	-	I.C.
14.	HELLEN IDRIFUA	Allu	Female	-	HE
15.	ANJEDU DOMINIC	"	MALE	078664247	<i>[Signature]</i>
16.	ATIDRI JB BUA	GWAYI	"	-	<i>[Signature]</i>
17.	MEIKUM SAM ELIAS	"	"	0771468666	<i>[Signature]</i>
18.	ANZOR JACKHINE	Allu	Female	-	<i>[Signature]</i>
19.	GRACE MANDERA	"	"	0775174672	<i>[Signature]</i>



REGISTRATION FORM

Activity: Engagement for RAP update Date: 10/12/2020

District/Municipality: MOYO Sub County/Ward: EbiKwa

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	VUDRA MICHAEL	RAMOGI	M	11	
2.	ABOKA SUNDAY	11	m	0776949486	
3.	UZIA BENIPPE	Ramogino	M	0774451626	
4.	ANTOVI PATRICK	"	"	0770468677	
5.	ABAYO FRANCIS	"	"	0174622863	
6.	TANI SIMON	"	"	-	
7.	ANYAMA RICHARD	"	"	-	
8.	ANZO ALEX	"	"	0774049509	
9.	DRICHI JAMES	Ramogi c	M	0781694151	
10.	ABOKA SATURULINO	"	M	-	AS
11.	OJJA PAUL	Ramogi North	M	0775668448	
12.	ONGAMI SUNDAY	RAMOGI EAST	M	0778923185	
13.	AURELIA IPPE	RAMOGI NORTH	F	-	A.)
14.	ONORGA MARDN	RAMOGI NORTH	M	0788203307	
15.	TIONDI CELESTINE	EBIHWA	M	0783740001	
16.	COMFORT IRAMA	RAMOGI NORTH	F	0774342605	
17.	IDAKU JAEKSON	RAMOGI NORTH	M	0789574184	
18.	BERYA MARIANO	"	M	0777620080	
19.	GUMA LAWRENCE	RAMOGI	M	0782811406	
20.					



REGISTRATION FORM

Activity: Community Engagement Date:

District/Municipality: Moyo Sub County/Ward: Moyo

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	ARIKU NELSON	Ramogi North	M	0787843234	<i>[Signature]</i>
2.	BALU BENSON	RAMOGI 'N'	M	0778870632	<i>[Signature]</i>
3.	VUKONI CHRISTOPHER	RAMOGI NORTH	M	0784180651	<i>[Signature]</i>
4.	OPIO RUFINO	RAMOGI N	M	-	<i>[Signature]</i>
5.	CHACIGA STEPHEN	RAMOGI N	M	0771016295	<i>[Signature]</i>
6.	UZARA SAM	RAMOGI N	M	-	<i>[Signature]</i>
7.	ASOBASI ANDREW	RAMOGI N	M	0788478639	<i>[Signature]</i>
8.	ANATAZIA KAREO	RAMOGI N	F	-	<i>[Signature]</i>
9.	ARACRI DOMINIC	RAMOGI N	M	-	<i>[Signature]</i>
10.	DIALAZE ALEX DZAGRE	RAMOGI N	M	0789920342	<i>[Signature]</i>
11.	DBWLEJO ELIAS	RAMOGI N	M	0771941796	<i>[Signature]</i>
12.	ERIKU IPPE GEORGE	RAMOGI N	M	0786322846	<i>[Signature]</i>
13.	IURUGO PATRICK	RAMOGI N	M	-	<i>[Signature]</i>
14.	CHACIGA JUSTIN	RAMOGI N	M	-	<i>[Signature]</i>
15.	MANGWI FRANCIS	RAMOGI N	M	-	<i>[Signature]</i>
16.	FLORA IWA	RAMOGI N	F	-	<i>[Signature]</i>
17.	MALIAMUNGU TOM	RAMOGI N	M	-	<i>[Signature]</i>
18.	MANGWI	Ramogi	M	-	[Signature]
19.	Adebasiku Emmanuel	Ramogi North	M	0781447325	<i>[Signature]</i>



KAMPALA JINJA
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REGISTRATION FORM

Activity: IRAP UPDATE ^{State holder} _{Engagement Plan} Date: 14/02/2020

District/Municipality: Moyo Sub County/Ward: Moyo TC - 2 CELECECE WARD

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	TARAPWE ROSE SARAH	CELECELEA WEST	F	0788775483	
2.	KAUDARUKU SAVIOUR	celecelea west	M	0785268530	
3.	Chandia JOYCE	celecelea west	F	0784083286	
4.	AYIASI MOSGI	celecelea east	M	0778340905	
5.	ZADA ABUDALATIYU	celecelea	M	0783357313	
6.	KHEMIS YASSIN ACHIGA	celecelea WEST	M	0785322123	
7.	MUSO KAMA	Cele WEST	M	0775802312	
8.	TABAN SAIDI	celecelea EAST	M	0781251731	
9.	Komaa Anjela	celecelea W	F	0779572359	
10.	BSEA DRAGU CHIZELA	CELECELEA W	F	0782468599	
11.	Oyoo Concy	celecelea W	F	0774289563	
12.	Budna Ven	celecelea W	F	0782225107	
13.	Moniku Maragaret	celecelea EAST	F	0777728677	
14.	ZAIDA ADARI	CELECELEA WEST	F	-	
15.	TABE ISAKIYO	CELECELEA	F	-	
16.	TARAPKE STELLA	CELECELEA W	F	0780962213	
17.	FALINA ALIA	CELECELEA W	F	-	
18.	CARDLINE AMYIA	celecelea W	F	-	
19.	IASIA FLORENCE	CELECELEA W	F	0786581808	
20.	IRAKI LIAC	CELECELEA W	M	-	



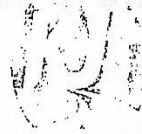
KAMPALA JINJA
EXPRESSWAY PPP

REGISTRATION FORM

Activity: Stakeholder Engagement Koope-moyo Afij Date: 14/2/2021

District/Municipality: Moyo Town Council Sub County/Ward: Celecelea East/We

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	FATIMA ALHA	CELECELE W	F	/	Fatima
2.	ANIKWA KASSIM	Celecelea E	M	0774593536	Anikwa
3.	LOFOGA HENRY BORO	CELECELE E	M	0782468878	Lofo
4.	CHANDA CELESTIA BORO	Celecelea E	F	0771911901	Chanda
5.	Mohimati Denis	Celecelea W	M	0773964482	Mohimati
6.	RATIB YASSIN	C/E	M	/	RATIB YASSIN
7.	ATIMA SIRAJI	C/WEST	M	0774101851	Atima
8.	AITMAKU JERKLINE	Celecelea E	F	077252839	Aitma
9.	MANDERA FRANCISKA	Celecelea E	F	0786398248	Mandera
10.	VUDI PATRICK	Celecelea E	M	0784751380	Vudi
11.	Ahuma JAMES	C/EAST	M	0716871577	Ahuma
12.	MESIKY MARGARET	VISITOR	F	0787963579	Mesiky
13.	NJOROGE JOSEPH	C/EAST	M	0776787537	Njoro
14.	MAFU RASTIKI	C/EAST	M	0770708314	Mafu
15.	Ahuma INNOCENT	C/EAST	M	0775050693	Ahuma
16.	IBBI SABI TABON	C/EAST	M	0774421004	Ibbi
17.	AZIREO MARIYA	CELECELEA W	F	0772889935	Azireo
18.	NIGGO MALAYI JOHN	CEL-CE-EAST	M	0772562214	Niggo
19.	NYA IGA STEVEN	C/II	M	0772877537	Nya Iga
20.	MICHAEL ALHA	CELECELEA W	M	0787348976	Michael



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REGISTRATION FORM

Activity: Engagement kampi-moyo-agg rd Date: 14/2/2021

District/Municipality: Mayo Town Council Sub County/Ward: Celecelea East/West

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	TAKO STEPHEN	Celecelea East	M	0772858457	
2.	ASIGA IBN ISMAIL	Celecelea East	M	0774915257	
3.	BUGA TASHIN JUMA	celecelea East	M		
4.	Chandiga Khurim	Celecelea East	M	0772999190	
5.	VUKOMI EZEKIEL	Celecelea East	M	0770607547	
6.	ZELWAB AZUBKE	Celecelea East	F		AM
7.	ABOU RASHID WAKU	Celecelea East	M	0771012920	
8.	MAIA KALSUM	Celecelea East	F	0777228117	
9.	Dray Collins	Celecelea West	M	0777625146	
10.	MADEKWE MESIKU JUMA	Celecelea West	F	0787971900	
11.	LEMI ASIRAF	Celecelea	M	0771463863	
12.	DEICH MICHAEL	Celecelea	M	0772551197	
13.	ACHIMA SAFI YASSIN	Celecelea	M	0772299442	
14.	DRAMERI DOMINIC YURA	CELECELEA EAST	M	0782142460	
15.	MICKEAL SERBI	CELECELEA W	M	0773246271	
16.	DRALORU JOHN	CELECELEA WEST	M	0772870783	
17.	SADAM HASSAN	CELECELEA W	M	0789716999	
18.	JAFARI KAJUTUBE	CELECELEA W	M	0772857529	
19.	ABIRIGA KALIDRI	CELECELEA W	M	077419182	
20.	Kaluma M. a. west	CELECELEA W	F	0774149653	



REGISTRATION FORM

Activity: Community engagement for RAP update Date:
 District/Municipality: Mayo ic Sub County/Ward:

SN	NAME	VILLAGE/ ZONE	SEX M/F	PHONE CONTACT	SIGNATURE
1.	PAULINA IZALE	EREPI EAST	F	-	<i>[Signature]</i>
2.	OLIVER AARAWA	EREPI EAST	F	-	<i>[Signature]</i>
3.	RUMANA ESEMA	EREPI EAST	F	0785438331	<i>[Signature]</i>
4.	MADRARA BICEO	EREPI WEST	M	-	<i>[Signature]</i>
5.	BRAMUNDU FREDERICK	EREPI WEST	M	0787631892	<i>[Signature]</i>
6.	MAJADRI JOSEPH	EREPI R. WEST	M	0775076744	<i>[Signature]</i>
7.	ASINZO ABDES UMPRI	EREPI R. CENTRAL	F	0715717246	<i>[Signature]</i>
8.	MUNDOA ZILA	EREPI SOUTH	F	-	<i>[Signature]</i>
9.	PAIMIRA INTANVO	EREPI SOUTH	F	-	<i>[Signature]</i>
10.	NTAGA ROSEN	EREPI WEST	M	-	<i>[Signature]</i>
11.	IRACHWA SCOVIA	EREPI WEST	F	-	<i>[Signature]</i>
12.	ANTONIA GLORIA	EREPI EAST	F	0772169416	<i>[Signature]</i>
13.	BEATRICE MANTIMANTI	EREPI EAST	F	-	<i>[Signature]</i>
14.	ALICE ONDO	EREPI EAST	F	-	<i>[Signature]</i>
15.	MURED CENINA	EREPI EAST	F	-	<i>[Signature]</i>
16.	AURELIA MONDIA	EREPI WEST	F	0727334195	<i>[Signature]</i>
17.	GRACE ANDEVUKU	EREPI SOUTH	F	0788821258	<i>[Signature]</i>
18.	CENISTINA DRANI	EREPI EAST	F	-	<i>[Signature]</i>
19.	JUSPHINE DRICH	EREPI WEST	F	-	<i>[Signature]</i>

STWD	NAME	VILLAGE/ROADS	TEL NO	SP/ST
73	CHANDIGA SOTHO	EREPI SOUTH	0725716838	SP/ST
74	DRALU THOMAS	" "		SP/ST
75	ASIBED ALBINA	" WEST		SP/ST
76	DULWA JULIATA	" SOUTH		SP/ST
77	DRAZIBU CELINA	" SOUTH		AA D.S.
78	LAGUA RIANIKA DRAGUWA	" SOUTH	0785852557	SP/ST
79	ALUKU JOSEPH	" EAST	0785166568	Book
80	MAZAPKE JACKLISE	" SOUTH		SP/ST
81	IRACKA JANET	" SOUTH		SP/ST
82	AZIKU JULIATA	" SOUTH		SP/ST
83	EDER VIVIAN	" SOUTH		AA
84	STELLA ALUMAI	" SOUTH		AA
85	DRANZA ANNE	" SOUTH		AA
86	SUZAN IGA	" EAST		SI
87	ITUGA SAMUEL	" EAST		SP/ST
88	AIMAKU PATRICIA	" SOUTH		SP/ST
89	IZALE LAWRENCE	" EAST		SP/ST
90	ITA FELIX	" EAST		SP/ST
91	HELEN AMBAYO	" WEST		SP/ST
92	JASE DRAMANI	" WEST		JA

Appendix 7: Stakeholder Engagement Plan

Introduction

The RAP studies for Laropi-Moyo-Afoji road project and further field discussions during stakeholder consultations identified a vast array of stakeholders that will have very critical roles during the implementation and subsequent success of the proposed road project. This Stakeholder Engagement Plan (SEP) will provide a framework for effective stakeholder engagements throughout the entire project lifecycle.

Purpose and objectives of the Stakeholder Engagement Plan

The main purpose of the Stakeholder Engagement Plan (SEP) is to guide the developer on how to address stakeholder concerns and resolve potential conflict situations during the construction of Laropi-Moyo-Afoji road project. The plan further addresses modes of communication to different stakeholders as well as communication strategies.

Mandates and legal context

The legal and institutional mandates that governs this Stakeholder Engagement Plan have been exhaustively elaborated and reviewed by the RAP report for the Laropi-Moyo-Afoji road project and further under the policy and legal framework. Specific laws include the Land Act, Cap 227 and the Land Acquisition Act, 1965 and other regulations and policies on roads, land acquisition and involuntary resettlement,

The Guiding Principles:

Broadly, consultations will be carried during the implementation of the Laropi-Moyo-Afoji road project, in an inclusive and transparent manner during RAP processes. Stakeholder consultations and sensitization will be executed in a manner that promotes the establishment of strong, constructive and responsive relations with project affected persons and with any other people who may have interest in this project.

Stakeholder sensitization and consultation shall be initiated early in the life of the project and shall be an integral part of the project's environment/ social risks/impacts management. The planning and implementation of public consultations and participation will be carried out in line with the process provided for under the EIA regulations, the Constitution of the Republic of Uganda, 1995, E&S policy, Environment and Social Management System (ESMS) and the revised Land Acquisition and Resettlement Management System (LARMS-2018) as well as the Integrated Safeguard Policies of the African Development Bank.

Stakeholder participation and consultation are also implied in the international Performance standards on land acquisition and involuntary resettlement.

Specifically, the following will be followed:

1. Hold consultations with stakeholders in a timely and simplified manner which is socially and culturally acceptable.
2. All staff involved in the process will ensure that consultations are free of manipulation, interference, coercion, discrimination and intimidation.
3. Inform and sensitize stakeholders on the key subject of engagement before seeking their views and concerns
4. In RAP studies, teams shall facilitate the process. do not teach or lecture, adult learning principles shall apply.
5. The language and methods of consultation shall vary depending on the category of persons to be consulted
6. The scope, method and frequency of consultations will depend on the nature, size and complexity of the project.

7. Consolidate all Stakeholder views into individual reports (showing a record of the issues raised during the consultation process as well as the responses given) and thematically represent them in the RAP stakeholder section.
8. Disclose the RAP to stakeholders, indicating how their views have been taken into consideration.
9. Identify Vulnerable people during community consultations and carry out a detailed vulnerability assessment at a later stage.

Stakeholder Identification and description

Stakeholders to be engaged for the proposed Laropi-Moyo-Afoji project will be identified and updated on an ongoing basis. The categories of stakeholders who have been identified are those who might be affected or have interest in the project. Also, Individuals and organizations who may not be affected by the project but may influence the outcome of the project have been consulted will be consulted on a regular basis and updated on project aspects and milestones as required. The persons who benefit from services and activities at the proposed project area and its vicinity as well as those who derive a livelihood from activities undertaken in the project area. These include, transport operators, lodge, kiosks and hotel owners, market vendors, local artisans and hawkers to identify their concerns and develop appropriate measures to ensure that such persons do not lose their main source of livelihood as a result of the project.

Risks associated with Noncompliance with Stakeholder Consultations

Projects that displace people and directly impacts on people's livelihoods as well as those being implemented in very sensitive eco systems or protected areas such as fragile eco systems, physical cultural resources, rivers among others often cause conflict because of the failure to identify and engage meaningfully with key stakeholders. Project sustainability will always require positive energy and contributions from all including those that may not be necessarily direct beneficiaries to project outcomes. Failure to meaningfully engage stakeholders can lead to low acceptance and delay in progress of works.

Risk profile

- Land conflicts
- Disagreements with project affected persons on compensation rates
- Unnecessary demands placed on project implementers by regulatory agencies and development partners as well as civil society organizations
- Limited conceptualization of the project by stakeholders
- Labour shortage on the project
- High rates of labour turn over
- Abandonment of project by contractor
- Environmental degradation
- HIV/AIDs and other sexually transmitted diseases
- Reputational loss
- Accidents

Key Stakeholders for The Project

Specific categories of stakeholders who must be engaged during the entire project life cycle shall include among others; Ministry of works and transport, ministry of gender labour and social development , Uganda AIDS Commission, technical and political leaders of the District and Sub county Local governments of moyo , ministry of lands, housing and urban development the communities.

Stakeholder engagement strategies

- Identification and description of stakeholders associated with Laropi –Moyo-Afoji road project
- Design a communication plan for the project including staffing and their competencies
- Develop messages with specific project information including benefits using IEC materials i.e. Brochures and fliers etc
- Design a plan for stake holder consultation and engagement through the entire life cycle of the project
- Regular reporting and feedback to stakeholders through meetings and joint field visits
- Establishment of a grievance redress mechanism

Stakeholder Engagement process

During implementation of the project, UNRA will engage national , district, subcounty and community level stakeholders.

The following steps will guide the process of engagement:

Mapping; the developer will map all key stakeholders who have interest, are affected and influence project implementation decisions and actions and determine their level of influence, interest and frequency as well as approach of consultation.

Informing; effort shall be made to provide stakeholders with balanced and objective information to ensure that they understand the nature of the project, changes, and likely impacts as well as mitigation measures. The developer and contractor shall use various methods i.e meetings, mass media and IEC materials to inform stakeholders about project milestones.

Consultations; Since success of this project is largely dependent on the degree to which stakeholders' concerns and expectations shall be incorporated in the ESIS and design of the project. The developer as well as contractor will undertake continuous consultations to respond to the concerns and negative perception about the proposed project. The stakeholder consultations shall be undertaken through the entire life cycle of the project. Different methods for consultations shall be applied to different groups of individuals and stakeholders and there after feedback mechanisms shall be in Place

To win the confidence and acceptability of the project, startup meetings shall be undertaken by the developer before the project commencement to provide a clear understanding of the scope, risks associated with the proposed project during the construction phase and mitigation measures in place. So besides ascertaining their views and expectations as well as disseminating the relevant information in regard to the project, regular consultations will have held to ensure that mitigation measures are adequately managed and implemented.

Involvement; Stakeholders especially the ministry of lands housing and urban development, Ministry of Tourism Wild Life, and Antiquities, Ministry of Lands Housing and Urban Development among others shall be consulted though regular meetings and joint inspection visits and reviews and monthly reports. Similarly, lessons learnt, best practices and strategies for effective project implementation shall be discussed with stakeholders.

Communication Strategy

The developer will develop a communication plan for the proposed project to guide the stakeholder engagement process throughout the projects lifespan. This is aimed at keeping stakeholders informed about all project

milestones and disseminate information about the proposed project. The strategy will further provide a clear understanding of communication channels and protocols, the major implementation concerns and project milestones and challenges encountered during implementation including grievance redress mechanism.

Consultation methods

During land acquisition, relocation and construction, the developer and other stakeholders involved in project implementation will use the most efficient means to keep stakeholders informed of all project activities and processes and methods

Meetings; Formal meetings shall be held at all administrative levels such as National, District and Sub-county levels as well as project level workers involved in the execution of works on the project.

There shall be monthly coordination and review meetings with the implementing District Local Government and selected Civil Society Organization, Ministry of Tourism , Wild Life and Antiquities, to provide stakeholders with feedback, extent of implementation of mitigation measures and , discuss progress as well as joint resolution of challenges.

Grievance Redress mechanisms

Many concerns, complaints and grievances may arise during the process of land acquisition and implementation of the project and they must be addressed before they impact on project time lines. UNRA has Grievance Redress Mechanism which should be complied with in handling stakeholder related grievances. For grievances which are specific to the project workers, the contractor should establish a specific mechanism for addressing grievances in a timely manner.

Monitoring

Monitoring will help to assess the effectiveness and efficiency of stakeholder engagement approaches throughout the project as it evolves. The approaches shall be measured against a number of indicators including;

- The number and category of stakeholders mapped, identified and engaged
- Number of meetings /engagements held
- Number of complaints/ compliments received and addressed
- Number of unresolved complaints
- Number of monitoring visits
- Number of tool box talks etc

Stakeholder Consultation Matrix for Laropi Moyo-Afoji Road Project

Stakeholder cluster	Level of Interest	Mode of Engagement	Period of Engagement	Responsibility
National level/Authorities, MDAs	Ministry of Works and Transport Uganda National Roads Authority ministry of lands, housing and urban development Ministry of tourism, wildlife and antiquities Uganda Aids Commission, NEMA ,etc	Quarterly progress reports Impromptu site visits Joint inspections	Monthly	UNRA
District local government	Moyo District Land Board Moyo District Local Government	Quarterly progress reports Impromptu site visits Joint inspections	Monthly	UNRA
Local level;	Metu, Laropi and Moyo Subcounty Moyo Town Council	The projects are implemented in different local governments. All the relevant departments of the local government require on going engagements throughout all stages of the project.	Meetings Fliers	Monthly
Community level	<ul style="list-style-type: none"> All the Project Affected sub-counties where the road project traverses. Vulnerable groups Women groups Youth Secondary communities – may be affected by the project ancillary services e.g. where equipment may move through during transportation 	<ul style="list-style-type: none"> Monthly 	Meetings radio programmes	monthly
Civil Society Organisations	<ul style="list-style-type: none"> Lutheran World Federation CIDI World vision Mercy Corps Global initiative Metu community museum 	<ul style="list-style-type: none"> Organizations with direct interest in the project and that are able to influence the project directly or indirectly through public opinion 	Meetings Fliers Briefings	Quarterly

Appendix 8: Environment and Social Management Plans

Appendix 8a: Safety and Security Management Plan

The ESIA has recommends the need to maintain security especially at the boarder points and the need for the contractor to have an independent security system that collaborates with the local security organs ; denvelopment and implementation of security plans; and creating awareness, and building capacity within communities, workers, security agencies on the dangers of prostitution, crime and drug abuse due to influx of people. The contractor will therefore prepare and submit to the Supervising Engineer a comprehensive Construction Safety and Security Management Plan taking advantage of the existing mechanisms in the district to implement the road upgrading project for approval. The plan shall have policies, procedures, and measures that form the safety and security program of the contractor. The plan shall be based on a Safety and Security Risk Assessment to be undertaken by the Contractor before clearance to commence construction.

The plan will use a number of safety and security systems designed to help fulfill the contractor's safety and security objectives in the context of the prevailing circumstances. The systems will complement the policies, procedures, and measures that form the safety and security program instituted by the Contractor. The safety and security system shall have but not be limited to: -

- Working with the mandated security agencies and the community to ensure that the project area is completely free of land mines and improvised explosive devices (IED) and put in place contingency measures;
- Safety and Security working in the border area;
- Placement of fencing and locked gates;
- Security lighting;
- Identification/access badges issued to employees and visitors;
- Security cameras and monitoring by Security staff;
- Contracted guards - inspection patrols;
- Law Enforcement Support
- Storage of Explosives
- Crime prevention

Following is an elaboration on the system components which shall be undertaken by contractor supported by UNRA as appropriate:-

- **Working with the mandated security agencies and the community to ensure that the project area is completely free of land mines and improvised explosive devices (IED) and put in place contingency measures**

Agencies conversant with explosives including the Uganda Peoples Defence forces or police force will be involved in conducting the residual product risk assessment in the project area and recommendation of mitigation measures to be presented in a comprehensive safety and security management plan depending on the findings. UNRA work with the contractor to engage relevant security agencies.

- **Safety and Security working in the border area**

Agencies involved in the security matters such as the Resident District Commissioners Office, Uganda Peoples Defence forces or police and the Internal Security Organization, the cultural leadership and the business community will be engaged by UNRA working with the contractor before commencement of

project implementation. The relevant security agencies will strengthen intelligence gathering and monitoring to detect any security threats.

- **Placement of fencing and locked gates**

Access points/gates to camps, quarries and crusher and bitumen/Asphalt plants may be secured by the Contractor through manually opened and secured with a heavy-duty project approved pad lock or electronically accessed. All perimeters and access points will be monitored 24/7.

- **Security lighting**

Security lighting will be strategically placed throughout project facilities such as camps to highlight perimeters, gate and entry points into buildings, and other areas of interest by the Contractor.

- **Identification/access badges**

The Contractor may issue employees and visitors with identification and access badges. The purpose is to enhance the security and safety of project visitors and employees.

- **Security cameras and monitoring**

The Contractor may install security cameras at strategic points in areas of interest and security staff employed to continuous monitoring activities at important installation of the project to curb thefts and obtain relevant recordings in line with ethical considerations of installation of cameras.

- **Contracted guards – inspection patrols**

The Contractor may hire the services of a private security company with guards stationed at key components of the Projects such camps, quarry and crusher and bitumen plant. Additionally, “patrol” guards will be assigned to conduct security checks of the project properties, carry out surveillance and security monitoring.

The firm contracted should be under the supervision of the territorial police and have a Human Resources Policy that controls use of drugs and alcohol.

- **Law Enforcement Support**

The Contractor may develop strong partnerships with the local law enforcement agencies such as the Uganda Police Force(UPF) and the Uganda Peoples Defense Forces (UPDF). These agencies will support the contractor's security mission through patrols, response to incidents, and provide security for community meetings on request and application from UNRA and the contractor.

The police work closely with other agencies which are well established in Moyo district and the community. The agencies include the Judiciary, the Directorate of Public Prosecution and the Uganda Human Right Commission.

- **Use of Explosives in Stone Blasting**

Robust security controls should be in place before explosive operations start and they should remain in place and be effective for as long as the operations continue. The Contractor acquisition, transportation and storage of explosives used during earthworks and stone quarrying will be undertaken in compliance with the Explosives Act Cap 298 which regulates acquisition, storage and transportation of explosives in Uganda.

The explosives will be stored with the police and the military which are well established organs in the project area. The contractor will be required to use an alarm system to alert communities before stone blasting. The contractor will publicize the blasting programme to the communities.

- **Crime Prevention and Security of persons receiving compensation monies**

Generally, Moyo district has low crime rate without serious security incidents reported and noticed due to effective community policing and sensitization activities. The influx of persons in the project area is likely to result into vices such as thefts and other social immoral behaviors. Further, person being compensated with money need to be protected. The concern will be addressed through stakeholder engagements and management by relevant security agencies including increased community policing and the involvement of the political leadership of Moyo District. The contract as a priority will be required to recruit labor workforce; skilled and semi-skilled or casual from the community. As a UNRA policy, compensation for properties is undertaken through banks accounts and not cash above a small threshold.

Appendix 8b: Management Plans under preparation/Prepared by the Contractor

The following plans will be prepared before the project commences and will be part of the clearances before the contractors commences:-

Contractor's Environment and Social Management Plan(CESMP)

Contractor's Construction Safety and Security Plan(CSSP)

Contractor's Waste Management Plan(CWMP)

Contractor's PCR Chance Find Procedure(CCFP)

Contractors' OSH Plan (COSHP).

Contractors Contingency Plan(CCP)

Influx management plan and HIV/AIDS advocacy and campaign management system'

Biodiversity Action Plan