Ethiopian Electric Power (EEP)

GOPA-International
Energy Consultants GmbH
Hindenburgring 18
61348 Bad Homburg
Germany

T: +49-6172-1791-870
Fax: +49-6172-944 95 20
klaus.langschied@gopa-intec.de
www.gopa-intec.de

IRIS Consult PLC, Ethiopia
Yeka Sub-city
Tesfa Building, near the British Embassy
Office #401
P.O. Box 80790
Addis Ababa
Ethiopia

T: +251 91 140 7724
Iris_consult@yahoo.com
snemomissa@gmail.com

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Electricity Network Reinforcement and Expansion Project (ENREP)

Update the Environmental and Social Impact Assessment (ESIA) for LOT-I: Metu-Mesha 230 KV Single Circuit Transmission Line

Revised Environmental and Social Impact Assessment (ESIA)

June 2022

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Acronyms and Abbreviations

AOI	Area of Influence
CEA	Cumulative Effects Assessment
CEFCC	Commission for Environment, Forest and Climate Change
CIA	Cumulative Impact Assessment
CIS	Corrugated Iron Sheet
CR	Critically Endangered
CRGE	Climate Resilient Green Economy
CSE	Conservation Strategy of Ethiopia
E&S	Environmental and Social
ECCD	Environment and Climate Change Directorate
EHS	Environment, Health & Safety
EIA	Environmental Impact Assessment
EMF	Electromagnetic Field
EMU	Environmental Management Unit
EN	Endangered
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
FDRE	Federal Democratic Republic of Ethiopia
ha	hectare
IBA	Important Bird Area
IUCN	International Union for Conservation of Nature
KBAs	Key Biodiversity Areas
kt	Kilo tonne
kV	Kilo volt
LC	Least Concern
LRP	Livelihood Restoration Plan
MoW	Ministry of Water
Mt	Metric tonne
NFPAs	National Forest Priority Areas
NRS	National Regional State
NT	Neat Threatened
NTFP	Non-Timber Forest Products
OHS	Occupational Health & Safety
OHTL	Over Head Transmission Line
PAPs	Project Affected Persons
PCBs	Polychlorinated Biphenyls
PPE	Personal Protective Equipment
RAP	Resettlement Action Plan
RoW	Right-of-Way
VEC	Valued Environmental Components
VU	Vulnerable

0. Executive Summary

0.1. Introduction

Ethiopia is striving to ensure access to power by its growing population. To this effect, the country has diversified the sources of power, i.e., wind, solar and geothermal. Some wind power has entered the national grid but there are initiations for feasibility studies for solar power in the different dryland areas of Ethiopia, e.g., Afar and Somali. Masha town is endowed with natural resources and has huge economic resources to contribute to the national economy and improve the quality of life of its own and surrounding communities. The lack of power has been a bottleneck for local economic development and national economy through attracting investments. Masha town is located 70 km from Metu substation. The Metu – Masha 230 kV single circuit transmission line project is anticipated to boost economic development in Masha and its surroundings and improve quality of life. Furthermore, the construction of a new sub-station at Masha could be a pivotal hub for subsequent distribution of power to other Woreda towns in Sheka Zone of the South West Ethiopia Peoples' Regional State and Ilubabor Zone.

The Metu – Masha 230 kV single circuit transmission line project is a schedule I project according to the Ethiopia classification of development projects. Such projects require a full ESIA study.

0.2. The project

The project is being developed by the **Ethiopian Electric Power (EEP)**, as part of the Ethiopian Electric Power Transmission Line Project (EPTLP) and is being sponsored by the World Bank which provides technical and financial support.

The Metu – Masha 230 kV single circuit transmission line project comprises the following:

- Construction and operation of **a new substation at Masha town**, which will take about 9 ha of land (300 X 300 meters);
- Construction and operation of a **230 kV single circuit transmission line** from Metu (existing substation) town to Masha town at the newly constructed substation site (total length of the line: 65.1km). The transmission line will comprise approx. 180 towers.
- Construction of **access roads** during tower construction (estimated total length of 3.3km)
- Construction and operation of **associated facilities**, such as storage yards or construction camps

The project will be implemented within SNNPR and Oromia NRS, about 625 km distance from Addis Ababa, along the Addis Ababa–Gore-Metu asphalt road and Metu-Masha gravel road.

An ESIA was carried out for the project in 2016.

0.3. The purpose of ESIA study

The main purpose of this ESIA study is to update the 2016 Environmental and Social Impact Assessment study and address the gaps of the 2016 report. As part of the effort to update the 2016 report and address the gaps, a transmission line rerouting was studied to avoid a highly-forested area. Detailed information on the baseline the bio-physical and social environments were collected. Furthermore, impacts were identified and assessed to propose mitigation measures and prepare Environmental and Social Management Plan (ESMP).

0.4. Impact Assessment Methodology

This section has provided definitions for positive and negative (adverse) impacts. Key impact parameters have included the following. These are:

- *Types of impacts*. the types of impacts were classified as direct, indirect, induced and cumulative.
- *Characteristics of impact*. These include type, extent, duration, scale and frequency of impacts.
- *Likelihoods of impacts*. The likelihoods were rated as unlikely, possible (probable), and likely.
- *Sensitivity/vulnerability/importance of receptors*. Low, medium and large were used to rate this parameter of impacts.
- *Magnitude of impacts (significance of impacts)*. Four rates were used. These are negligible, minor, moderate, and major.

Cumulative impact assessment was done in a step-based approach on a selected Valued Environmental Component (VEC). Biodiversity was selected as a key VEC to undertake cumulative impact assessment (CIA).

0.5. Public and Stakeholder consultations

Public and stakeholder consultations were carried out from 0ctober 06, 2021 to October 11, 2021. The discussion was made in such a way that participants expressed their views independently and freely. Impacted assets were inventoried to understand the impacts of the project on physical structures (houses) and crop trees and coffee shade trees. The following table summarizes key points raised:

Details of consultations	Key issues raised	Responses provided
Illubabor Zone (7 meetings) Held from October 06 to October 10, 2021	• The project affects houses, cash crops and coffee shade trees which have direct impact on household incomes. • Compensation should be paid on time and before the start of the project. • PAPs with small parcels of land should be assisted to build their houses	• The project impacts are both temporary and permanent. There are houses and trees that could be permanently lost. • Any compensation will be paid based on the currently functional laws and regulation of Ethiopia.

Details of consultations	Key issues raised	Responses provided
Attended by 61 participants (16 female)	• Previous projects do not normally consult their office to explain about the project. They appreciated the importance of consultations • There are two type of land ownership, i.e., (1) a green card and (2) a plan with GPS readings. Both are legal and PAPs with these land ownerships status should be compensated • They have bad experiences from previous projects where compensation was not paid in an appropriate manner (their assets were undervalued). • The project should avoid as much forest areas and houses as possible. This should be considered during its route selection. • PAPs asked better electricity connection as currently they receive power once a week	• The Client will pay compensation before the start of the project. • The Consultant has explained compensation processes, i.e., asset inventory, asset valuation, etc. • Town administration can help the PAPs owning small parcels by providing plots of land to construct new houses. • This ESIA study will evaluate alternative routes to minimize negative impacts of the project • This ESIA study mainly focuses on the identification of impact of the project and propose mitigation measures. Practical activities such as issues connected to power distribution will not be addressed in this ESIA study.
Sheka Zone (3 meetings) Held on October 11 Attended by 22 participants (5 female)	• PAPs stated that power is very important for them to trigger local business enterprises and improve living quality of the communities. • Use of firewood for cooking has negative effect on forests • Compensation should be paid before the start of the project. • There is a severe power shortage. As a resul, youth of the town have no job opportunities	• The Client should pay compensation before the start of the project. The due process of payments of compensation has been explained. • The line is expected to increase power availability in the region. The ESIA study should be completed snd approved to enable the project to start. • The Client should pay compensation based on law and regulation of Ethiopia.

0.6. Baseline Bio-physical and socio-economic conditions

0.6.1. Biological

A total of 115 plant species were recorded from the project area. Not all of these species were assessed by IUCN conservation criteria, but others have been assessed. Currently, 38 of these have been assigned IUCN conservation classes. The majority of the 38 species are of least conservation concern but they exhibit different population trends. Whereas about 71% of them have a stable population status, 10% of these species have a decreasing population trend. One species in the project area, *Prunus africana*, has been assessed as Vulnerable. Although commercial exploitation of this species is common in other parts of the world, such economic uses of this species has not been the case in Ethiopia.

The forest of the project area is Moist Afro-montane Forest. This forest occurs in a fragmented manner on both sides of the Ethiopian Rift Valley. Its characteristic species are *Pouteria adolfi-friderici, Cordia Africana, Syzygium guineese, Schfflera abyssinica, Olea welwitchi, Millettia ferruginea* and etc. Coffee grows as a shrub layer in this forest, so are spices such as *Piper capense* and *Afromomum corrorima* as herbaceous layer. Two UNESCO Biosphere Reserves are in the project area. These are Yayu Forest Coffee and Sheka Forest. A Critical Habitats Assessment of the project area has shown that the Metu – Masha 230 kV single circuit transmission line project does not trigger any Critical Habitats.

The Fauna diversity has been investigated in this ESIA study. Although data on amphibians and reptiles are scarce, available information were used for this ESIA study. There are endemic amphibians, reptiles and Bat in the forest surrounding the project area. But these endemic faunae were not common in the project Area of Influence (AOI). There are populations of blue monkey, leopard (we have not seen it but members of the local communities alluded that it occurs there), hyena, genets, bushdieker, hare, civet, mongoose and baboon were recorded from the project area. Assessments of the diversity of avifauna of the project area was conducted. Although there are endemic bird species, they are widely distributed in Ethiopia and elsewhere. Some bird species of the project area exhibits a decreasing population trend. Examples are Silvery-Cheeked hornbill, crowned hornbill and African olive-pigeon. Others show increasing population trend, e.g., Red-eyed dove, Cape Crow and common Bulbul. Most of the bird species of the project area has a stable population. Furthermore, the project AOI is not their critical habitat for their long-term persistence. Assessment of the foraging niches of the bird species of the project area shows that about 9% of them forage in canopy of high trees while the remaining species foraging niches are ground (34%), mid-high and etc. The ESIA study also revealed that there is no bird migration route in the project area.

The Key Biodiversity Areas of the project area are categorized as Biosphere Reserves and National Forest Priority Areas (NFPAs). The Biosphere Reserves have three management zones: core, buffer and transition. Most parts of the NFPAs of the project area are highly modified (agricultural and settlement expansions). There are no Important Bird Areas along the Right-of-Way (RoW) of the project. The Metu – Masha 230 kV single circuit transmission line project crosses the highly converted parts of the NFPAs and transition zone of the Biosphere Reserves.

An assessment of tree cover of Ethiopia from 2002 – 2020 has shown that the country has lost 41.6 kha (3.5%) of the tree cover in this period. With the loss of this tree cover, there is a high CO_{2e} emission into the atmosphere. The loss of tree cover in Oromia and SNNPR (e.g., Sheka) is also noticeable. For example, Sheka has lost 3.4% of its tree cover from 2000 – 2020, which amounts to over 5 Mt of CO_{2e} emission.

0.6.2. Physical conditions

The slope of the project area varies from almost flat to 25%. The OHTL crosses different topography of the project area. With regard to weather condition, the project area receives rain for 8-9 months. The temperature of the project area also varies across the months. Similarly, the

elevation of the project area ranges from 2000 – 2655 m asl. Its highest peak is around Gore town.

There are four geological formations in the project area. But the Metu – Masha 230 kV OHTL crosses only two of these formations. These are the Archaen and Oligocene – Miocene. The soil of the project is different across the entire length of the project. But the Metu – Masha 230 kV OHTL crosses only two soil types, i.e., nitisols and gleysols. The erodibility (susceptibility the soil to erosion and the rate of runoff) of these soils was found to be in the range of 0.001 – 0.135 (low).

With regard to the land use/land cover of the project area, the area of forest cover has drastically diminished (reduced by over 38%) giving ways to expansion of farmland (increased by 39%), settlement and plantation of crop trees, e.g., Eucalyptus. Furthermore, grassland has also decreased in area in 2020 compared to its area cover in 1990.

0.6.3. Socio-economic conditions

The Metu – Masha 230 kV single circuit transmission line project crosses two National Regional States: Oromia and SNNPR. There are 4 Woredas and 8 Kebeles in Oromia and 1 Woreda and 5 Kebeles in SNNPR. Agricultural systems include cultivation of cereal crops, pulses, oil crops, coffee agroforestry and Enset cultivation. The local communities harvest Non-timber Forest Products (NTFP) from the forests. This NTFP include honey production. They use the big trees of the Forest such as *Pouteria adolfi-friderici, Cordia africana, Albizia gummifera*, etc. for placing their beehives. Other NTFP includes the collection of spices from the forest.

Power supply to the Zones of the project area is limited. There are Woreda towns in both Illubabor and Sheka Zones which do not have access to electricity. As a result, most of the population uses alternative energy sources such as firewood, which is the major source of energy. Other people also use charcoal, dung, crop residues and kerosene. The use of firewood by the large portion of the population of the study area is one of the major causes of deforestation. The lack of electricity affects local economic activities, quality of life and the delivery of education to the pupils. Furthermore, the pupils are not able to study as much as required due to the lack of electricity. The soothes from the firewood and dung, for example, pose chronic health risks. Therefore, power is a necessity for these communities.

The Metu – Masha 230 kV single circuit transmission line project impacts land and livelihoods through triggering physical displacement of houses and high crop trees such as *Eucalyptus*. High shade trees will also be removed from within 40 m corridor of the RoW. The restrictions of this project are that no houses will be constructed within the RoW, so are high crop trees and coffee shade trees. The physical relocation of structures and restrictions of the project negatively affect certain people. The severity of the impacts of this project in this regard is different for Project Affected Persons (PAPs) in the rural and urban Kebeles. In urban Kebeles, the PAPs have 200 square meters of land where they have constructed their houses and cultivated some garden crops and crop trees. In cases where the RoW passes certain section of the plot of land, the PAPs should relocate the houses elsewhere. This situation is very common in Kolo Korma of

Metu town. On the other hand, PAPs in rural Kebeles have sufficient land outside the RoW and they can construct new houses. The ESIA study has revealed that a total of 133 houses (Tukuls and CIS) will be physically displaced due to this project. Large number of crop trees will also be removed from the RoW. But people can grow Enset and other crops inside the 40 m corridor of the Row.

During a series of public and stakeholders' consultation the local communities have raised issues related to compensation. They also voiced that a proper Grievance Redress Mechanism should be developed and operational until the point where relocated PAPs have restored their livelihoods. Proper monitoring and strict follow-up are required to support these households. In all cases, the public has strongly stressed that compensation payments should be paid before starting any construction activities. If the Client fails to pay compensations before the commencement of the construction phase of the project, there will be lots of complaints from the PAPs. This will potentially create unnecessary conflicts. However, all consultations have reiterated the importance of the project and have positively received the Metu – Masha 230 kV single circuit transmission line project.

0.7. Impact assessment and mitigation

The Metu – Masha 230 kV single circuit transmission line project triggers negative impacts on the bio-physical and socio-economic conditions in the project area. The ESIA has identified environmental and socio-economic receptors. It has also developed mitigation measures to address such impacts to acceptable levels. The ESIA presents an Environmental and Social Management Plan (ESMP) which summarizes impacts and mitigation measures, and specified a series of specific management plans that will need to be developed to ensure that negative impacts will be maintained low and negligible while positive impacts will be further enhanced.

The outcome of impact assessment before and after mitigation is provided in the following table.

Environmental/social receptors	Project impacts	Project Phase	Predicted significance	
			Before mitigation	With mitigation
Flora	Cutting of indigenous trees along the RoW	Pre-Construction	High	Low[1]
Forest/Vegetation	Disturbance to the vegetation of the Direct Impact Zone of the project AOI Disturbance to the normal ecological functions	Construction phase	High	Low
Critical Habitats	There are no Critical Habitats	All phases	Not applicable	Not applicable

[1] Applying all the requirements of the Biodiversity Management Plan could minimize the impact to low level. But the impact on the mature trees inside the RoW is permanent.

Environmental/social receptors	Project impacts	Project Phase	Predicted significance	
			Before mitigation	With mitigation
	that are triggered by the project			
Fauna	Disturbance to Blue monkey foraging routine Disturbance to foraging routine of birds Disturbance *Crematogaster* ant nests	Pre-construction/construction	High	Low
Soil	Soil erosion due to excess soil and access road construction	Construction phase	High	Low
Air quality	Dust emission due to the movement of vehicles	Construction	Medium	Negligible
Economy and Employment	Job opportunities, local economic activities, increased household incomes	Construction	Medium	Positive
Physical displacement of houses	Relocation of houses inside the 40 m corridor of the RoW	Pre-construction/construction	High	Low
Land and livelihoods	Permanent loss of land to tower foundation; Removal of crop trees such as Eucalyptus; Removal of coffee shade trees which triggers reduced coffee production and household incomes	Construction	High	Low
Community Health and safety	Exposure to EMF; STDs; competition on local resources, SEA/GBV	Construction	Medium	Low
Workers' health and safety	Accidents and injuries related to project activities, STDs	Construction	Medium	Low
Solid waste	Stockpiling used water bottles; other solid wastes	Construction	High	Low

0.8. Conclusion

The Metu – Masha 230 kV single circuit transmission line project is environmentally and socially feasible to be implemented provided that all provisions of the ESMP are strictly implemented by the Contractors and monitored by the responsible parties. The present ESIA Update introduces a rerouting of the transmission line alignment compared to 2016 ESIA - in a highly-forested area, which significantly reduces the loss of dense forest and the related biodiversity loss, while also minimizing the loss of tea farm area.

Nevertheless, the project triggers asset loss of people living along the RoW, leading to physical displacement, removal of crop trees and indigenous coffee shade trees, and impacts to their livelihood. There is also land which is permanently lost due to tower foundations. In view of these findings, a Resettlement Action Plan (RAP) and Livelihood Restoration Plan (LRP) are being conducted for the Metu – Masha 230 kV single circuit transmission line project to ensure that project affected people maintain or even improve their level of livelihood because of the project.

1. Introduction

The present document comprises the ESIA Update for the Metu – Masha 230 kV single circuit transmission line project.

The project is being developed by the **Ethiopian Electric Power (EEP)**, as part of the Ethiopian Electric Power Transmission Line Project (EPTLP) and is being sponsored by the World Bank which provides technical and financial support following a request of the Government of Ethiopia in 2012.

The Metu – Masha 230 kV single circuit transmission line project comprises the following:

- Construction and operation of **a new substation at Masha town**, which will take about 9 ha of land (300 X 300 meters);
- Construction and operation of a **230 kV single circuit transmission line** from Metu (existing substation) town to Masha town at the newly constructed substation site (total length of the line: 65.1km)
- Construction of **access roads** during tower construction (estimated total length of 3.3km)
- Construction and operation of **associated facilities**, such as storage yards or construction camps

The project will be implemented within SNNPR and Oromia NRS, about 625 km distance from Addis Ababa, along the Addis Ababa–Gore-Metu asphalt road and Metu-Masha gravel road. An Environmental and Social Management Framework (ESMF) was developed for the project, which provides guidance on how the environmental and social risks related to project construction and operation should be managed.

An ESIA was carried out for the project in 2016. The 2016 ESIA covered 4 Lots of the EPTLP project (the Metu-Masha transmission line was one of them). Following the ESIA 2016 preparation, concerns were raised with regard to the crossing of the dense forest which was foreseen in the 2016 ESIA. A forest impact assessment carried out by EEP in 2019 revealed that the proposed TL route led to clearing of 112.5 ha of dense forest area and to significant impacts to forest habitat. The update of the 2016 ESIA was thus necessary in order to study in more depth such impacts and identify ways to avoid or mitigate them.

This ESIA Update was prepared by IRIS Consult PLC (Ethiopia) under the supervision of intec-GOPA (Germany):

Environmental Consultant	intec GOPA - International Energy Consultants GmbH Hindenburgring 18, 61348 Bad Homburg v.d.H. GERMANY	IRIS Consult PLC, Ethiopia Yeka Sub-city Tesfa Building, near the British Embassy Office #401 P.O. Box 80790

		Addis Ababa ETHIOPIA
Contact	Kostas Batos	Prof. Sileshi Nemomissa
Telephone email	+49 151 42474542 kostas.batos@gopa-intec.de https://www.gopa-intec.de	+251 91 140 7724 Iris_consult@yahoo.com; snemomissa@gmail.com

1.1. The ESIA Process

According to the existing Ethiopian law (EIA Proclamation 299/2000), development projects are required to carry out an Environmental and Social Impact Assessment study to ensure environmental and social sustainability. In an Ethiopian context, there are three project schedules. These are:

- Schedule 1: This type of projects requires a full ESIA study.
- Schedule 2: as the environmental and social impacts of this type of projects are minimal, a partial ESIA study is needed to implement them.
- Schedule 3: projects which fall under this category require no ESIA study.

The current ESIA study has been undertaken according to the EIA Proclamation (Proclamation No. 299/2002). In an Ethiopian context, the outline of the EIA process is given in Figure 1-1. Since the current ESIA study is an update to the 2016 study, additional data were collected to fill the gaps. It is to be noted that the ESIA report for Metu – Masha 230 kV single circuit transmission line project will be submitted to the competent authority for review and approval.

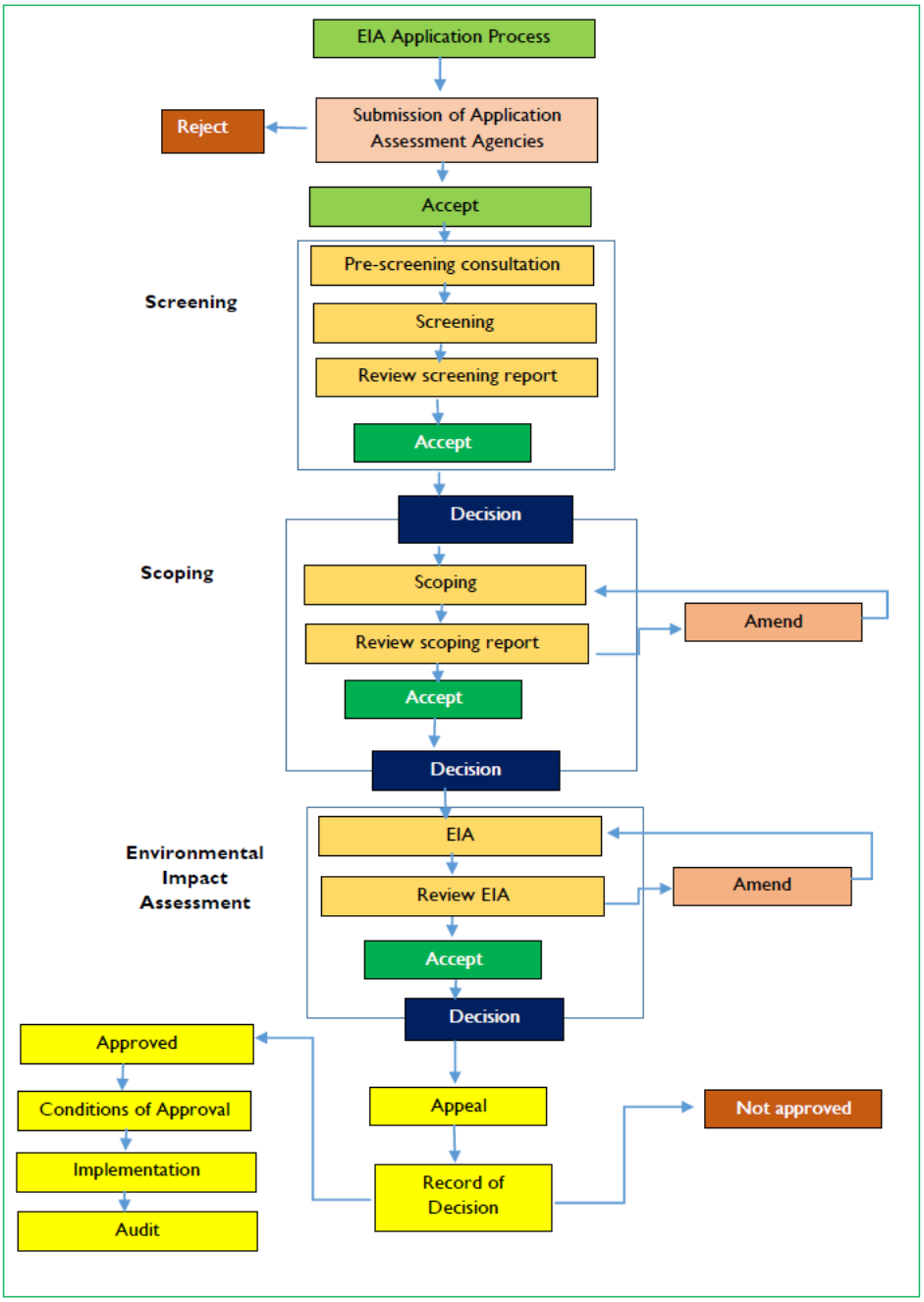


Figure 1-1. EIA Process in Ethiopia

The Environmental and Social Impact Assessment phase of the EIA process is based on objective scientific studies resulting in the identification of definable environmental and social impacts and preparation of mitigation measures to either avoid or minimize these impacts. The EIA stage forms the basis for the issuance of environmental clearance or approval by the competent authority.

1.2. Purpose of the ESIA Report

The main objectives of this ESIA report are as follow.

- ***Understanding the nature of the project***. Description of the project to understand its activities that trigger environmental and social issues.
- ***Review of legal requirements***. A review of all applicable policies and legal requirements pertaining to the implementation of this project.
- ***Stakeholders engagement.*** Holding meetings with stakeholders to take the issues raised during consultations into the ESIA report.
- ***Baseline environmental and social conditions.*** Detailed scientific investigations of the existing conditions of the natural and socio-economic environment of the project area. The findings of the baseline conditions provide important information for the identification of impacts and preparation of mitigation measures through Environmental and Social Management Plan.
- ***Identification of impacts.*** The activities of the project triggers impacts. These impacts will be identified.
- ***Mitigation measures.*** Preparation of mitigation measures which will identify costs of mitigation and implementing agencies or bodies.
- ***Environmental and Social Management Plan.*** To develop a number of ESMP to be implemented by the project proponent and its contractor to ensure minimum impacts of the activities of the project on natural and social environments of the project area.
- ***Environmental monitoring plan.*** To provide a guiding plan for monitoring the performance of the ESMP on a regular basis.
- ***Cumulative impacts.*** To assess potential adverse impacts associated with the implementation of other planned projects and development programs.
- ***Recommendation.*** To give recommendation regarding the implementation of the proposed project.
- ***Acquisition of environmental clearance.*** This ESIA report will serve as the basis for the issuance of environmental clearance and approval for the implementation of the proposed project.

1.3. Structure of the ESIA Report

This Report has two parts. These are organized as follows.

PART I. The ESIA Report

Part II. Annexes

The detailed contents of each of these Parts are given below.

Part I. ESIA Report

Contents of the ESIA Report

Chapters	Contents
1. Introduction	It introduces the EIA process in Ethiopia, defines the purpose of this ESIA and provides information on the ESIA team.
2. Methodological approaches	This section describes the methods used for the ESIA study. The Stakeholder Engagement part describes the objectives of the Stakeholders engagement, maps the stakeholders of the project and provides records of issues raised during the consultations.
3. Assumption/Gap in Knowledge	This section describes the assumptions/gaps that triggered the ESIA study
4. Administrative, Policy and Legal Framework	This provides information on the institutional arrangement for ESIA studies relevant to this project and a review of policies, laws and strategic documents. Furthermore, international agreements were also mentioned.
5. Baseline Biological, Physical and Social conditions	It provides baseline natural and social conditions of the project area.
6. Public and Stakeholders Consultations	Series of consultations with public and stakeholders and summary of points discussed
7. Project description	It describes the project
8. Project Alternatives	This section evaluates different route alternatives for the Metu – Masha 230 kV single circuit transmission line project and recommends the best environmentally feasible route.
9. Impact Assessment and Mitigation measures	Details of potential impacts, their scale and magnitude, direction and probability of occurrence were provided. Mitigation measures for impacts at different phases of the project were provided.
10. Assessment of Cumulative Impacts	Information on cumulative impacts due to other activities.
11. Environmental and Social Management Plan	Environmental and Social Management Plan was prepared to enable the contractor and the client to either avoid or minimize the anticipated potential impacts of the proposed Metu – Masha 230 kV single circuit transmission line project. Institutional arrangements for the implementation of the requirements of this plan were indicated. Furthermore, a summary of the ESMP provides the total amount of environmental payments for the implementation of the Management plans.
12. Environmental Monitoring, Auditing and Reporting Program	This section outlines key environmental monitoring and auditing issues and reporting schedule.
13. Conclusion and Recommendation	Main findings of the ESIA study were summarized to draw conclusions. A recommendation with regard to the implementation of the proposed project was made.
14. References	Information of used reference materials was provided.

Part II. Annexes

Contents of the Annexures.

2. Methodological approach for the ESIA study

2.1. Environmental and Social Impact Assessment Process

2.1.1. Approaches to determine Environmental and Social impacts and their significance

The impacts of the proposed project have been assessed based on the following features. These are types of impacts, characteristics of impacts, likelihoods of impacts, significance of impacts. Each of these will be described below.

Types of impacts

The types if impacts can be categorized into two, i.e., nature and extent. Table 2-1 gives details of these two categories of the types of impacts.

Table 2-1. Type of impacts

Name	Description
Nature of impacts	
Positive	These impacts are those that improves the baseline environmental and social conditions or introduce positive changes to it
Negative	These impacts are those that introduce adverse impacts or undesirable changes to the baseline environmental and social conditions
Types of impacts	
Direct	These impacts arise due to the activities of the proposed project and their interactions to environmental and social receptors
Indirect	These impacts are due to the interactions of the activities of the proposed project and environmental and social receptors, which in turn trigger changes in the baseline conditions due to these interactions. These are the indirect results of the direct impacts on the baseline conditions.
Induced	These impacts are not the result of the project, i.e., these are due to other activities but occur due to the implementation project (e.g., expansion of large-scale investment due to power availability)

Characteristics of impacts

The characteristics of the impacts are based on 5 features. These are given in Table 2-2.

Table 2-2. Characteristics of Impacts

Impact characteristics	Description	Names
Type	These impacts are viewed in terms of their relationships to the project activities, i.e., they are the outcomes of cause – effect interactions	Direct Indirect Induced
Extent	These impacts are viewed in terms of their area coverage	Local Regional International
Duration	This signifies the time over which the environmental and social receptors are impacted	Temporary Short-term Long-term Permanent

Scale	This denotes the size of the impacts	These can be quantified based on lost receptors due to the project activities
Frequency	This measures the periodicity of the impacts	Frequent Infrequent (usually based on the detailed understanding of the impacts and responses of receptors)

Likelihoods of impacts

This section deals with the probability of the occurrence of the impacts. Table 2-3 gives details of the likelihoods of impacts.

Table 2-3. Likelihoods of impacts

Name	Descriptions
Unlikely	The occurrence of the impacts is unlikely under normal operating conditions of the project
Possible	There is a possibility for the impacts to occur at some point due to the activities of the project or its normal operation
Likely	The impacts occur during the normal operations of the project, i.e., it is inevitable

Sensitivity/vulnerability/importance of the receptors

The following universal designations are used. These are:

- Low
- Medium
- large

Magnitude of impacts (Significance of impacts)

The magnitude of impacts is rated for their significance by using rating, i.e., negligible, minor, moderate, major. Descriptions of these significance rating are given as follows.

- **Negligible**. These types of impacts are not detectable, not significant and do not require mitigation measures.
- **Minor**. These are detectable but the management plan proposed can reduce them to a negligible level.
- **Moderate**. These are detectable and significant and mitigation measures are to be developed.
- **Major**. These impacts are detectable and significant. Mitigation measures and management plan should be considered. If left unaddressed, these impacts introduce undesirable changes to the baseline environmental and social conditions.

A matrix was used as a guide to determine the significance of the impacts. Table 2-4 gives details of the significance of impacts by using magnitude of impacts in combination with sensitivity/vulnerability/importance of receptors.

Table 2-4. Significance of impacts

Magnitude of impacts		Sensitivity/vulnerability/importance of receptors		
		Low	Medium	High
	Negligible			
	Small			
	Medium			
	Large			

2.2. Cumulative Impact Assessment

This Cumulative Effects Assessment (CEA) has been done based on the *IFC's Good Practice Handbook on Cumulative Impact Assessment and Management (2013)*. Cumulative Effects Assessment is usually done in step-based approach and the recommended steps by IFC (2013) is given below (Figure 2-1).

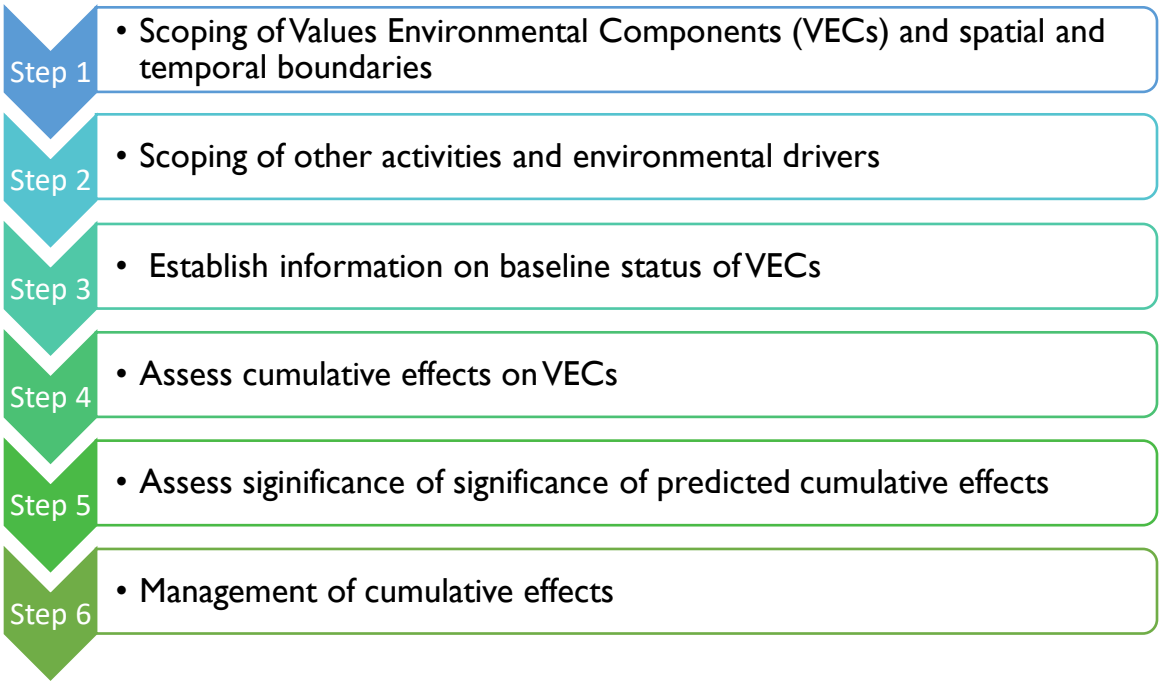


Figure 2-1: Process of cumulative effects assessment (IFC, 2013)

Natural habitats and biodiversity are the selected key Valued Environmental Component (VEC) for cumulative impact assessment. The spatial boundaries of the cumulative

Assessment of the significance of the predicted cumulative effects or risks follow Hardner et al. (2015). The following risk matrix was used for the current evaluation of significance of the risks or cumulative effects of Metu – Masha 230 kV single circuit transmission line project (Figure 2-2).

Likelihood	Consequence				
	Minor impact	Moderate impact	Serious impact	Extreme impact	Catastrophic impact
Almost certain: expected to occur in project plan	M	H	C	C	C
Likely: probably will occur in project plan	M	H	H	C	C
Possible: might occur in some circumstances	L	M	H	C	C
Unlikely: may occur at some time	L	L	M	H	C
Rare: only in exceptional circumstances	L	L	M	H	H

Figure 2-2. Significant impacts or risk matrix (Hardner et al., 2015). L = low; H = high; C = critical

2.3. Stakeholders Engagement

In Ethiopia, public consultation is an important and mandatory that project planners and implementers are required to carrying out prior to implementation of development projects. Regarding this, the Federal Democratic Republic of Ethiopia (FDRE) Constitution, Article 92 sub-Article 3 indicates that "people have the right to full consultation and to the expression of their views in the planning and implementation of environmental policies and projects that affect them directly".

2.3.1. Objectives of Stakeholders Engagement

The objectives of the Stakeholder engagement are:

- to discuss the project with all the concerned communities of the project area;
- to collect information on the expectations and concerns of the communities about the project;

- to incorporate public concerns into the mitigation measures for the adverse impacts of the Metu – Masha 230 kV single circuit transmission line project;
- to ensure the engagement of the stakeholders and particularly the Government administrations and the public to support and assist the implementation of the Metu – Masha 230 kV single circuit transmission line project.

2.3.2. Approaches to Stakeholders Engagement

- **Stakeholder Consultation Meeting**

The Consultant has introduced the project to participants of the meetings and has explained the nature and objectives of the project.

The communities were encouraged to express their views about the project and the proposed project activities, including (among others):

- The need for the project and the anticipated benefits;
- Positive and negative environmental and social impacts of the project;
- Mitigation measures to either avoid or minimize the negative impacts;
- Concerns on how project activities may affect their everyday life;
- Potential challenges that may be encountered by the project and recommendations thereof.

- **Secondary Data Collection**

For collection of secondary data from all concerned sector offices, checklists were prepared for each of the sector offices, distributed and collected. The data were collected from all concerned sector offices. Recent socio-economic report of the Zones was collected and used in this ESIA study.

3. Assumptions/Gaps in knowledge

The Impacts of the proposed Metu – Masha 230 kV single circuit transmission line project is linear in nature, i.e., occurring along the Right-of-Way (RoW). It crosses some parts of Forest area, cultivated fields and a small section of Sheka Forest Biosphere Reserve and plant community types of the vegetation of the area. It also potentially triggers physical displacement of houses, removal of crop trees and indigenous coffee shade trees. However, the types, nature, severity and extent of these perceived impacts are unknown. As a result, an Environmental and Social Impact Assessment study is required to fill these gaps.

4. Administrative structure, Policy and Legal Framework

4.1. Institutional Framework

Ethiopia is divided into eleven National Regional States and two City Governments (Addis Ababa and Dire Dawa). All these national institutions have a mandated office or Bureau which oversees the implementation of the requirements of the existing laws with regard to environmental and social safeguard.

4.2. Administrative Structure

4.2.1. Federal Level

- *Ethiopian Environmental Protection Authority (EPA)*

The EPA has been established under the Ministry of Planning and Development. The Ethiopian Environmental Protection Authority has the main responsibility of regulating environmental and social management during the implementation of development projects in Ethiopia. It has also delegated certain line ministries to review and approve ESIA Reports.

4.2.2. Regional Level

The eleven NRS and 2 City Administrations have mandated office to oversee the ESIA studies of development projects in their respective constituency. The Environmental protection offices of Ilubabor Zone and its Woreda such as Metu, Ale, Gebre Dima have the mandate to supervise the implementation of the requirement of the Environmental and Social Management Plan of the project to ensure health environment and integrity of biodiversity. The Sheka Zone and Masha woreda have the same mandate to ensure the integrity of the environment as a whole.

4.3. Policy and Legal Framework

4.3.1. National Policies

Constitution of the Federal Democratic Republic of Ethiopia (FDRE) – 1995

The Constitution was adopted by Ethiopia in 1995 and provides guiding principles for environmental protection and management thereof in Ethiopia. The concept of sustainable development and environmental rights are enshrined in Article 43, 44 and 92 of the Constitution of FDRE.

Article 43: The Right to Development identifies peoples' right to:

- Improved living standards and to sustainable development; and
- Participate in national development and, in particular, to be consulted with respect to policies and projects affecting their community.
- The enhancement of their capacities for development and to meet their basic needs, are recognized.

Article 44: Environmental Rights, all persons have the right to:

- A clean and healthy environment; and
- Commensurate monetary or alternative means of compensation, including
- relocation with adequate state assistance when they have been displaced

Article 92: Environmental objectives, it is identified that:

- Government shall endeavor to ensure that all Ethiopians live in a clean and healthy environment;
- The design and implementation of programs shall not damage or destroy the environment;
- People have the right to full consultation and to the expression of views in
- the planning and implementation of environmental policies and projects that affect them directly; and
- Government and citizens shall have the duty to protect the environment.

Applicability to the Power Transmission Line project

The project proponent and the Contractor should be very well aware of the constitutional rights of citizens to a clean and healthy environment as stipulated in the federal constitution. The information given under these Articles inform the project Proponent and the Contractor about the consequences of non-observance of the fundamental right to citizens to a clear and healthy environment as per the constitutional provision and other laws are violations of the national laws. Further, the project Proponent and Contractor are required to uphold the environmental objectives of Ethiopia.

Environmental Policy of Ethiopia (1997)

The Environmental Policy of Ethiopia was approved by the Council of Ministers in April 1997 and contains elements that emphasize the importance of mainstreaming socio-environmental dimensions in development programs and projects. The goal of the Environmental Policy of Ethiopia is to improve and enhance the health and quality of life of all Ethiopians and to promote sustainable social and economic development through the sound management and use of resources and the environment as a whole so as to meet the needs of the present generation without compromising the ability of future generations to meet their own needs. For the effective implementation of the Environmental Policy of Ethiopia, the policy encourages creation of an organizational and institutional framework from federal to community levels. The Environmental Policy of Ethiopia provides a number of guiding principles that require adherence to principles of

sustainable development; in particular, the need to ensure that Environmental Impact Assessments –

- consider impacts on human and natural environments;
- provide for early consideration of environmental impacts in projects and programs design;
- recognize public consultation;
- include mitigation and contingency plans; and
- provide for auditing and monitoring.

Section 3.3. of the Environmental Policy deals with Biodiversity issues. The following are directly relevant to biodiversity:

- Promote in-situ conservation as a priority measures and ex-situ conservation as a complement;
- Develop laws that help protect community rights and regulate access to genetic resources and bio-safety;
- Ensure that threat, rarity demand and environmental and economic factors are taken into account when setting conservation criteria;
- Ensure that local communities participate in the planning and management of adjacent protected areas;
- Ensure that protected areas cover the various ecosystems and, when necessary, connect them by corridors; and
- Allow a major part of economic benefits derived from biodiversity conservation are channeled to local communities affected.

The policy provides a framework to promote the conservation and sustainable utilization of biodiversity.

Applicability to the Power Transmission Line project

This Policy document informs the project Proponent and the Contractor to implement the provisions of the EIA proclamation No. 299/200 requirements before starting the project such as consideration of the impacts of the project on social and natural environment. It also informs them to implement the provisions of the Environmental and Social Management Plan (ESMP) at all phases of the project. The policy also provides information on safeguarding natural resources, for example, Biodiversity issues.

Applicability to the Power Transmission Line project

The objective of the Water Sector Policy is to enhance and promote all national efforts towards the efficient, equitable utilization of Ethiopian water resources. Furthermore, the policy aims for optimized utilization that allows for sustainable socioeconomic development.

Tourism Development Policy (2009)

The economic and employment values of tourism have been long recognized by the Government of Ethiopia. This economic sector has significant contributions to foreign currency earning and it also promotes micro- and small-scale enterprises and creates employment opportunities. The vision of the policy is aligning the contributions of Tourism to the national effort to alleviate poverty and foster sustainable economic development. The objectives of this policy are as follows.

a. To ensure concretely the country's full benefits by sustaining competitiveness in the international tourism market, by turning Ethiopia into a particularly preferred destination in Africa, and by maximizing direct and indirect economic benefits.
b. To build a tourism industry that makes important contributions in earning and conserving foreign exchange, and integrates into the economic growth of the country.
c. To create extensive employment opportunities for communities at tourist destinations and to ensure community benefits through a wider distribution of income, and to enhance community participation in decision making on development.
d. To realize a tourism industry that builds a positive image of the country, carries on the sector's development in a responsible and sustainable manner, with the capability of growing without disrupting peoples' culture and lifestyles and the natural environment.
e. To build an industry that can lengthen the tourist's stay by solving observed limitations in service in the sector and provide for the progressive growth of capacity in tourist facilities deployed in the field.

Applicability to the Power Transmission Line project
With the improvement of power supply, there will be more business and people in the area. The improved Masha – Gore road will also attract eco-tourists the Sheka Forest Biosphere Reserve and combine their trips to nearby Important Bird Area. There will be an increased number of vehicles and people due to new business opportunities due to power supply to Masha town.

Forest Development, Conservation and Utilization Policy and Strategy

The main objective of the policy to meet public demand in forest products and enhance the contribution of forest resources for economic development. The specific objectives are:

- Encourage sustainable forest development;
- Meet the forest and forest product demands of the public;
- Foster the contribution of forest to ensure food security and industrial development;
- Prevention of forest threats and conservation of forest resources in a sustainable manner; and
- To ensure ecological balance through conserving and developing forest resources.

Ethiopian Biodiversity Strategy and Action Plan

The National Biodiversity Conservation and Research Policy (1998), guides the conservation, development and sustainable use of biodiversity. The objectives of the policy are as follows:

- Ensure genetic resources and essential ecosystems of the country are conserved, developed and sustainably used;
- Assert national sovereignty over genetic resources;
- Enrich the country's resources through introduction, repatriation and restoration;
- Integrate biodiversity conservation with sectoral and cross-sectoral strategies and programs;
- Recognize and protect traditional knowledge;
- Encourage public participation;
- Ensure that local communities share the benefits from genetic resources and indigenous knowledge;
- Create organizational structure for linkages and coordination in biodiversity conservation, development and use; and
- Promote regional and international cooperation.

Applicability to the Power Transmission Line project

This Biodiversity Strategy and Action Plan informs the project Proponent and Contractor to uphold biodiversity conservation objectives of Ethiopia during the construction of the Metu – Masha 230 kV single circuit transmission line. It also creates awareness about the importance of recognizing traditional knowledge and promotion of international cooperation with regard to biodiversity and genetic resources.

Energy Policy

The Energy Policy of Ethiopia aligns it objective with the development strategy of the country to foster national development objectives. It also states energy resource development for economic profitability and develop necessary institutional and manpower capabilities to undertake energy development programs. The objectives are:

- Ensure sustainable supply of energy;
- To provide guidelines and strategies for faster development and supply of enery;
- To ensure reliable supply of energy;
- To increase energy utilization efficiency and reduce energy waste

Applicability to the Power Transmission Line project

Energy is central to the development of a multitude of business opportunities. This in turn create employment opportunities and improve regional and local level household economy. In areas where energy is a bottleneck for establishment of enterprises and local-level economic activities, a supply of energy positively impacts the socio-economic settings of that area. It also attracts investments and boosts local and regional economic growth.

Wildlife Policy and Strategy

The focus of the policy and strategy is development-oriented conservation. The following are the objectives the Ethiopian Wildlife Policy and Strategy:

- promotion of sustainable utilization of wildlife for tourism, hunting, trade, ranching and food.
- promotion of eco-tourism in protected areas and international conventions;
- expand wildlife sector for investments for conservation; and
- protection of wildlife through proper administration of protected areas, conservation of endemic and threatened species and promotion of wildlife health services.

Applicability to the Power Transmission Line project
This policy informs the contractor and the project proponent to ensure the protection and safety of wildlife of the project area. It also guides them to avoid practices that adversely affect the wildlife of the project area.

Policy on Public Health

The aim of this policy is to give special attention to women and children, underserved segments of the population and victims of manmade calamities and disaster and environmental pollution due to project activities as well.

This policy directly emphasizes on the following.

- Control of communicable diseases and epidemics;
- Combating diseases that are related to malnutrition and poor living conditions;
- Promotion of occupational health and safety of workforces;
- Promotes development of environmental health; and
- Appropriate health services management system, attention to traditional medicine and applied health research.

Applicability to the Power Transmission Line project
The construction phase of the project involves a large number of workforces of the Contractor. This policy informs the project Proponent and Contractor to implement public health and safety provisions and develop Health and Safety Management Plan to mitigate potential adverse impacts.

Policy on HIV/AIDS

HIV/AIDS is pandemic and spreading worldwide and heating hard poor countries mainly, Sub Saharan Africa, with only ten percent of the world population and having 80 percent of the world HIV infection and AIDS cases. Among the Sub- Saharan African countries, Ethiopia stands fifth in HIV/AIDS infection.

Ethiopia is one of the countries in the world that is facing HIV/AIDS pandemics, and about 3.5 percent of the population is said to be HIV/AIDS affected. HIV/AIDS has now become a major social and economic problem of our country. Having understood the magnitude of the problem, the Government issued policy on HIV/AIDS in 1998.

The general objective of the policy is "to provide an enabling environment for the prevention and control of HIV/AIDS in the country". The policy also urges government ministries and the civil society to assume responsibility for carrying out HIV/AIDS awareness and prevention campaigns.

Applicability to the Power Transmission Line project
The project attracts workforces from different places during the construction phase. This policy enables the project Proponent and Contractor to develop HIV/AIDS awareness creation strategies among the workforces.

National Policy on Women

This policy emphasizes on ensuring equal access of men and women to resources and decision-making process. This approach is a foundation for realizing that both benefit equally from all activities out of the federal and regional institutions.

Applicability to the Power Transmission Line project
This policy provides enabling environment for the involvement of women during the construction phase of the project. It entails equal access to work opportunities.

Land Tenure Policy

The land tenure issues in Ethiopia have passed through different systems over the past years. The Constitution of the FDRE, Article 40 provided that "The Right to ownership of rural land and urban land, as well as of all natural resources is exclusively vested in State and all peoples of Ethiopia. Land is a common property of the Nations, Nationalities and Peoples of Ethiopia and shall not be subject to sale or other means of exchange (sub-article 3)". Sub-Article 4 states also that "Ethiopian Peasants have the right to obtain land without payment and the protection against eviction from their possession." Sub-Article 7, which is one of the important provisions for a property right provides that "Every Ethiopian shall have the full right to immovable property he builds and to permanent improvements he brings about on the land by his labor or capital. This right should include the right to alienate, to bequeath, and, where the right of use expires, to remove his property, transfer his title, or claim compensation for it."

Noteworthy is that Article 52 of the Constitution vested Regional Governments for administration of rural land (assigning holding rights and distribution of holdings). The land tenure issue has been a point of debate due to the apparent dichotomy of ideas, i.e., Private-State

ownership dichotomy. However, there are many queries with regard to this debate such as the need to include the voices of peasants and pastoralist, options for parallel ownership (Private and State), future implications of these options on social stability and etc.

The following points could be mentioned with regard to the core principles of the land policy of Ethiopia.

- The Constitution of the FDRE asserts State ownership of land; there are no private property in land;
- Even if there are debates on the land ownership and tenure systems in Ethiopia, there is no legal action to legalize private ownership of land;
- The administration of land is decentralized but the formulation of broad land policy rests with the federal Government;
- The State still maintains primary rights in property and this could move toward a system of long-term leases that vest strong secondary rights in landholders, allowing them to sublease or make other land transactions (e.g., mortgages). These long-term leases would help to address some of the weaknesses in the existing land tenure system.

Applicability to the Power Transmission Line project

This policy provides key information on land ownership rights and administration of rural land. This policy also draws information from Article 52 of the Federal Constitution of 1995 and informs the project Proponent and Contractor to observe land holding rights during the construction of the Metu – Masha 230 kV single circuit transmission line project.

4.3.2. Legislative Framework

Proclamation for the establishment of Environmental Protection Organs (295/2002)

The main objective of this Proclamation is to lay down the institutional arrangements that are vital to ensure environmentally sustainable management and development at federal, sectoral and regional levels. The Proclamation re-establishes the Environmental Protection Authority, Ministry of Planning and Development, sectoral environmental Units and Regional Environmental Agencies. In this context, the Environmental and Social Impact Assessment of the proposed Metu – Masha 230 kV single circuit transmission line project should be reviewed by the Environmental Protection Authority, Ministry of Planning and Development.

Applicability to the Power Transmission Line project

This Proclamation lies a foundation with regard to the mandate for the review and approval of ESIA reports. The Environmental Protection Authority, Ministry of Planning and Development (MoPD) of the FDRE has the responsibility to review and approve ESIA reports of development projects. As a result, the Metu – Masha 230 kV single circuit transmission line project ESIA Report will be reviewed and approved by the Ethiopian Environmental Protection, MoPD) .

Environmental Impact Assessment Proclamation (Proclamation No. 299/2002)

The Environmental Impact Assessment (EIA) Proclamation makes EIAs a mandatory requirement for the implementation of major development projects, programs and plans in Ethiopia. The

Proclamation is a tool for harmonizing and integrating environmental, economic, cultural, and social considerations into decision making processes in a manner that promotes sustainable development. The law clearly defines the following key points:

- the need for preparing an EIA;
- the procedure associated with undertaking an EIA;
- The depth of environmental impact studies required in an EIA;
- Types of projects that need Full EIA, partial or no EIA study; and
- To whom the report has to be submitted.

Furthermore, impacts must be assessed based on the size, location, nature, cumulative effect with other concurrent impacts or phenomena, trans-regional effects, duration, reversibility or irreversibility or other related effects of the project.

An EIA report should contain the following:

- Nature of the project, including technology and processes to be used;
- Content and amount of pollutant that will be released;
- Source and amount of energy required for the operation;
- Information on potential trans-regional impacts;
- Characteristics and duration of all the estimated direct or indirect, positive
- or negative impacts;
- Measures proposed to eliminate, minimize or mitigate negative impacts;
- Contingency plan in case of accidents; and
- Procedures of self-auditing and monitoring during implementation and operation.

Applicability to the Power Transmission Line project

This Proclamation clearly inform the project Proponent and Contractors to make sure that the ESIA of the Metu – Masha 230 kV single circuit transmission line project has been prepared by certified Consultants. The Proclamation requires all development project to undertake EIA study before its implementation. This Metu – Masha 230 kV single circuit transmission line project is categorized as Schedule 1 project and it requires a full EIA study.

Water Resources Management Proclamation (Proclamation No. 197/2000)

Ethiopian Water Resources Management Proclamation No. 197/2000 is the federal law that regulates the proper governance of both surface and groundwater in the country. The Proclamation addresses the requirements for environmental conservation and water resource protection measures to be incorporated into water resource planning and project development.

Applicability to the Power Transmission Line project

This Proclamation provides information on the conservation of both ground and surface water resources. It informs the project Proponent and Contractor to ensure sustainable uses of surface water during the construction phase of the Metu – Masha 230 kV single circuit transmission line project.

Water Resources Management Regulations (Regulation No. 115/2005)

The Ethiopian Water Resources Management Regulation (No. 115/2005) of the Council of Ministers has detailed provisions on the effective implementation of the Water Resources Management Proclamation, which among other things make the wastewater treatment a mandatory requirement for any permit holder of a given permit before discharging it into the environment.

Applicability to the Power Transmission Line project
This regulation provides guidelines how to implement the provisions of the Water Management Proclamation during the construction phase of the Metu – Masha 230 kV single circuit transmission line project.

Environmental Pollution Control Proclamation (Proclamation No. 300/2002)

The Environmental Pollution Control Proclamation (No. 300/ 2002) aims at minimizing or avoiding pollution by advocating the polluter pays principle of environmental protection and the federal or relevant regional environmental agency has the right to close or relocate any enterprise if the activity being carried out poses a risk to human health or to the environment. This law gives emphasis of the environmental authority's requirements on the management of municipal wastes, hazardous waste, and chemical and radioactive substances. Although no particular pollution standard2 has been established by this proclamation, it states the various types of environmental standards should be set and it indicated the types of standards to be set as: Standards for the discharge of effluents into water bodies; Air quality standards; Standards for the types and amounts of substances that can be applied to the soil; Standards for noise; Waste management standards and the methods of handling and disposal of the various types of waste. So far, the following standards are developed to be used by industries: standards for Specified Industrial Sectors; General Standards for all other Industrial Effluents; Standards for all other Industrial Gaseous Emissions; and Standards for Noise Limits.

Prevention of Industrial Pollution Council of Ministers Regulation (No. 159/2008) is directed to industry and in particular to factories. The provisions of the Regulation impose obligation on new and old factories to prevent pollution if possible or minimize to the level set by the Standards set by the relevant authority if not possible to totally prevent the pollution Article 4 (1). Old factories are given a grace period of five years to come to compliance with the provisions of this regulation as per the directive issued providing the list of industries by their respective sectors.

Applicability to the Power Transmission Line project
This Proclamation informs the project Proponent and Contractor to uphold environmental health by preventing environmental pollution due to haphazard disposal of used plastic bottles and cement bags and emission of dust. It also enables them to develop waste management plan to mitigate these potential adverse impacts.

2 Article 6 of Environmental Pollution Control Proclamation stipulates that Standards are to be set.

Prevention of Industrial Pollution Council of Ministers Regulation (Regulation No. 159/2008)

Article 20 of the Proclamation of the Proclamation on Environmental Pollution Control (300/2002) has triggered the issuance of this Regulation by the Council of Ministers. This law is directed to industry, namely factories. But certain section of the Proclamation is applicable to the project, i.e., the need for emergency response systems and monitoring of environmental safety.

Applicability to the Power Transmission Line project
This Regulation enables the project Proponent and Contractor to implement environmental pollution control management plan.

Wildlife Development, Conservation and Utilization Proclamation (Proclamation No. 541/2007)

This law provides for the legal administration of National Parks, wildlife sanctuaries, transboundary wildlife conservation areas. The objectives of this law are as follows.

- Conserve, manage, develop and properly utilize the wildlife resources of Ethiopia;
- Create conditions necessary for discharging government obligations in view of the international treaties in connection to conservation, development and utilization of wildlife; and
- Promote wildlife-based tourism and encourage private investment.

Applicability to the Power Transmission Line project
This Proclamation creates enabling environment for the protection of wildlife living in the surrounding areas. The wildlife, namely birds, could cross the Metu – Masha 230 kV single circuit transmission line and the Proclamation informs the project Proponent and Contractor to develop appropriate signage at specific sites along the section of the Metu – Masha 230 kV single circuit transmission line to promote wildlife protection.

Wildlife Development, Conservation and Utilization Regulation (163/2008)

This regulation provides for the management of wildlife conservation areas, hunting and other licenses, possession of wildlife products and harmful animals. It also outlines rules for the management of National Park, Wildlife Sanctuaries and Wildlife Reserves and the administration of these areas.

Applicability to the Power Transmission Line project
This Regulation ensure the implementation of Proclamation No. 54/2007.

Solid Waste Management Proclamation (Proclamation No. 513/2007)

The solid waste management Proclamation No. 513/2007 has mandatory provisions on waste management. *Part 3 of this proclamation requires a* manufacturer or importer of glass containers or tin cans to develop and implement a system that enables it to collect and recycle used glass containers or tin cans. It also prohibits grant of permit for the manufacture or importation of any non-biodegradable plastic bags with a wall thickness of 0.03 millimeters and less than 0.03

millimeters. *This Proclamation further states that food* industries shall collect, store and dispose the food related solid wastes they generate in an environmentally sound manner.

Applicability to the Power Transmission Line project
The construction phase of the project involves many workforces. The workforce could potentially litter the environment due to used plastic water bottles. This Proclamation creates an enabling environment for the preparation of Solid Waste Management Plan to mitigate these potential adverse impacts.

Labour Proclamation (Proclamation No. 377/2003)

The Labour Proclamation (No.377/2003 as amended by Proclamation No. 494/2006) obliges that an employer shall take the necessary measures to adequately safeguard the health and safety of the workers. In this proclamation the worker-employer relations are governed by the basic principles of rights and obligations with the goal to enable workers and employers to maintain industrial peace and work in the spirit of harmony and cooperation towards the all-round development of the country. In addition to the Proclamation, the Ministry of Labour and Social Affairs has National Employment Policy and Strategy of Ethiopia that deals with the basic rights of workers as well as the guidelines for the Occupational Safety and Health committees.

Applicability to the Power Transmission Line project
The project attracts workers from different places. This Proclamation ensures health worker – employer (Contractor) relationships. It also lies a foundation for the development of Workers Management Plan to ensure the rights of the workforces (employees) of the Contractor during the Construction phase of Metu – Masha 230 kV single circuit transmission line project.

Public Health Proclamation (Proclamation No. 200/2000)

The Public Health Proclamation (No. 200/2000) prohibits pollution of the environmental resources by way of discharging any untreated liquid waste generated from different polluting sources such as septic tanks, seepage pits and industries into water bodies or water convergences. The disposal of solid or liquid or any other waste in a manner which contaminates the environment or affects the health of civil society is strictly prohibited by this proclamation. The Proclamation also provides for workers' safety by requiring employers to ensure the availability of occupational health services to their employees and by prohibiting any machinery or instrument which generates excessive noise and where such machines have to be used to install noise reducing apparatus.

Applicability to the Power Transmission Line project
Exposure to EMF and interactions with the workforce triggers public health risks.

Rights to Employment of Persons with Disability Proclamation (568/2008)

This Proclamation complies with Ethiopia's policy on equal employment opportunity. It provides the rights of disabled persons to employment and necessitates the provision of reasonable accommodations for people with disabilities. The law lays out procedural rules to enable persons

with disabilities to prove any judicial organ on any form of discrimination encountered during employment.

Applicability to the Power Transmission Line project
This Proclamation encourages the project Proponent and Contractor to ensure equal employment opportunity.

The Ethiopian Criminal Code

The Ethiopian Criminal Code of 2004 makes it an offence discharging of pollutants into the environment and makes it punishable with fine not exceeding ten thousand Birr, or with rigorous imprisonment not exceeding five years and where such pollution resulted in serious consequences on the health or life of persons or on the environment, the punishment shall be rigorous imprisonment not exceeding ten years. The Criminal Code further provides for a punishment where any person fails to obtain authorization from the competent authority prior to implementing a project for which an environmental impact assessment is required by law or makes false statements concerning such assessment.

Applicability to the Power Transmission Line project
This Code stipulate environmental offense and enables the project Proponent and Contractor to ensure environmental health. It also informs them the legal consequences of environmental offense.

4.3.3. National Strategies and Plans

Apart from issuing different laws and regulation for environmental protection and natural resources conservation, the Government of Ethiopia has put in place several national strategies and plans[3] over the years towards ensuring sustainable development of the country. The currently running two government development strategy and plan are: the Climate Resilient Green Economy (CRGE) strategy and the second Growth and Transformation Plan (GTP II). The CRGE aims at attaining sustainable development goal of carbon emission reduction to the target set for 2030 for the country while the latter aims at bringing the economic development to the level of the middle-income countries by 2025.

Conservation Strategy of Ethiopia

The Conservation Strategy of Ethiopia (CSE) evaluates the state of the natural resources, the environment and the development in Ethiopia, and examines the interconnected causes and effects of the existing situation. The CSE considers a holistic view of natural, human-made and cultural resources and their uses and abuses. The overarching objective of this document is to integrate the whole existing and future federal and regional government planning in all sectors that impacts on the environment, including agriculture, forestry, wildlife, fisheries, soil, water,

3 Conservation Strategy of Ethiopia, Food strategy of Ethiopia (1996), Plan for Accelerated and Sustained Development to End Poverty (PASDEP), Climate Resilient Green Economy (CRGE) strategy, Growth and Transformation Plan (2010-2015)- GTP I and Growth and Transformation Plan (2016-2020)-GTP II

minerals, energy, urban planning and cultural heritage conservation. The CSE is an umbrella strategy which considers all sectors of human activity and enhances the capacity and effectiveness of the existing and subsequent strategies. Therefore, CSE is a key tool for coordinating sectoral strategies.

Climate-Resilient Green Economy of Ethiopia (CRGE)

Ethiopia aims to become one of the middle-income country in 2025. Following a conventional development path will lead to high emission of Greenhouse Gases (GHGs)and destruction of natural resources. The Government has envisioned development through following a green economy development path, often termed as Climate-Resilient Green Economy (CRGE). The CRE follows a sectoral approach and identified priorities that help the country to achieve its development goals while limiting 2030 GHGs emission to around today's 150 Mt CO2e – around 250 Mt CO2e less than estimated under a conventional development path. The green economy plan is based on four pillars.

I. Improving crop and livestock production practices for higher food security and farmer income while reducing emissions;
II. Protecting and re-establishing forests for their economic and ecosystem services, including as carbon stocks;
III. Expanding electricity generation from renewable sources of energy for domestic and regional markets; and
IV. Leapfrogging to modern and energy-efficient technologies in transport, industrial sectors, and buildings.

Applicability of the strategic documents to the Power Transmission Line project
These strategic documents enable the project Proponent and Contractor to be aware of the existence of different national strategies and plans with set targets to meet environmental sustainability in the coming years. The details of the carbon emission reduction or avoidance as outlined in the CRGE and strategy and GTP II documents are important information for the development of different management plans, e.g., Air Quality Management Plan during the construction phase of the project.

4.3.4. National Directive and Guidelines

The Environmental Protection Authority (EPA) has developed guidelines for the implementation of environmental laws. The guidelines are meant to guide developers, competent authorities, reviewers and stakeholders in carrying out and managing the EIA process.

EIA Directive 1/2008

Based on the EIA Proclamation No 299/2002, the Ethiopian Government issued Directive No. 1/ 2008 that determines the categories of projects subject to the Environmental Impact Assessment Proclamation and provides for the list of such projects and permits regional governments to issues their own directives as they deem it necessary. Directive No. 1/2008 provides for the list of project types that are subject to EIA procedure that include textile factories; tanneries; abattoir

construction with slaughtering capacity of 10, 000/Year or more; basic chemicals and chemical products manufacturing factories. A good number of these types of firms are under the current compliance audit, which is normally required to carry out EIA if they are the newly established enterprises or to prepare an environmental management plan if they are enterprises that were established prior to the issuance of the EIA Proclamation No 299/2002.

Procedural Guidelines

This guideline provides details of the required procedures for conducting an EIA, the permit requirements, the stages and procedures involved in EIA processes, the roles and responsibilities of parties involved in the EIA process. It includes the categories of the projects (schedule of activities, i.e., Schedule 1, Schedule 2 and Schedule 3) in relation to the requirements of each of these Schedule. That is, it outlines those which require a full EIA, partial EIA and no EIA studies. According to this guideline, the proposed Metu – Masha 230 kV single circuit transmission line project is categorized as Schedule 1, a project that required a full EIA study.

EIA Guideline (July 2008)

This is a technical guideline, which provides information on standards to be followed when undertaking the EIA process. Furthermore, it provides details and key issues pertaining to environmental assessment in specific development sector such as energy, water resource, manufacturing, agriculture, and etc.

Guidelines for reviewing EIA Reports

This guideline was issued by EPA in 2003 to guide the EIA review process. Details such as review approaches, minimum report structure and information requirements are outlined. The objective of this guideline is to help the reviewers to assess the content, comprehensiveness, adequacy and accuracy of information content of the reports.

4.3.5. International Conventions, Protocols and Agreements

Ethiopia has signed environment related international agreements. As a result, Ethiopia is a party to the following international environmental agreements (with the date of ratification). This ESIA has taken these Multi-lateral Environmental agreements into consideration (Table 4-1).

Table 4-1. International conventions relevant to this project

International Convention	Applicability to the project
Environmental	
Convention on Biological Diversity (April 5, 1994)	The ESIA has taken biodiversity components and KBAs of conservation concern into consideration.
Convention on the Conservation of Migratory Species of Wild Animals	The ESIA has considered any impacts of the project on migratory birds.
United Nations Framework Convention on Climate Change (April 5, 1994)	The ESIA has considered ways to implement the reduction of greenhouse gases emissions through analysis of project alternatives.
United Nations Convention to Combat Desertification (October 15, 1994)	The ESIA has considered issues that trigger desertification.

International Convention	Applicability to the project
Convention on International Trade in Endangered Species of Wild Fauna and Flora (April 5, 1989)	Biodiversity resources of economic interest was considered.
Hazardous substance	
Stockholm Convention	Potential leakage of PCBs containing materials
Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	Consideration of this convention for management plans for disposing hazardous wastes
Wastes	
Basel Convention on Hazardous Waste (1989)	Acquisition of permit from other countries for the transboundary movement of hazardous wastes
Bamako Convention (1991)	If applicable, implement the provisions of this convention for movement of hazardous substances across countries
Labour	
Freedom of Association and Protection of the Right to Organize Convention, 1948 (No. 87)	Ensure the workers have the freedom of association and rights to organize
Discrimination (Employment and Occupation) Convention, 1958 (No. 111)	Expressly forbid discrimination in employment and occupation
Abolition of Forced Labour Convention, 1957 (No. 105)	Human resource policies and procedures are developed and implemented to prohibit forced labour
Minimum Age Convention, 1973 (No. 138)	Develop and implement a policy for prohibition of the employment of children

4.3.6. International environmental and Social Safeguard guidelines

A. The World Bank

The World Bank environmental and social policies (also known as safeguard policies) set out mechanisms for the protection of the environment and social issues during project design, implementation and operation. These policies also provide a framework for consultation with the communities and public disclosure of ESIA Report. The World Bank Group has adopted a new set of environments and social polices called Environmental and Social Framework (ESF), which has become effective as of October 1, 2018. All existing projects prior to this starting date are governed by the previous environmental and social policies. But new projects of the Bank after this starting date are subjected to the new ESF. Noteworthy is that both policies will run in parallel for an estimated seven years as of October 1, 2018.

The table below shows the environmental and social (E&S) safeguard operational policies triggered by this project.

World Bank E&S safeguard policies	Project phases		
	Pre-construction	Construction	Operation
OP 4.01: Environmental Assessment	**x**	**x**	**x**
OP 4.04: Natural Habitats	**x**	**x**	x

OP 4.11: Physical Cultural Resources		**x**	
OP 4.36: Forests	**x**	**x**	**x**
OP 4.12: Involuntary Resettlement	x	**x**	

The World Bank Operation Policies and their applicability to the project and ESIA are given in Table 4-2.

Table 4-2. The World Bank Environmental and Social Safeguard Operational Policies

World Bank Operational Policy	Applicability to the project
OP 4.01. Environmental Assessment (EA) • evaluates the project's potential environmental risks and impacts in its area of influence; • examines project alternatives; • identifies ways of improving project selection, planning, design and implementation by preventing, minimizing, mitigating or compensating for adverse environmental impacts and enhancing positive impacts; • includes process of mitigating and managing adverse environmental impacts throughout project implementation.	• To identify potential environmental and social risks of the project • To identify the optimal alternative route of the OHTL that reduces environmental and social risks • To prepare mitigation measures to minimize project impacts
OP 4.04: Natural Habitats • Protection of natural environment to ensure long-term sustainable development • Protection and rehabilitation of natural environment • For projects with adverse impacts, propose mitigation and management measures for healthy functions of habitats	• To identify strategies for protection and rehabilitation of natural habitats • To identify appropriate conservation measures for mitigation and monitoring of natural habitats • To prepare management and monitoring plan
OP 4.36: Forests • Conservation and development of forest ecosystems for lasting poverty reduction and sustainable development • Harness the potential of forests to reduce poverty and integrate forests to sustainable economic development	• To identify appropriate forest management plan to ensure the continuity of forest functional components • To identify adverse impacts and reduce the impacts on the people – forest interactions to sustain local livelihoods
OP 4.11: Physical Cultural Resources • Addresses physical cultural resources such as religious sites, group of structures, historical sites and etc. of cultural significance • To avoid and mitigate cultural resources from adverse impacts of development projects.	• To identify sites of cultural significance in connection to the impacts of this project • To identify religious sites, e.g. grave sites • To prepare sound management plan to protect Physical cultural resources of the project area
OP 4.12: Involuntary Resettlement • To avoid severe economic, social and economic risks • Avoid resettlement where possible or minimize by exploring all viable alternatives of project design	• To identify physical displacement of houses and economic activities • To identify types and number of physical structures adversely impacted by the activities of this project • To recommend the preparation of Resettlement Action Plan (RAP)

B. IFC EHS guidelines for Electric Power Transmission and Distribution (2007)

The guidelines include the following impacts of the construction of Electric Power Transmission.

Construction phase impacts

- Construction site waste generation
- Soil erosion
- Noise from heavy equipment
- Potential for spill of hazardous materials and oil leakage during operation of heavy equipment

Operation phase impacts

- Alternation to terrestrial habitat and collusions of birds (Electrocutions)
- Electromagnetic fields
- Hazardous materials, e.g., insulating oil

4.3.7. Gap analysis of Ethiopian and WB operational policies

The table below provides a comparison of the main ESHS policies of Ethiopia vis-à-vis the WB ESHS safeguards, and likely gaps between them.

Table 4-3. Gap analysis of Ethiopian and WB ESHS policies

Issues	The World Bank Operational Policies	Ethiopian laws/regulations/guidelines relevant to the project	Gap bridging measures
Screening	OP 4.01 states the need for environmental screening. Projects are characterized according to three categories. • Category A: projects having significant adverse environmental impacts that are sensitive, diverse and unprecedented. An Environmental Impact Assessment study is required to address potential adverse impacts. • Category B: projects where the impacts on social or environmental components are less adverse than Category A projects. The impacts are	Environmental Impact Assessment Guideline Series 1 (2003). Environmental Impact Assessment Proclamation No. 299/2002 • No project shall be implemented without an Environmental Impact Assessment (Article 1, Proc. No. 299/2002). • Any project which fall in any category listed in any directive issues pursuant to Proc. No. 299/2002 shall be subject to	Projects are screened, project types and the level of environmental impacts assessment are defined in both the Ethiopian and the World Bank systems.

Issues	The World Bank Operational Policies	Ethiopian laws/regulations/guidelines relevant to the project	Gap bridging measures
	site specific and mitigatory measures can be designed more readily than Category A projects. An Environmental and Social impact assessment is required to address or compensate adverse impacts. • Category C: project that have minimal or no adverse environmental impacts. No further environmental action is required beyond screening.	environmental impact assessment. Project schedules[4] • Schedule 1: projects that require full environmental and social impact assessment to eliminate, minimize and mitigate adverse impacts. • Schedule 2: project that require a preliminary environmental impact study. • Schedule 3: projects that may not require environmental impact assessment study.	
Environmental and Social safeguard document requirements	• ESIA with ESMP report is required for Category A projects • ESIA with ESMP, but not as detailed as for Category A, is required for Category B projects • No document is required for Category C projects.	• A full Environmental impact assessment is required for Schedule 1 projects. • A preliminary (not as detailed as for Schedule 1 projects) environmental impact assessment report is required for Schedule 2 projects. • No document is required for Schedule 3 projects beyond a screening.	Reports, based on the types of the projects, are required in both systems.
Conservation of Natural Habitats	OP 4.01: • OP 4.04 is essential for a long-term sustainable development. This OP focuses on the protection, conservation and rehabilitation of natural habitats and the integrity of their functions.	• Environmental policy of Ethiopia • National policy on Biodiversity conservation and Research The national policy, laws support sustainable development and protection of natural forest resources	Conservation of natural habitats to foster a long-term sustainable development is required in both systems.
Conservation of forests and their associated resources	OP 4.36 • This OP promotes management, conservation and	Forest Development, Conservation and Utilization Proc. no. 1065/2018	Conservation of natural habitats is promoted in both systems

[4] The 2003 EIA guideline series 1 lists the types of projects under each of the three project schedules.

Issues	The World Bank Operational Policies	Ethiopian laws/regulations/guidelines relevant to the project	Gap bridging measures
	sustainable development of forest ecosystems	• This law upholds the conservation of forests and their associated natural resources to foster sustainable development	
Conservation and protection of cultural heritages and resources	OP 4.11 • OP 4.11 states that Physical Cultural Resources shall be assessed in the project cycle to avoid minimize adverse impacts such as demolition, flooding, movement of earth and design mitigation measures	Research and Conservation of Cultural Heritage (Proclamation No. 209/1992) Classification of Cultural Heritage into National and Regional Cultural Heritages (Proclamation No. 839/2006) • Promotes the conservation and protection of cultural heritage	Conservation and protection of physical cultural resources are promoted and considered during environmental and social impact assessment in both systems
Compensation for adversely impacted assets and promotion of ehanced livelihoods	OP 4.12 • OP 4.12 is a socio-economic safeguard that promotes the economic and social wellbeing of the communities adversely impacted by projects. If avoidance of adverse impacts is not possible, the communities affected by projects shall be compensated for lost assets.	Proclamation 1/1995, Article 40 Expropriation of land for public purposes, payments of compensation and Resettlement of displaced peoples (Proclamation No. 1161/2019) Council of Minsters Regulation No. 472/2020: Expropriation and Valuation, Compensation and Resettlement • These laws and regulations promote the concept that communities adversely affected by projects shall be compensated to ensure their stable sociao-economic and cultural activities.	Socio-economic and traditional norms safeguards of project affected persons shall be addressed in both systems before implementing development projects.

5. Project Description

The Metu – Masha 230 kV single circuit transmission line project starts from the Metu substation and crosses different landscape (forest areas, farmlands, grazing area) to reach Masha (Figure 5-1). At Masha, a new substation, 300 m x 300 m area, will be constructed.

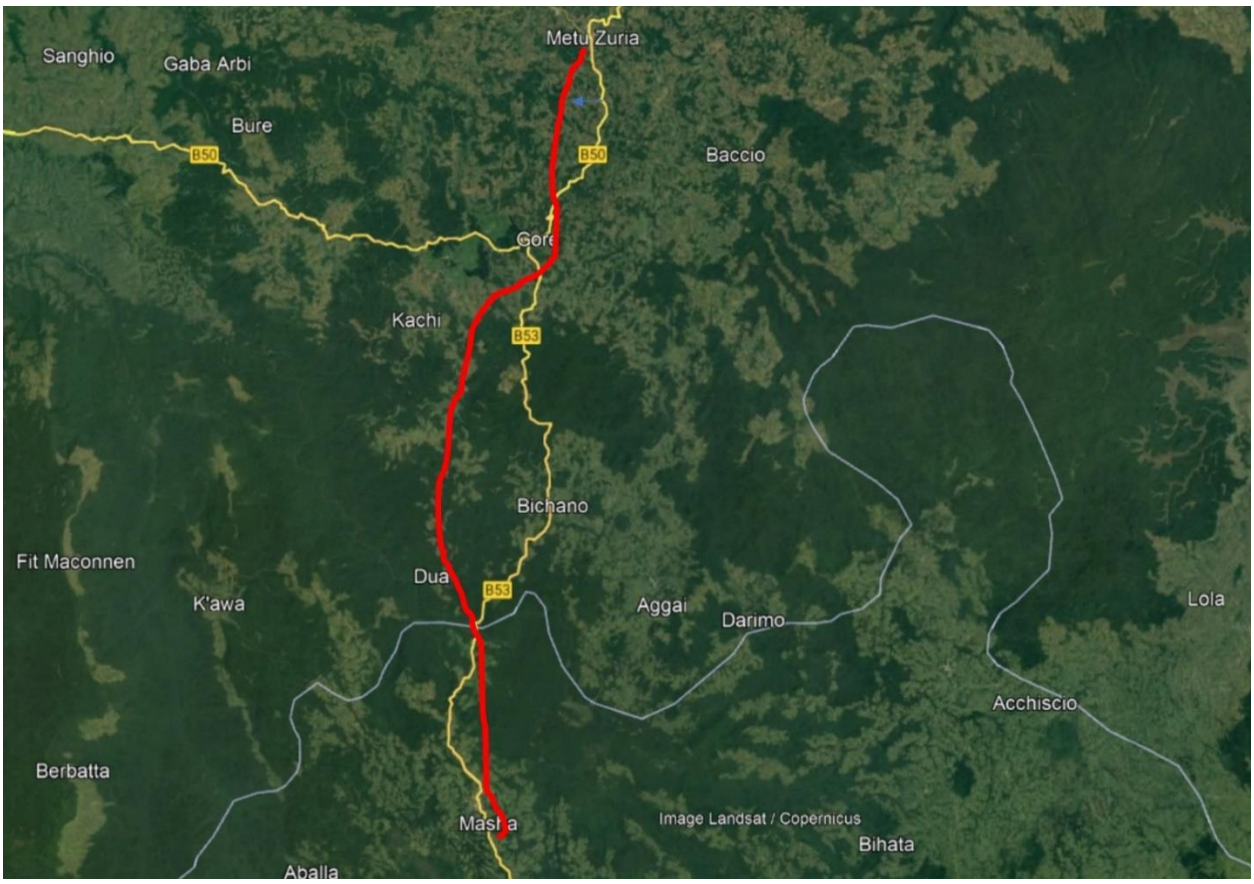


Figure 5-1. The proposed route for Metu – Masha 230 kV overhead transmission line

5.1. Project justification

There are immense economic and social benefits of access to electricity. Currently, Masha Town has electricity which runs on Diesel generator and this runs only for very short hours (until 09:00 pm). Due to a high cost of fuel, there are more days without power in a week. Although the town and its surrounding areas are endowed with resources for investments and development of enterprises to spur local economic development and regional integrations, electricity has been an apparent bottleneck. Students of Masha Town use candles to study and this potentially limits the time required to spend studying and preparing for the next days' lessons. The new sub-station at Masha Town will also be used as a springboard to distribute electricity to Woreda Towns to foster regional economic development.

It has been recorded, during data collection, that there a company which has secured license for investment in coffee production. It has planned to establish a coffee processing mill but the lack of power has severely limited this investment. The latter could create job opportunities and stimulate local economy. With the supply of electricity to Masha Town new enterprises (small, medium of large) will mushroom within a reasonable short time. These economic activities will transform the livelihoods and quality of life of the communities. Therefore, the construction of Metu – Masha 230 kV single circuit transmission line has significant positive impacts of the local, regional and national economy and the effectiveness of education for school pupils.

5.2. Project design guidelines

A general overview of the project design guidelines is given in Table 5-1.

Table 5-1. Key features and restrictions of the Metu – Masha 230 kV overhead transmission line (OHTL).

Components	Width/area	Description	Activities	Restrictions	
				Construction phase	Operation Phase
Overhead Transmission Line Right -of-Way (RoW)					
OHTL Right-of-Way	40 m (20 m in either side)	• This is established to ensure safety of the high voltage OHTL • The RoW is 40 m (20 m in either side) • High trees will be removed along the entire length of the RoW • Existing houses inside the RoW will be relocated	*Construction phase* • Removal of all high trees inside the RoW • Construction of tower foundations *Operation phase* • Regular monitoring of the RoW to ensure it is free of high trees • Monitor for non-existence of new houses inside the RoW	Temporary crop damage limits farmers to tend their crops	• No new houses • No plantation of high trees will be planted inside the RoW • Cultivation of crops is allowed
Access Roads to the RoW	4 m	• Removal of vegetation to ensure vehicle access • Avoid cutting big trees along the access road (reroute the road)	*Construction phase* • Clearing vegetation after payments of compensation (temporary effect) Operation phase • Transportation of construction materials	• Cultivation can be temporarily disrupted	• Vegetation growth is allowed • Cultivation is allowed

Components	Width/area	Description	Activities	Restrictions	
				Construction phase	Operation Phase
Immediate areas outside the RoW	40 m (20 m in either side)	• Houses and planting trees are allowed	• Monitoring the distance of high trees to the RoW corridor and the OHTL	• Cultivation restricted temporarily due to construction activities	• Construction of houses allowed • Planting trees allowed • As some trees grow over 40 m, avoid plant these trees very close to the edge of the RoW on both sides
Footprint of the new Masha substation					
Construction of new substation at Masha	300 m x 300 m in area	• This area is currently a grazing area with very scattered trees. These scattered trees will be removed • There are no houses and crop fields	*Construction phase* • Scattered trees will be removed • Excavation of foundations	• Dust emission due to truck movements and excavation • Relatively high traffic of dump truck to transport soil wastes may affect livestock and human movements • Temporary increase in ambient noise	• Permanent loss of land • No other restrictions
Project components					
Temporary working area at each tower site	20 m x 20 m	• Working area for construction, store materials temporarily • Construction and erection of Towers	Construction phase • Clearing of vegetation and trees	• Access to the site restricted	
Permanent tower area	10 m x 10 m	• There are about 180 Towers inside the RoW	Construction phase • Fully Clear tea bushes and vegetation		• No trees or crops allowed on 10 m x 10m area

Components	Width/area	Description	Activities	Restrictions	
				Construction phase	Operation Phase
			Operation phase • Monitoring for the absence of vegetation that could potentially disrupt power transmission		(permanent loss of land)

The general schematic representations of the features and restrictions are given in Figure 5-2. Cultivation of cereal crops and Enset is allowed inside the RoW. Since the cultivation of coffee requires shade trees, this cultivation practice is limited inside the RoW. The coffee shade trees of the project usually grow high and could pose risks to the Metu – Masha 230 kV single circuit transmission line project.

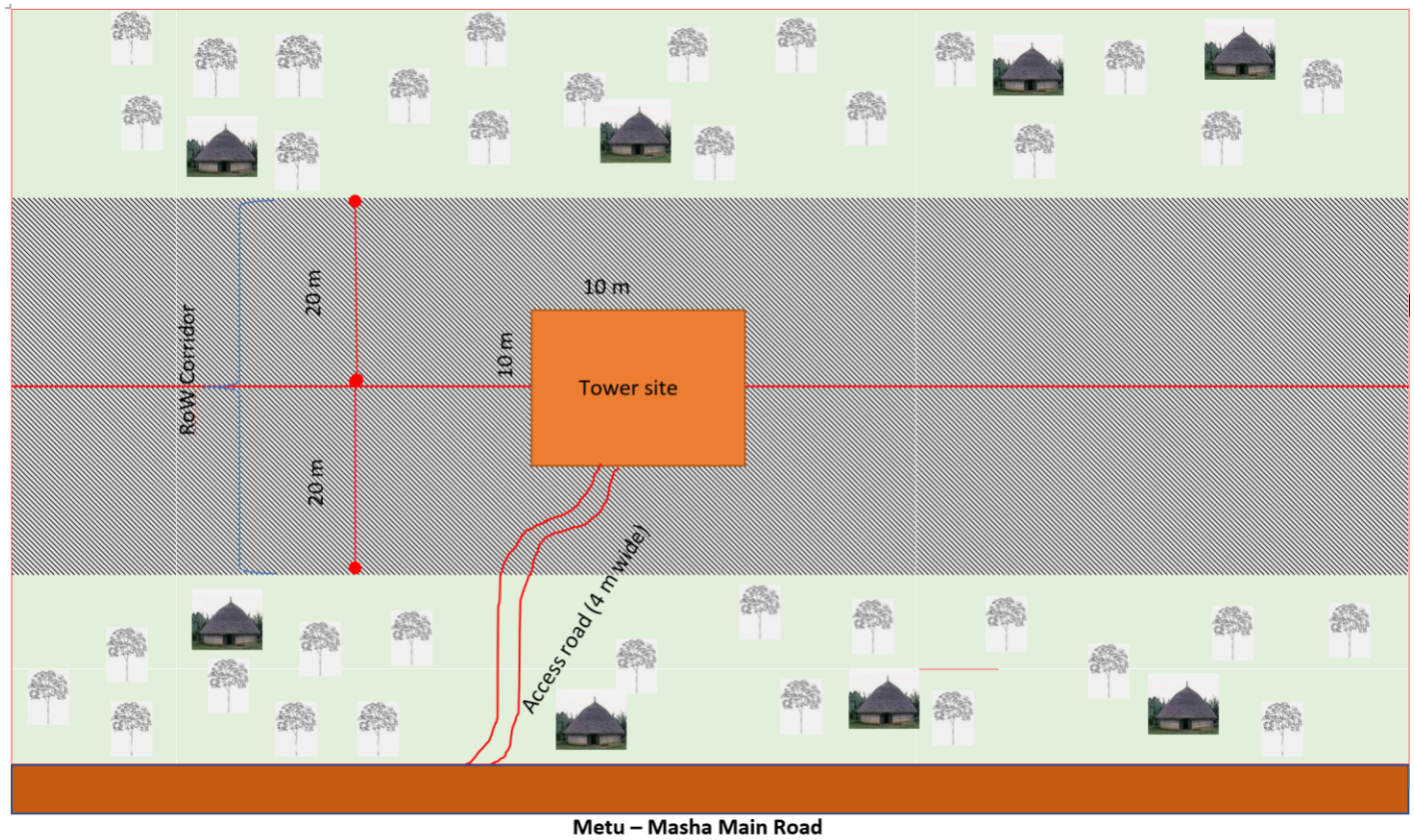


Figure 5-2. Metu – Masha 20 kV OHTL features and restrictions

5.3. Project Area of Influence (AOI)

The project Area of Influence (AOI) for the assessments of the impacts of the Metu – Masha 230 kV OHTL has considered the following features. For determining the AOI, IFC Performance Standard 1 (January 1, 2012)5 was uses. These standard states the Area of Influence encompasses:

- the area likely to be affected by: (i) the project and the client's activities and facilities that are directly owned, operated or managed (including by contractors) and that are a component of the project; (ii) impacts from unplanned but predictable developments caused by the project that may occur later or at a different location; or (iii) indirect project impacts on biodiversity or on ecosystem services upon which Affected Communities' livelihoods are dependent.
- Associated facilities, which are facilities that are not funded as part of the project and that would not have been constructed or expanded if the project did not exist and without which the project would not be viable.
- Cumulative impacts that result from the incremental impact, on areas or resources used or directly impacted by the project, from other existing, planned or reasonably defined developments at the time the risks and impacts identification process is conducted

The direct impact zone of the Metu – Masha 230 kV single circuit transmission line project includes the spatial extent of the Right-of-Way and access road (Figure 5-3). That is:

- 40 m Right-of-Way corridor
- 4 m access road to the Tower locations.

5 IFC Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts, January 1, 2012

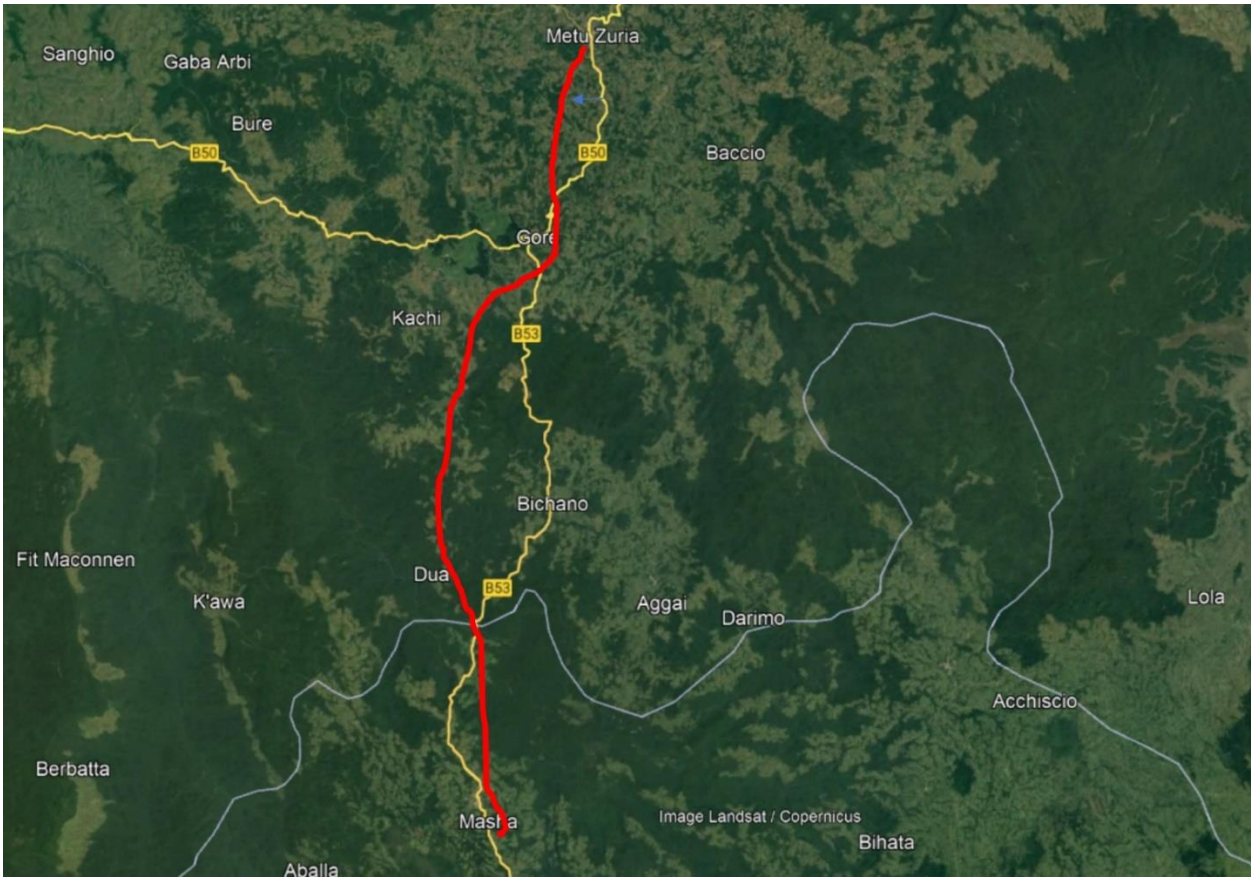


Figure 5-3. Direct Impact Zone of the project. Key: thick red line is the selected alternative route for Metu – Masha OHTL. Access roads to the Tower locations are also part of the direct AOI.

The indirect AOI of the project is areas that are affected by cumulative impacts. These include Metu – Gore Road construction and large-scale investment plans. Figure 5-4 shows the indirect AOI of the project.

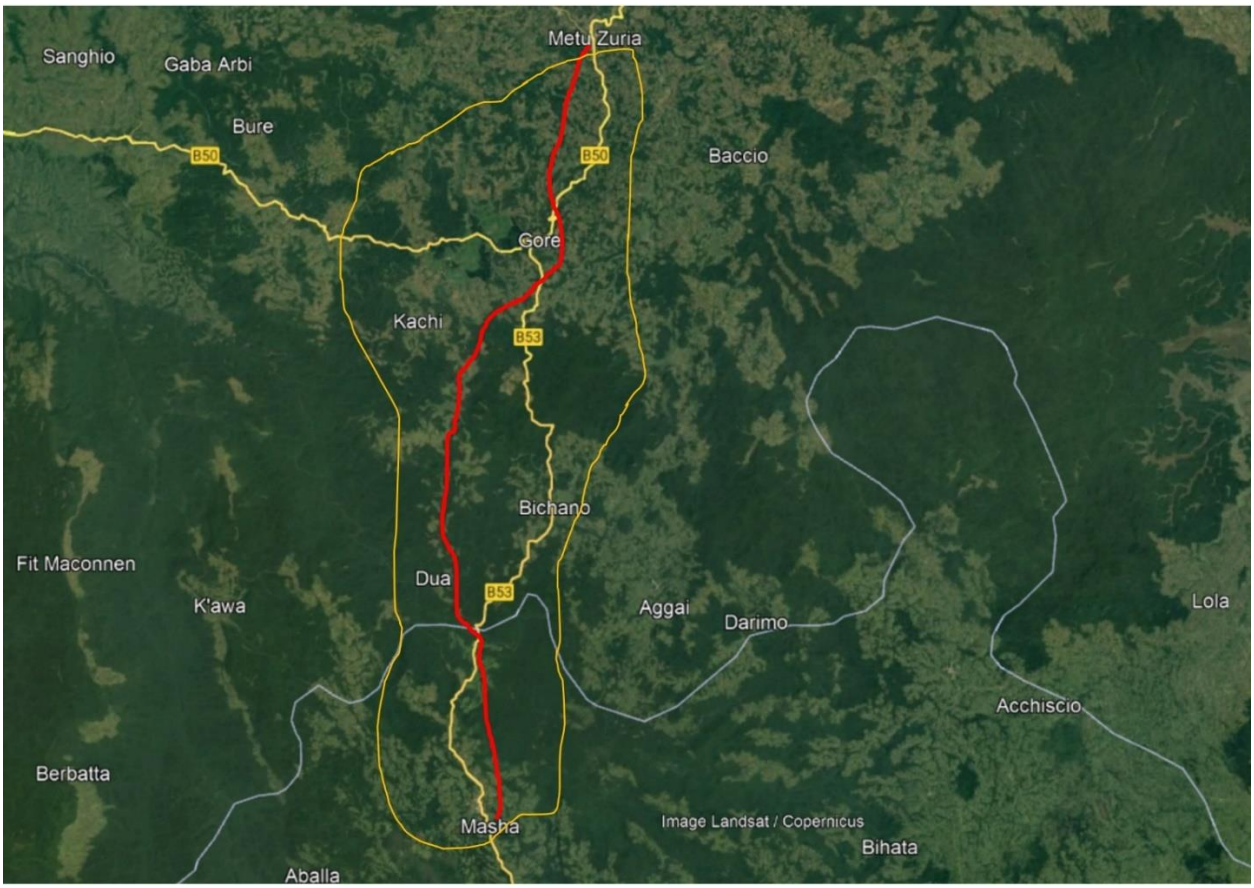


Figure 5-4. Indirect AOI. The orange polygon includes areas affected by cumulative impacts such as road construction, agricultural expansion and large-scale investment.

5.4. Major project components

5.4.1. Transmission lines

A brief summary of the Metu – Masha 230 kV transmission line is given below.

Technical specifications	Descriptions
Transmission length	70 km
System voltage	230 kV
Number of circuits	Single
Number of towers	180
Tower span (approx.)	350 m

5.4.2. Temporary infrastructure

Access roads

At present the exact number and length of access roads is not known. But the access roads are built within the direct AOI of the project. In some cases, the access road passes through cultivated

fields, use old foot trails, existing roads within the Tea Estate. In some cases, it could cross forested areas.

Temporary Tower laydown and Assembly areas

For this activity of the project, the 40 m corridor of the RoW will be used. That is, 20 m on each side of the Tower central line is sufficient for Tower assembly.

Contractor's work area locations

These locations should be within the direct AOI. It is believed that the Contractor will use mobile facility to guard its properties and all activities of the project.

5.5. Project Phase Activities

The main activities of the Metu – Masha 230 kV single circuit transmission line project are given below according to the phases of this project.

5.5.1. Pre-construction phase

- Payments of compensation, relocation
- Vegetation clearing including tea bushes
- Tree felling

5.5.2. Construction Phase Activities

The following project activities occur during the construction phase of the project. These are:

- Access road construction
- Excavation for foundations
- Construction of tower foundations
- Supply of tower
- Assembly of towers
- Supply of insulators
- Supply of conductors
- Cable stringing
- Sub-station equipment supply
- Mounting sub-station expansion
- Construction of New Sub-station

5.5.3. Access road construction

The contractor will construct access roads of 4 m width. Big indigenous trees, cash crop plants and other perennial crops will not be damaged by the construction of the access road.

5.5.4. Excavation for tower foundation

The size of the tower foundations is 10 m x 10 m.

5.6. Operation phase

After completion of the construction, EEP will be responsible for the operation and maintenance of the 230 kV transmission line. The main activities to be carried out during the operation life of the transmission line include surveillance of the condition of the transmission line routine, emergency maintenance and repairs and vegetation control.

EEP is responsible for controlling future land uses within the ROW and ensuring that no new structures are constructed. In particular, buildings must be at a minimum distance from the line conductors. Growth of crops will be permitted, but limited to a height of 2 m or less. Growth of vegetation on the right-of-way will be controlled to ensure safe and reliable operation of the line. Therefore, vegetation cover will need to be cleared occasionally to ensure that vegetation does not interfere with the operation of the lines.

Vehicular access to the ROW will be required to effect line repairs or to correct any localized erosion or terrain instability problems that might develop.

6. Baseline Biological, Physical and Social conditions

6.1. Biological baseline environment

6.1.1. Flora and vegetation

A total of 115 plant species were recorded from the project area (Annex 15). Out of these, 38 were assessed for their conservation status while the remaining species were not assigned any of the IUCN categories, i.e., they were not assessed. Many species with a conservation status of Least Concern (LC) have stable populations while a small portion (about 10%) of them have a decreasing trend of population (Figure 6-1). The project crosses Baro River and the Transition Zone of Sheka Forest Biosphere Reserve. This Zone is used for cultivation and there are scattered trees species, e.g., *Albizia gummifera, Pouteria adolfi-friderici* and exotic trees such as *Euclayptus*. No species of conservation concern was recorded in this Transition Zone.

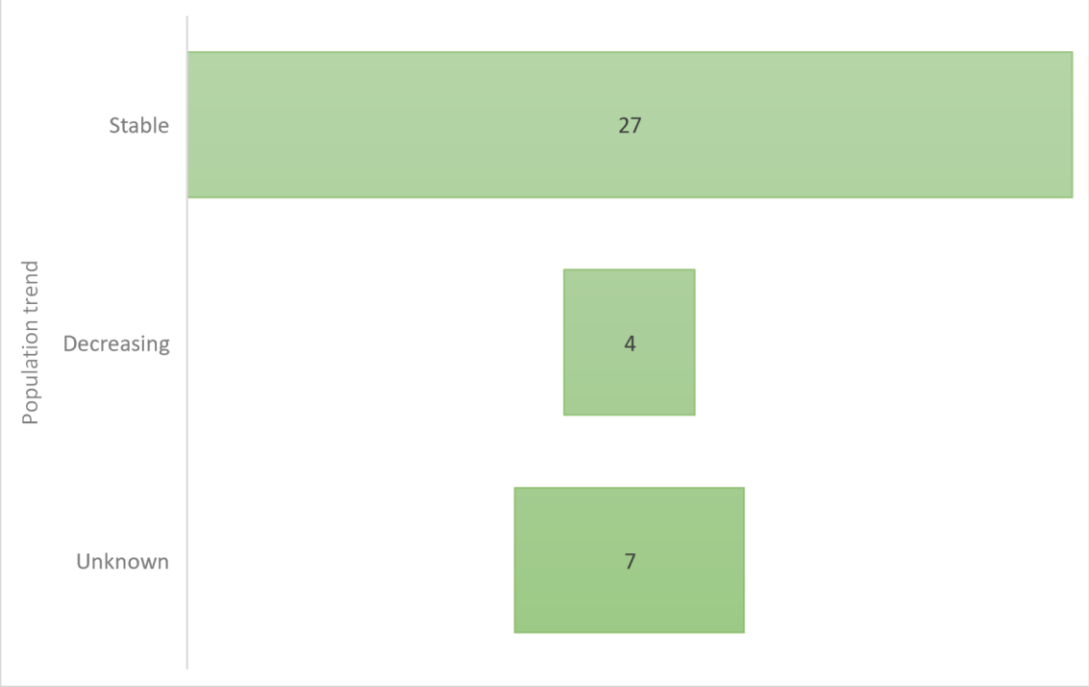


Figure 6-1. Population trend of species with an IUCN conservation status of Least Concern (LC)

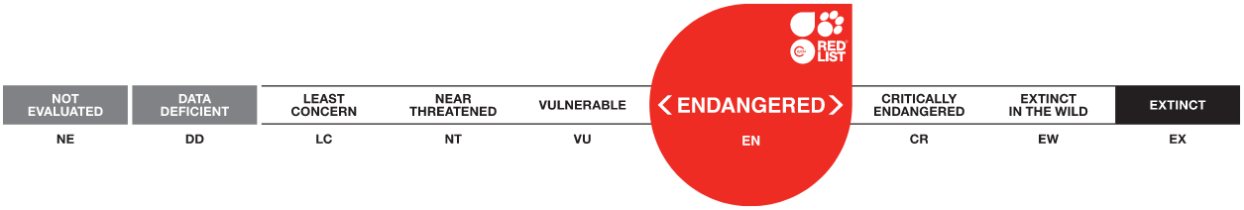
One species was found to be vulnerable and one endangered.

Prunus africana

This species is widely distributed in the moist afro-montane forests of Ethiopia. The bark of this species is used to treat a certain type of cancer and is being heavily extracted elsewhere in Africa. But such use has not been in place in Ethiopia. On the other hand, the area, extent and quality of its habitats are continually declining. As a result, *Prunus africana* has been assessed as vulnerable.

Coffea arabica

This species is economically very important crop and has its wild populations in the moist afro-montane forests of Ethiopia. This species was assessed for inclusion in the IUCN red list of Threatened species in 2018. It has been assessed as Endangered (EN)[6] under criteria A3b. The latter means population reduction projected inferred or suspected to be met in the future (up to a maximum of 100 years) based on an index of abundance for this species. Deforestation, climate change, diseases and pests are the major threats.



The geographic extent of this species is given below.

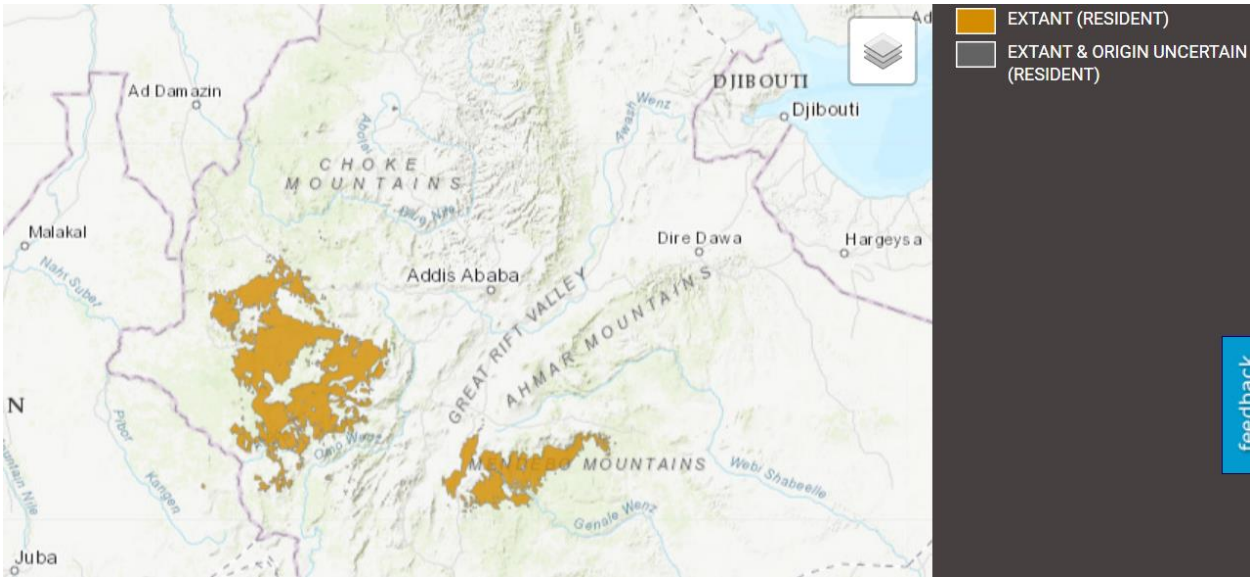


Figure 6-2. Geographic extent of Coffea arabica

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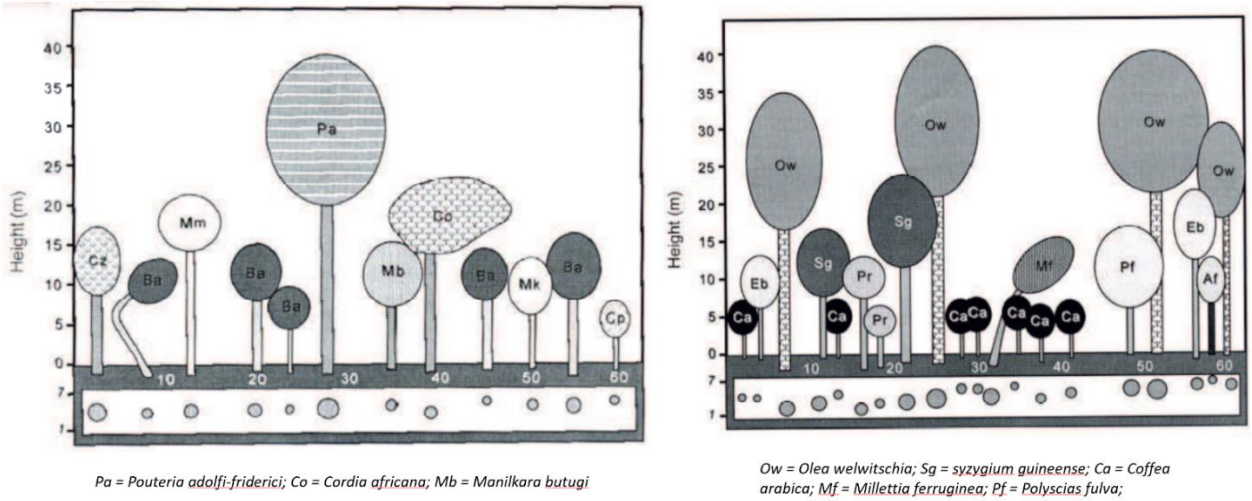
6.1.2. Forests

The forest of the project area is part of the fragmented Moist Afro-montane Forest (MAF) of Ethiopia. This type of vegetation is found in selected parts of Ethiopia (Figure 6-4). Characteristic species MAF are *Pouteria adolfi-friderici, Prunus africana, Albizia gummifera, Albizia schimperiana, Olea welwitschia, Coffea arabica, Schfflera abyssinica, Diospyros abyssinica,* etc.

Figure 6-3 presents selected profile of the forest of the study area. The salient features of the stand of two species, Pouteria adolfi-friderici and Olea welwitchii shows the the vertical structure of the forest. Both species form high canopy but there are also other understorey trees species and *Coffea arabica* and ground vegetation mainly featuring spices such as *Piper capense* and *Afromomum corrorima*.



Pa = Pouteria adolfi-friderici; Co = Cordia africana; Mb = Manilkara butugi

Ow = Olea welwitschia; Sg = syzygium guineense; Ca = Coffea arabica; Mf = Millettia ferruginea; Pf = Polyscias fulva;

Figure 6-3. Profile of selected tree species of the project area (source: Senbeta, 2016)

The project crosses modified landscape (cultivated fields and tea Estate and transition zone of Biosphere Reserves). But a small section of the OHTL triggers forest related issues, e.g., cutting trees. This issue has been addressed in the ESMP.

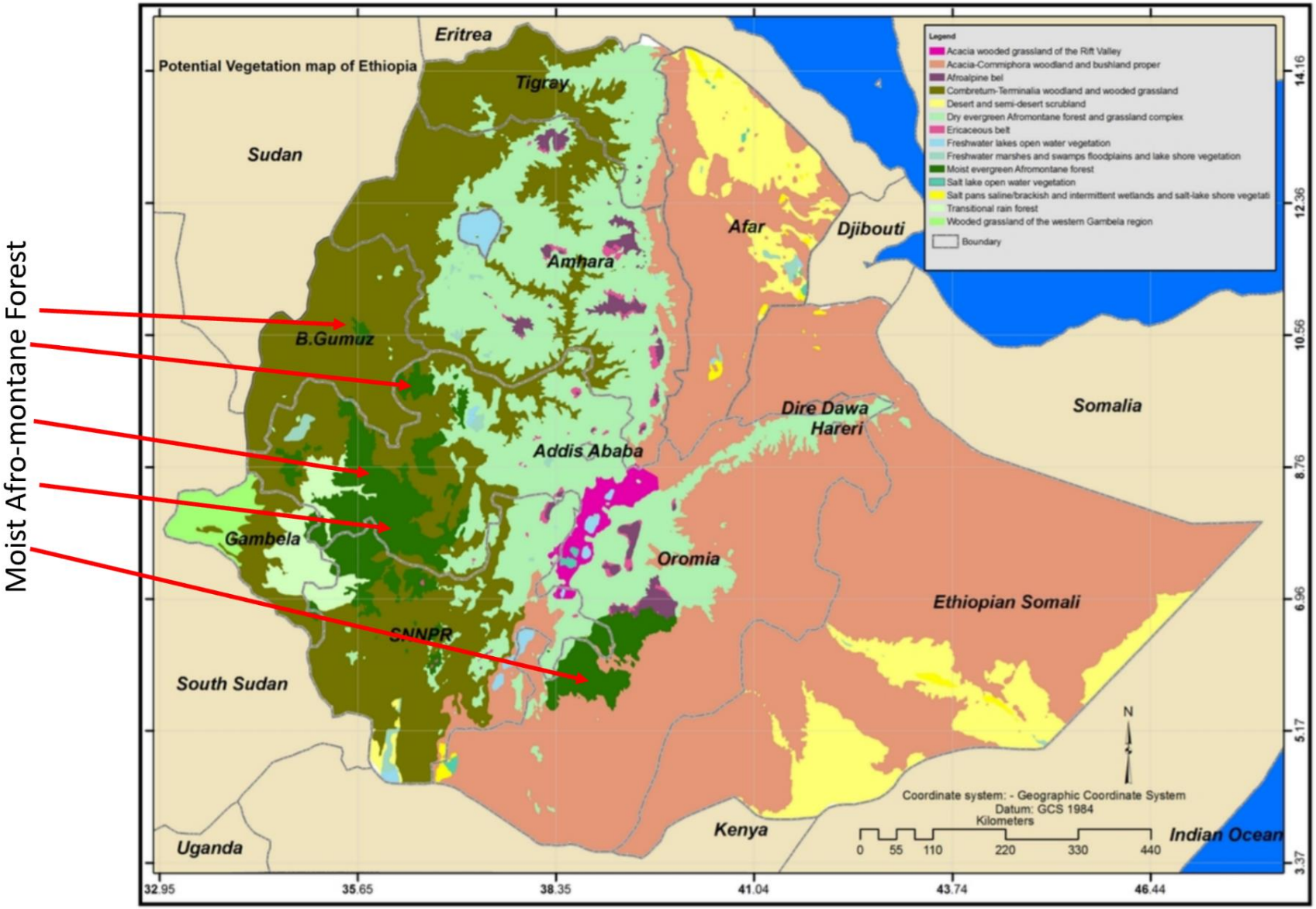


Figure 6-4. Vegetation types of Ethiopia (source: Friis et al., 2010)

Trends in tree cover and primary forest loss

Ethiopia has lost 41.6 kha of tree cover between 2002 and 2020 (https://www.globalforestwatch.org/map/country/ETH/). This is equal to a decrease in 3.5% of the tree cover, which amounts to 188 Mt of Co_2e emission. The tree cover in Oromia was 5.45 Mha in 2010, which covers 17% of its total land area. In 2020, it has lost 12.2 kha of its tree cover. This is equivalent to over 6 Mt of Co_2e emission. Furthermore, Oromia has lost 55.1 kha of its primary humid forest from 2002 – 2020, which is 26% of its total tree cover loss in the same period. As a result, 4.7% of humid primary forest has decreased in Oromia (Figure 6-5).

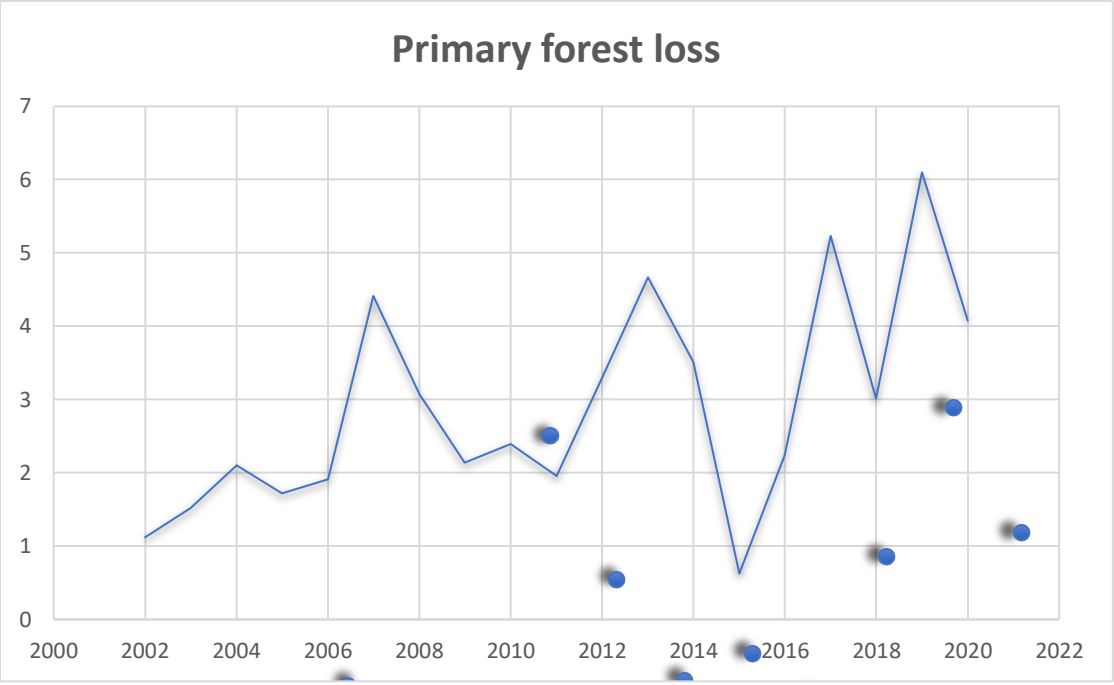


Figure 6-5. Humid primary forest loss in Oromia (data sources: https://www.globalforestwatch.org/map/country/ETH/).

Similar trend was also observable in the remaining natural forest of SNNPR (Figure 6-6). In 2002, Sheka has 229 kha of tree cover, which covers 98% 0f its land area. In 2020, it has lost 185 ha of its tree cover amounting to 111 kt of Co_2 of emissions. Furthermore, Sheka has lost a total of 2.64 kha of its humid primary forest, which is 34% of its total tree cover loss in the same period. This has resulted in a decrease by 27% of its humid primary forest. Relatively higher loss of the Sheka humid primary forest was recorded from 2012 – 2017. The highest loss was in 2013.

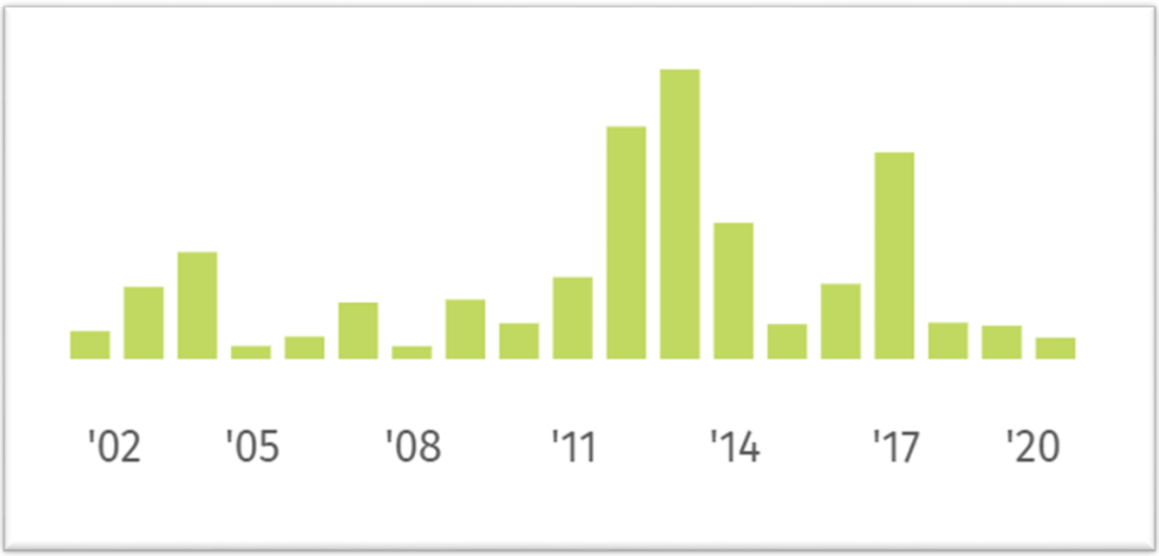


Figure 6-6. Sheka Humid primary forest loss from 2002 – 2020. Oromia (data sources: https://www.globalforestwatch.org/map/country/ETH/).

Sheka has lost 7.86 kha of tree cover from 2002 – 2020, which is 3.4% decrease in tree cover since 2000. This is equivalent to 5.04 Mt of CO_2e emission.

6.1.3. Key biodiversity areas

A. UNESCO Biosphere Reserves

i. Yayu Coffee Forest Biosphere Reserve

The Yayu Coffee Forest Biosphere Reserve was designated in 2010. It has a total area of 167.021 ha. It has three management zones (Figure 6-7). These are:

a. Core Zone (area = 27,733 ha). This section of the Yayu Coffee Forest Biosphere Reserve is strictly protected and all kinds of human interactions with the forest are to be avoided. This zone is with wild populations of coffee.

b. Buffer Zone (area= 21,552 ha). This zone is slightly disturbed forest areas where non-timber forest products can be extracted. Furthermore, the local communities could us this zone of the Biosphere Reserve for honey production, i.e., mount beehives on high tree species for honey production. But further destruction of the canopy of the indigenous tree species and the underground vegetation is prohibited.

c. Transition Zone (area = 117,736 ha). This zone of the Yayu Coffee Forest Biosphere Reserve is where traditional coffee farming, agriculture and settlements are located. The local communities practice agroforestry farming system where selected coffee shade trees such as *Albizia gummifera*, *Cordia africana*, *Acacia abyssinica* and etc. are maintained to

provide shade for coffee. Furthermore, cereal crop production is also practices by the smallholder farmers of the project area.

The Metu – Masha 230 kV power transmission line crosses the Transition Zone of the Yayu Coffee Biosphere Reserve.

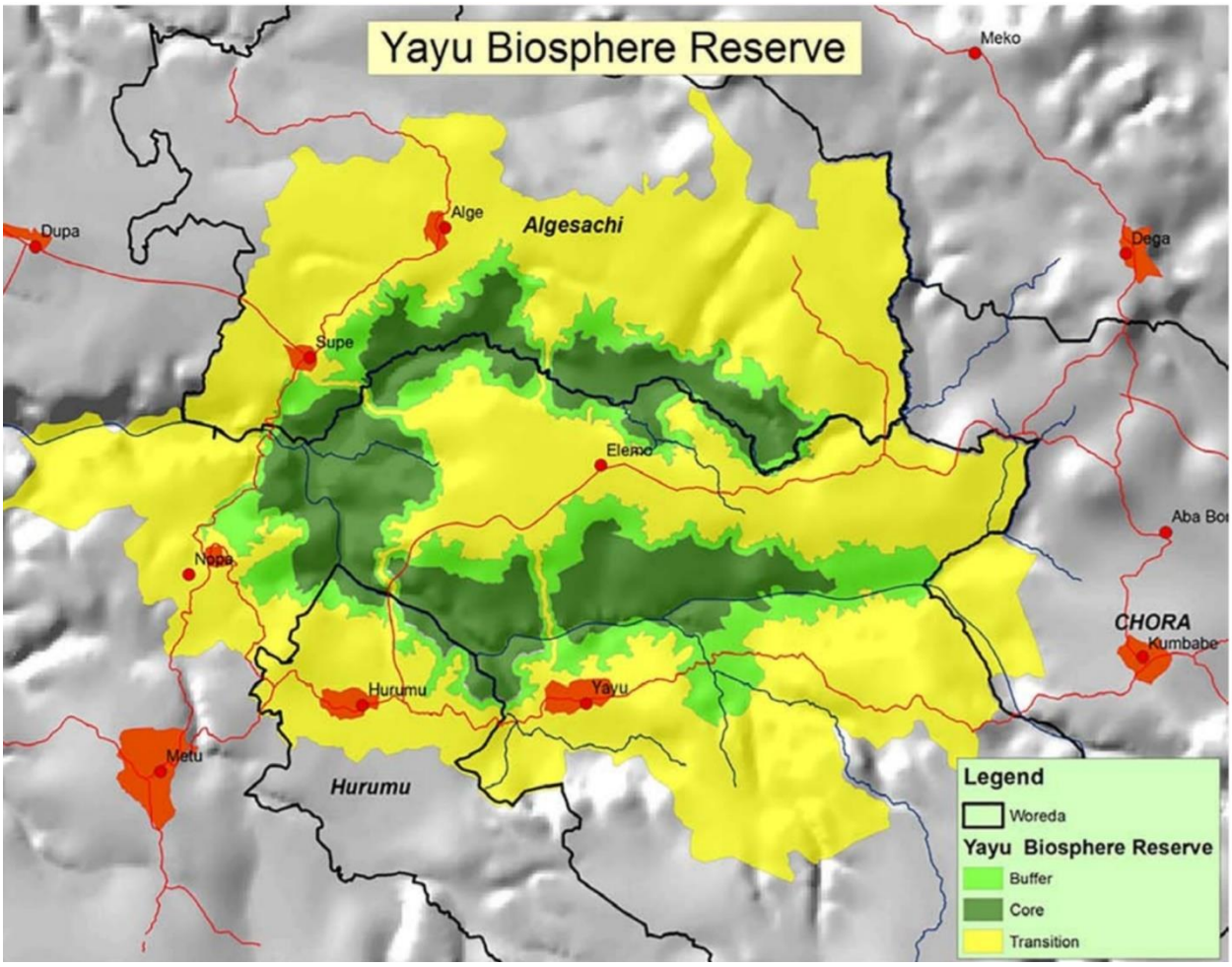


Figure 6-7. Management Zone of Yayu Coffee Biosphere Reserve. (Source: Motion Consultancy & Training, 2018).

d. Sheka Forest Biosphere Reserve

The Sheka Forest Biosphere Reserve is aa terrestrial Key Biodiversity Area (KBA) with a reported total area of 372,333 ha and 21% protected area cover (Key Biodiversity Areas Partnership, 2020). Three threat levels were recognized for this Biosphere Reserve. These are Threat Level 1 – 3. Whereas Agriculture and commercial development are Threat Level 1, wood and pulp plantation, settlement and urban expansions were considered to constitute Threat Level-2. Furthermore, smallholder plantations and shifting agriculture are Threat Level-3.

The occurrence of plant and animal species of conservation concerns inside Sheka Forest has triggered the designation of this forest as a UNESCO Biosphere Reserve. The species and their corresponding IUCN conservation status are given below.

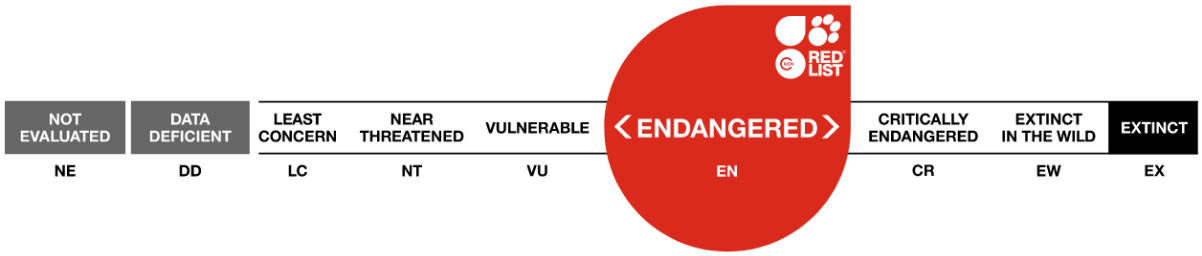
e. Amphibians

Clarke's Banana Frog (*Afrixalus clarkei*).

This species was previously reported from UNESCO-MAB Kaffa Biosphere Reserve and Godare. Now it is also reported from Sheka Forest and has served as one of the triggering factors for a designation of this Forest as a Biosphere Reserve. Its habitats include forest edges, herbaceous vegetations surrounding pools inside forest, coffee plantation and modified forest habitats.

Figure 6-8. Clarke's Banana Frog (Source: https://www.inaturalist.org/observations/31041229)

This endemic species has an IUCN conservation category of Endangered (cf. below).



f. Animals

The following animal species were recorded from the project area.

No	Scientific name	Common name	Remarks
1	*Heterohyrax brucei*(Gray, 1868) *Procavia capensis*(Pallas, 1766	Hyrax	-
2	*Cercopithecus mitis*(Wolf, 1822	Blue monkey	Raids crops and persecuted by communities
3	*Lepus saxatilis*(Cuvier, 1823 *fagani (Hoffmann and Smith 2005*	Hare	Open fields
4	*Chlorocebus aethiops*(Linnaeus, 1758)	Grivet monkey	Troops seen along road side. Habituated?
5	*Colobus guereza*(Rüppell, 1835	Colobus monkey	Frugivore in forest canopy,
6	*Panthera pardus*(Linnaeus, 1758	Leopoard	Predator on wild and domestic animals
7	*Civettictis civetta* (Schreber, 1776	Civet	uncommon
8	*Atilax paludinosus*(Cuvier, 1829)	Mongoose	-
9	*Crocuta crocuta*(Erxleben, 1777)	Spotted hyaena	Predator and nuisance
10	*Potamochoerus larvatus*(Cuvier, 1822	Bush pig	Hunted with traditional spears
11	*Sylvicapra grimmia*(Linnaeus, 1758)	Bush duiker	Hunted for food

Some animal species are endemic and their conservation status are given below.

a. Yalden's Desmomys (rat) - *Desmomys yaldeni*

This rodent species is endemic to Ethiopia. Figure 6-9 shows the species and its geographic range in Ethiopia. The species distribution ranges from Metu to Tepi and covers the project area as well. It habitats are humid afro-montane forest dominated by Ficus species and undergrowth dominated by coffee. Deforestation of the afro-montane forest may threaten this species in the future.

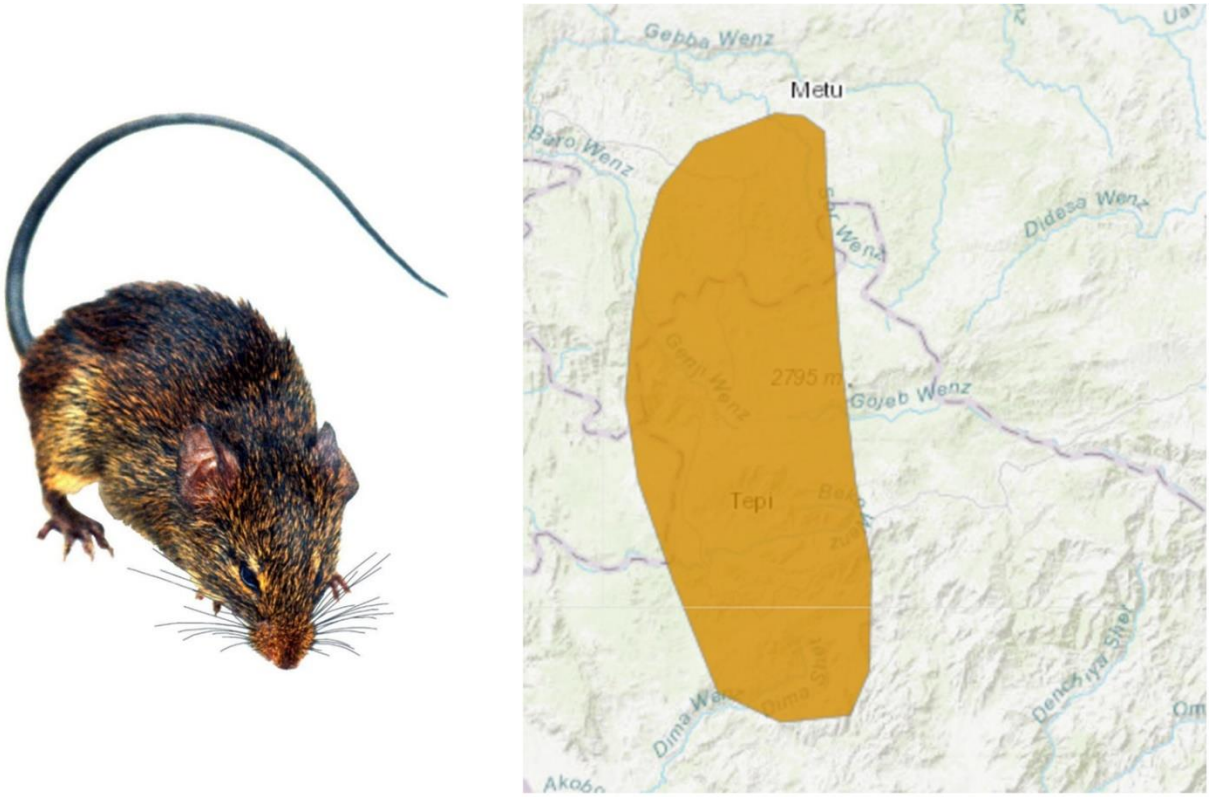


Figure 6-9. Yalden's rat and its geographic distribution. (source:……species photo: Lavrenchenko and Bekele, 2017; map – Integrated Biodiversity Tools)

This species has been assessed as vulnerable.

b. Scott's Mouse-eared Bat (*Myotis scotti*)

This bat species is endemic to the highlands of Ethiopia on both sides of the Ethiopian Rift Valley (see below). Its habitats are Afro-montane Forest and shrubland. Its populations are severely fragmented.

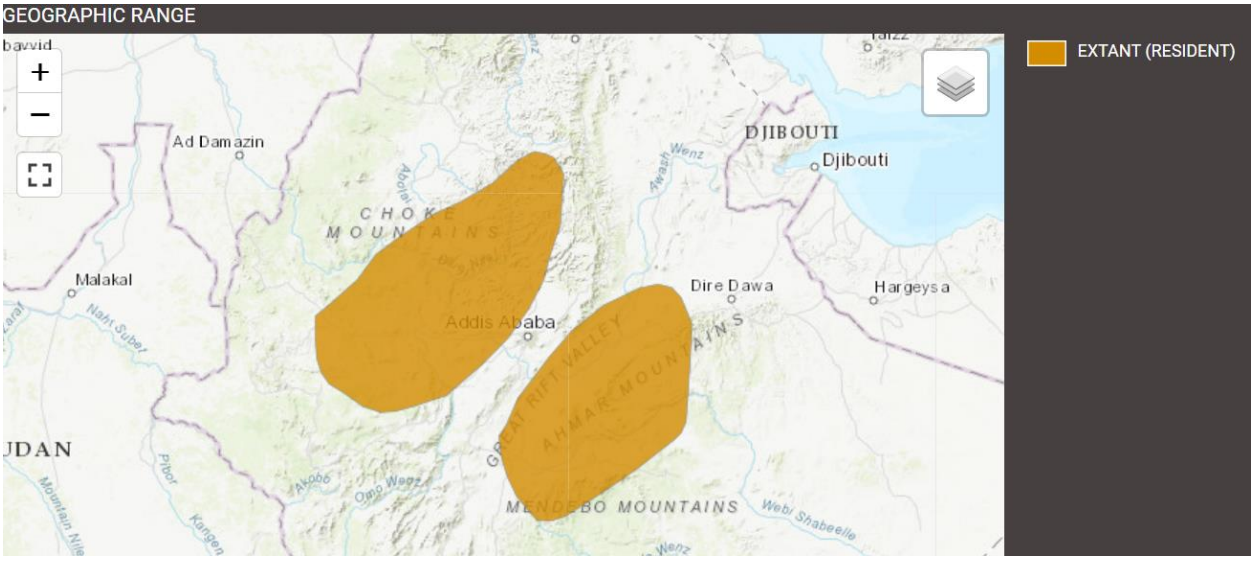


Figure 6-10. Geographic extent of Scott's Mouse-eared Bat

Scott's mouse-eared Bat was assessed as a Vulnerable species with regard to its conservation status. Habitat fragmentation and conversion are the major threat to the conservation of this species.

The elevation range of this species is 1300 – 2500 masl in Ethiopia. Part of the project area (around Metu) falls in the geographic extent of this species (see below). But the remaining areas of the project are outside of the geographic range of this species.

Figure 6-11. Partial view of the geographic extent of Scott's mouse-eared Bat

g. Plants

Octotea kenyensis

This species has a wide geographic range even outside Ethiopia. Its superior quality of hardwoods has results in its high exploitation for timber.

This species was assessed as Vulnerable.

Generally, these four species (3 animal and 1 plant) are the biodiversity elements that have triggered the delineation of Sheka Forest as a UNESCO Biosphere Reserve of a global importance.

B. National Forest Priority Areas

There are three National Forest Priority Areas (NFPAs) in the project area (Figure 6-12). Another NFPA, the Sele Anderacha NFPA lies far in the west of the project area.

Figure 6-12. National Forest Priority Areas of the project area.

Although they were designated as NFPAs, most parts of these forests are converted to Agricultural lands (Figure 6-13). As a result, the 230 kV power transmission line passes through these converted parts of the NFPAs. But a very small section of this power transmission line crosses these forests. Coffee is the most dominant undergrowth in these NFPAs.

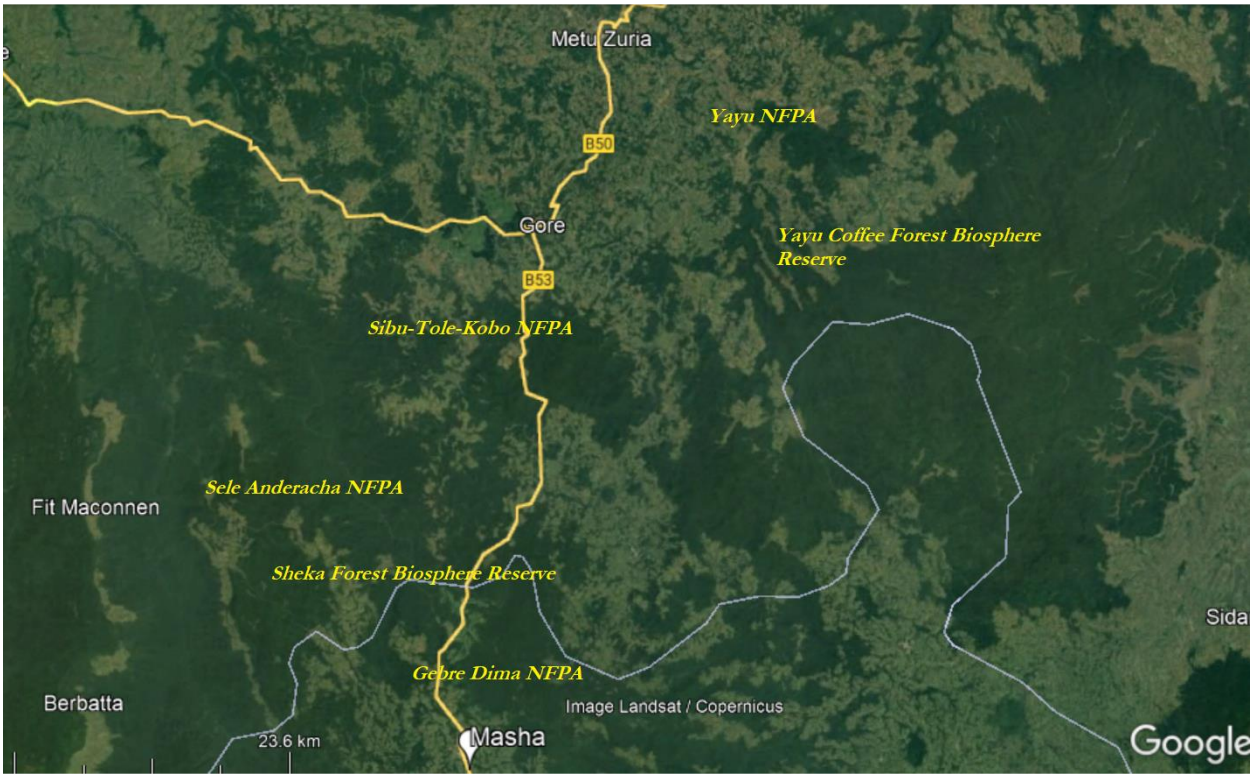
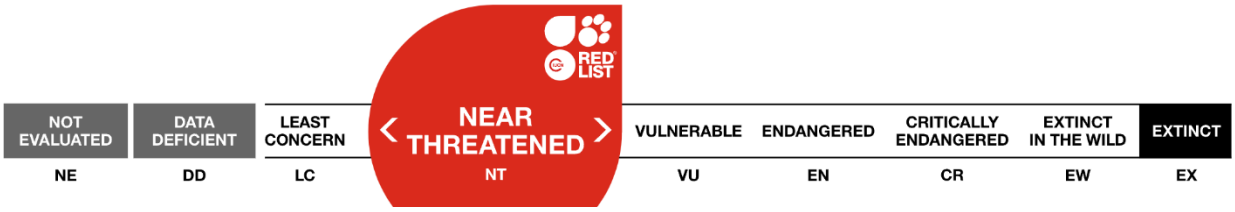


Figure 6-13. Current spatial distribution of the extent of the NFPAs of the project area.

C. Important Bird Areas

The Met-Gore-Tepi (ETH 046) Important Bird Area (IBA) is located along the project area. The Key bird species of this IBA is Rouget's rail, which is assessed as near threatened.



This species lives in aquatic environment, i.e., wetlands and swamps. This IBA is under intense human pressure and the area and quality of the habitats of this bird species has diminished over time. Figure 6-14 shows the extent of occurrence of this species (https://www.iucnredlist.org/species/22692548/93358279).

Figure 6-14. Area of extent of Rouget's rail. (source: Birdlife International, 2016).

6.1.4. Migratory birds' Flyways in Ethiopia and the project area

Critical bird sites in Ethiopia

Critical bird sites of Ethiopia have been identified by Climate Resilient Site Network in Africa-Eurasia Flyways by Birdlife International (http://criticalsites.wetlands.org/en/about). In Ethiopia, 47 critical bird sites were identified (Figure 6-15).

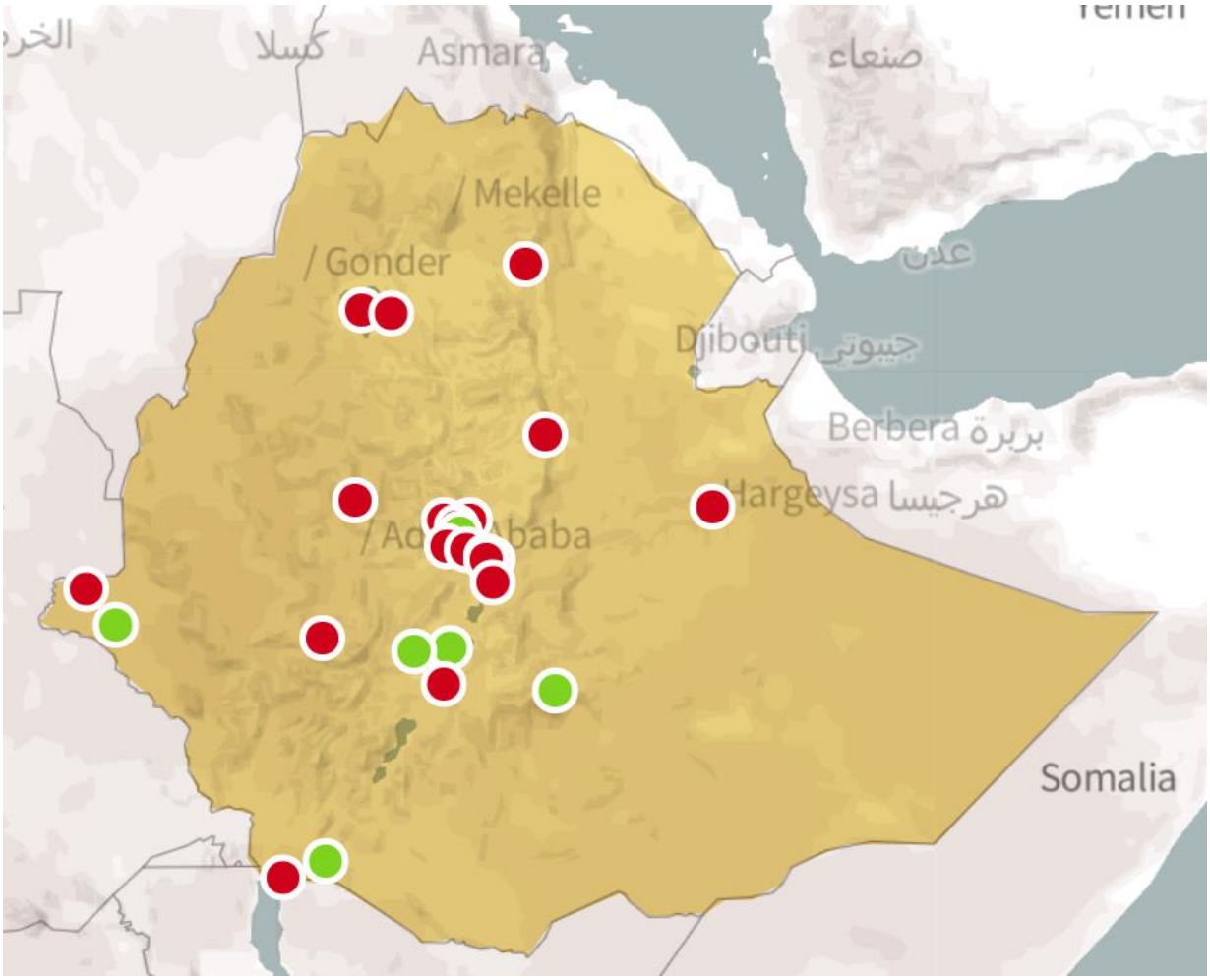


Figure 6-15. Critical bird sites of Ethiopia. Colors denote level of protection of the habitats. Red = little protection of habitats or none; Green = whole habitats protected.

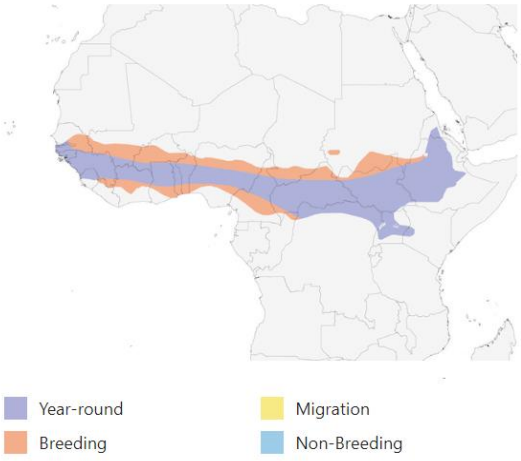
But there are no critical bird habitats in the project area (Figure 6-16). The Koffee Swamp is at the far Eastern side of the project while the Gambella National Park is further West of the project area. None of the bird species recorded in this study were listed in the critical bird sites of Ethiopia.

Figure 6-16. Critical Bird sites in the Ethiopia. Red line shows the proposed Transmission line.

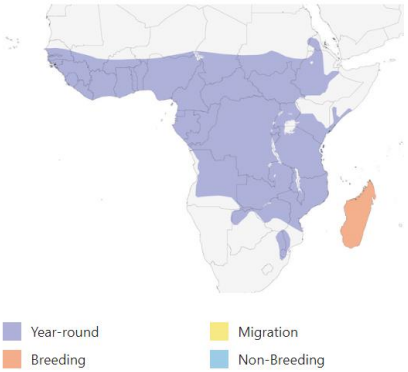
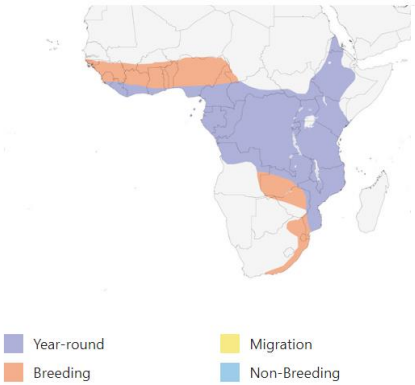
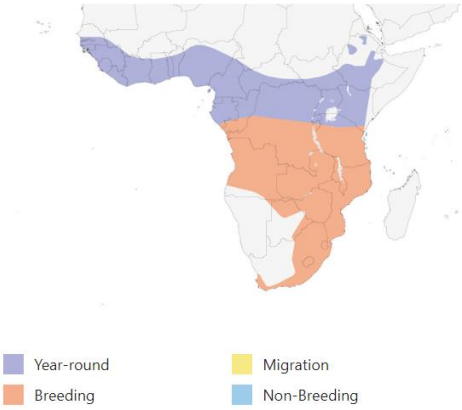
Migratory Birds

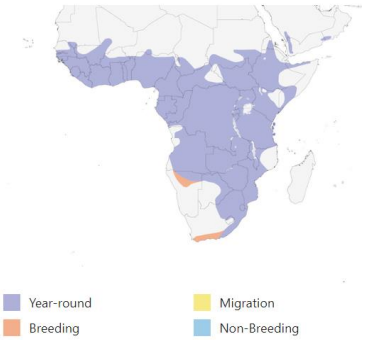
Some of the bird species of the project area are migrant while other are residents (non-migrants). Table 6-1 gives details information on the migration of the bird species recorded from the project area.

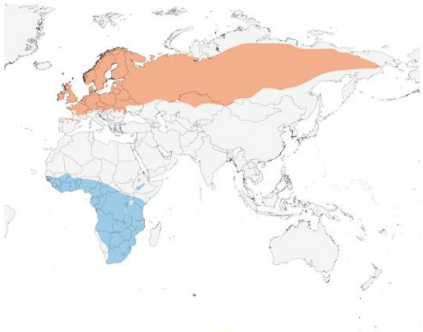
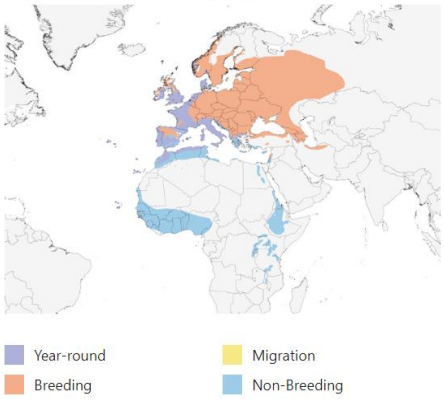
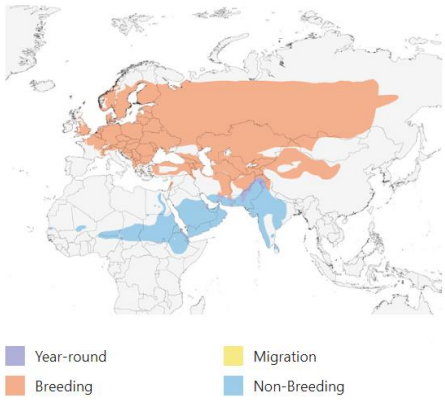
Table 6-1. Migration status of bird species of the project area.

Bird species	Migration status	remarks	Distribution of migrant species[7]
Malachite kingfisher	Non-migrant		
Silvery-cheeked hornbill	Non-migrant		
Crowned hornbill	Non-migrant		
Red-shouldered cuckooshrike	migrant	Breeding visitor, intra-african migrant	
Grey cuckooshrike	Non-migrant		
Yellow-breasted apalis	Non-migrant		
Green-backed camaroptera	Non-migrant		
African olive-pigeon	Non-migrant		

[7] https://birdsoftheworld.org/bow/species/rescus1/cur/introduction

Bird species	Migration status	remarks	Distribution of migrant species[7]
Lemon dove	Non-migrant		
Dusky turtle-dove	Non-migrant		
Red-eyed dove	Non-migrant		
Blue-spotted wood-dove	Non-migrant		
Tambourine dove	Non-migrant		
Broad-billed roller	Migrant	Breeding visitor, intra-African migrant	
Cape crow	Non-migrant		
Thick-billed raven	Non-migrant		
Blue-headed coucal	Non-migrant		
Senegal coucal	Non-migrant		
African emerald cuckoo	Migrant		 
Red-chested cuckoo	Migrant		
Yellow-bellied waxbill	Non-migrant		
Black-and-white munia	Non-migrant		
Abyssinian citril	Non-migrant		
Streaky seedeater	Non-migrant		
Lesser honeyguide	Non-migrant		

Bird species	Migration status	remarks	Distribution of migrant species[7]
Northern puffback	Non-migrant		
Ethiopian boubou	Non-migrant		
African paradise-flycatcher	Migrant		
White-crowned robin-chat	Non-migrant		
White-browed robin-chat	Non-migrant		
Red-capped robin-chat	Non-migrant		
Rueppell's robin-chat	Non-migrant		
Abyssinian slaty flycatcher	Non-migrant		
Northern black flycatcher	Non-migrant		
African Dusky flycatcher	Non-migrant		
White-cheeked turaco	Non-migrant		
Variable sunbird	Non-migrant		
Olive sunbird	Non-migrant		
Tacazze sunbird	Non-migrant		
Scarlet-chested sunbird	Non-migrant		
Non-forest species	Non-migrant		
Chestnut-naped francolin	Non-migrant		
Scaly francolin	Non-migrant		
Nubian woodpecker	Non-migrant		
Abyssinian woodpecker	Non-migrant		
Cardinal woodpecker	Non-migrant		
Western Black-headed batis	Non-migrant		
Grey-headed batis	Non-migrant		
Brown-throated wattle-eye	Non-migrant		
Black-winged lovebird	Non-migrant		
Yellow-fronted parrot	Non-migrant		
Common bulbul	Non-migrant		
Black-billed barbet	Non-migrant		
Yellow-fronted tinkerbird	Non-migrant		

Bird species	Migration status	remarks	Distribution of migrant species[7]
Red-fronted tinkerbird	Non-migrant		
Greater blue-eared glossy starling	Non-migrant		
Sharpe's starling	Non-migrant		
Cinnamon Bracken warbler	Non-migrant		
Common chiffchaff	Migrant		
Willow warbler	Migrant		
Eurasian Blackcap	Migrant		
Lesser whitethroat	Migrant		
Wattled ibis	Non-migrant		
Hadada ibis	Non-migrant		
African hill babbler	Non-migrant		
White-rumped babbler	Non-migrant		
Narina trogon	Non-migrant		
Olive thrush	Non-migrant		

Bird species	Migration status	remarks	Distribution of migrant species[7]
Abyssinian ground-thrush	Non-migrant		
Village indigobird	Non-migrant		
Montane white-eye	Non-migrant		
Rouget's rail	Non-migrant		

The species denoted as migrant exhibit intra-African movement. They also occur all year round in the project area. Some breed in Africa and others in Eurasia (Palearctic migrant), e.g., Lesser whitethroat. Their habitats are woodland or bush, forest edges, homegardens (e.g., the palearctic Blackcap) and open woodland, homegardens, bush (e.g., African paradise Flycatcher). That is the habitats of these migrant species are away from the zone of this high-tension transmission line to trigger electrocution. Similarly, the resident (non-migrant) species habitats are also inside forest, ground and homegardens. As a result, the 230 kV Metu-Mash transmission line will not pose electrocution threat.

Bird species of the project area

Large number of bird species were recorded from the project area. Table 6-2 gives their IUCN conservation status and their population trend[8].

Table 6-2. Bird species of the project area. Keys: LC = Least concern; NT = Near threatened

Common Name	IUCN Conservation status	Population trend	Endemic (Yes or No)	Foraging9 niches	Forest dependency
Malachite kingfisher	LC	Stable	No; it occurs throughout Africa	Aquatic habitat	Low
Silvery-cheeked hornbill	LC	Decreasing	No; it is distributed to Southern part of Africa, e.g. Zimbabwe	Generalist	High
Crowned hornbill	LC	Decreasing	No; other parts of Africa	Canopy	High
Red-shouldered cuckooshrike	LC	Stable	No; occurs in different parts of Africa	Generalist	Medium
Grey cuckooshrike	LC	Stable	No	Mid-high/canopy	Medium
Yellow-breasted apalis	LC	Increasing	N0	Canopy	Medium
Green-backed camaroptera	Not assessed	-	-	-	

8 Some species were not assessed by using IUCN conservation criteria. In this case, their population trend is unknown.

9German Group study od Birds of Gomma & Gera Woredas, Ethiopia.

Common Name	IUCN Conservation status	Population trend	Endemic (Yes or No)	Foraging9 niches	Forest dependency
African olive-pigeon	LC	Decreasing	No	Generalist	Medium
Lemon dove	LC	Stable	No	Ground	Medium
Dusky turtle-dove	LC	Stable	No	Ground	Medium
Red-eyed dove	LC	Increasing	No	Ground	Medium
Blue-spotted wood-dove	LC	Stable	No	Ground	Medium
Tambourine dove	LC	Stable	No	Ground	Medium
Broad-billed roller	LC	Stable	No	Generalist	Medium
Cape crow	LC	Increasing	No	Ground	Non-forest species
Thick-billed raven	LC	Stable	No	Ground	Low
Blue-headed coucal	LC	Stable	No	Generalist	Medium
Senegal coucal	LC	Stable	No	Ground	Medium
African emerald cuckoo	LC	Stable	No	Canopy	Medium
Red-chested cuckoo	LC	Stable	No	Generalist	Medium
Yellow-bellied waxbill	LC	Stable	No	Generalist	Non-forest species
Abyssinian citril	LC	Stable	No	Ground/ understorey	Low
Streaky seedeater	LC	Stable	No	Ground/ understorey	Low
Lesser honeyguide	LC	Stable	No	Understorey/ mid-high	Medium
Northern puffback	LC	Stable	No	Mid-high	Low
Ethiopian boubou	LC	Stable	No	Ground	Medium
African paradise-flycatcher	LC	Stable	No	Canopy	Low
White-crowned robin-chat	LC	Stable	No	Ground	Non-forest species
White-browed robin-chat	LC	Stable	No	Ground	Medium
Red-capped robin-chat	LC	Stable	No	ground	Medium
Rueppell's robin-chat	LC	Decreasing	No	Ground/ understorey	Medium
Abyssinian slaty flycatcher	LC	Decreasing	Yes	Ground	Low
Northern black flycatcher	LC	Stable	No	Generalist	Low
African Dusky flycatcher	LC	Decreasing	No	Generalist	Low
White-cheeked turaco	LC	Stable	No	Mid-high	Medium
Variable sunbird	LC	Stable	No	Generalist	Medium
Olive sunbird	LC	Stable	No	Understorey	Medium

Common Name	IUCN Conservation status	Population trend	Endemic (Yes or No)	Foraging9 niches	Forest dependency
Abyssinian woodpecker	LC	Stable	No	Generalist	Low
Tacazze sunbird					
Scarlet-chested sunbird	LC	Stable	No		Non-forest species
Rouget's rail	NT	Decreasing	Yes	Aquatic	Non-forest species
Swainson's sparrow	Not assessed	-	-	Understorey	Non-forest species
Chestnut-naped francolin	LC	Stable	No	Ground	Medium
Scaly francolin	LC	Decreasing	No	Ground	High
Nubian woodpecker	LC	Stable	No	Mid-high	Non-forest species
	LC	Decreasing	No	Mid-high/ canopy	Medium
Cardinal woodpecker	LC	Stable	No	Generalist	Medium
Western Black-headed batis	LC	Decreasing	No	Mid-high	Low
Grey-headed batis	LC	Stable	No	Mid-high	None-forest species
Brown-throated wattle-eye	LC	Stable	No	Mid-high	Medium
Black-winged lovebird	LC	Increasing	Yes	Mid-high	Medium
Yellow-fronted parrot	LC	Stable	Yes	Med-high	Medium
Common bulbul	LC	Increasing	No	Generalist	Low
Black-billed barbet	LC	increasing	No	Understorey/ mid-high	Low
Yellow-fronted tinkerbird	LC	Stable	No	Generalist	Low
Red-fronted tinkerbird	LC	Stable	No	Generalist	Low
Greater blue-eared glossystarling	LC	Stable	No	Ground	Low
Sharpe's starling	LC	Decreasing	No	Canopy	High
Cinnamon Bracken warbler	LC	Stable	No	Ground	Low
Common chiffchaff	LC	Increasing	No	Generalist	Medium
Willow warbler	LC	Decreasing	No	Canopy	Medium
Eurasian Blackcap	LC	Increasing	No	Mid-high	Medium
Lesser whitethroat	Lc	Stable	No	Generalist	Low
Wattled ibis	LC	Unknown	No	Ground	Non-forest species
Hadada ibis	LC	Increasing	No	Ground	Low
African hill babbler	LC	Decreasing	No	Mid-high	High

Common Name	IUCN Conservation status	Population trend	Endemic (Yes or No)	Foraging9 niches	Forest dependency
White-rumped babbler	LC	Stable	No	Ground	Low
Narina trogon	LC	Stable	No	Mid-high	High
Olive thrush	LC	unknown	No	Ground	Medium
Abyssinian ground-thrush	LC	Decreasing	No	Ground	High
Village indigobird	LC	Stable	No	Ground	Non-forest species
Montane white-eye	Not assessed	-	No	Mid-high	Medium

The major threat to the conservation of the bird species of the project area are continuous decline in extent, area and quality of their habitats. Most of the bird species if the project area are of least conservation concern (Figure 6-17). Their foraging niches are also different, i.e., their range from ground to canopy of big tree species like *Cordia Africana, Albilzia gummifera, Pouteria adolfi-friderici* and etc. Furthermore, these bird species have different trend of their population status. Over 25% of the bird species of the project area has a generalist feeding niches (Figure 16). Only about 9% of them feed on their respective diet at the canopy of the forest. Furthermore, the mid-high foraging niche is about 18% but the combination of mid-high, understorey and canopy is very small (less or equal to 4%). On the other hand, a ground foraging niche accounts for the majority of the bird species (over 34%).

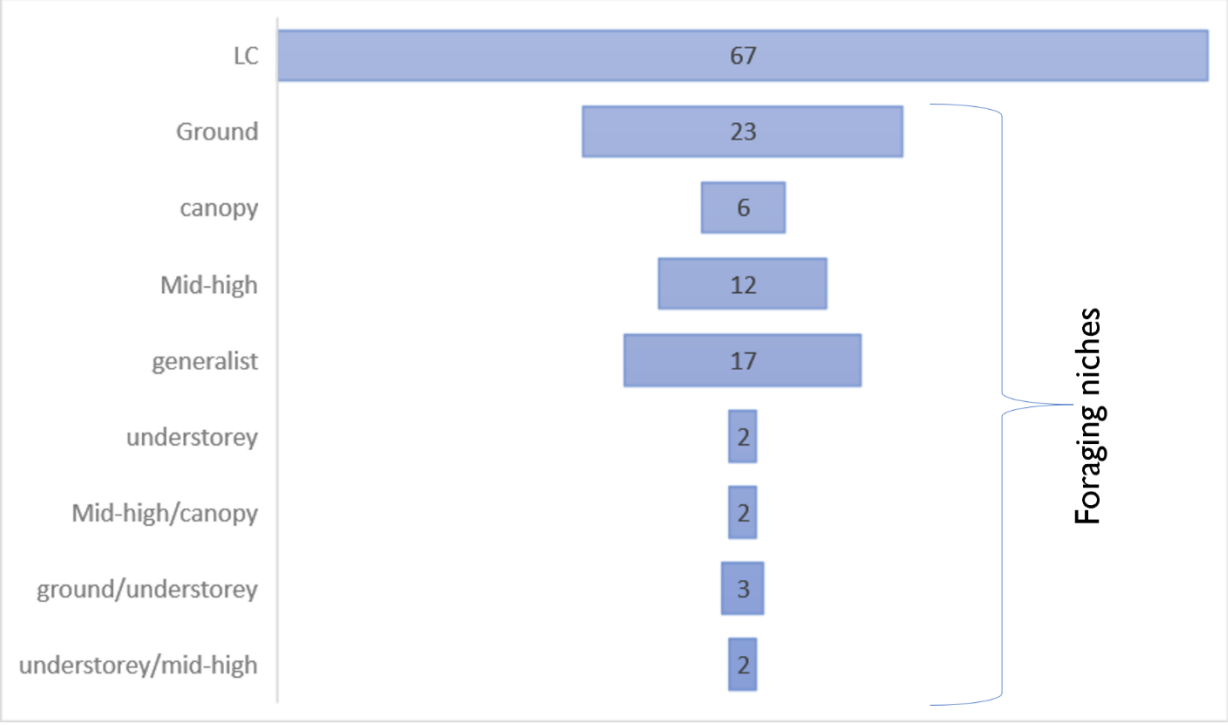


Figure 6-17. IUCN conservation status and foraging niches of bird species of the project area.

The bird species of the project area has shown different magnitude of forest dependency (Figure 6-18). Whereas over 34% of the bird species show a medium level of dependency on the forest, about 10% of them are highly dependent on the forest. There are also non-forest species, which were mainly recorded from home gardens and cultivated fields.

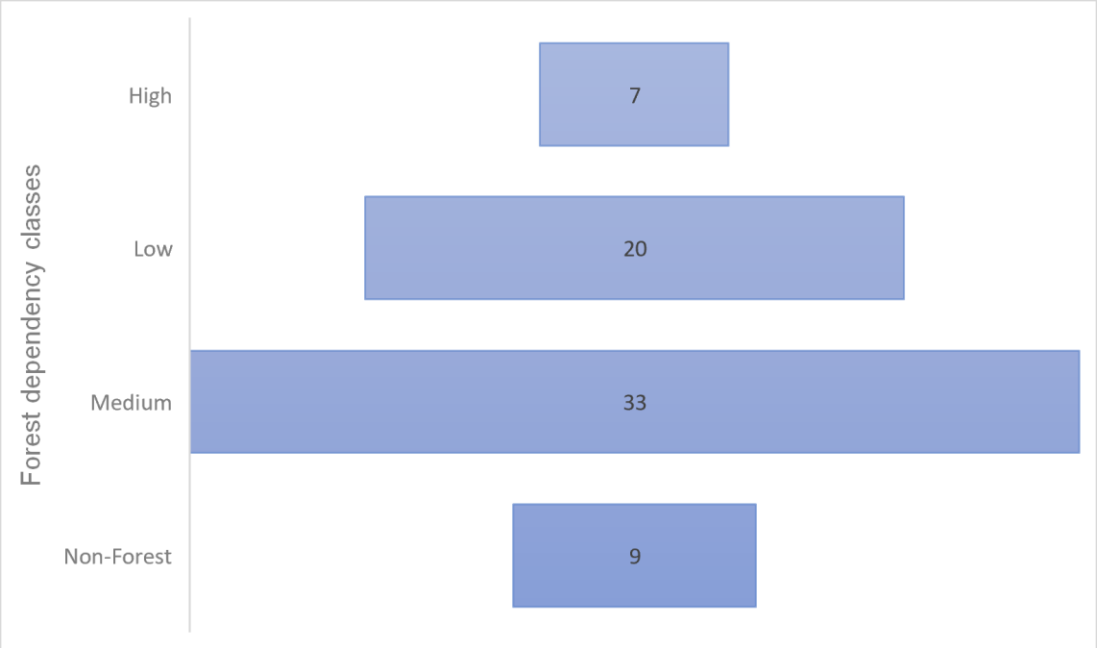


Figure 6-18. Forest dependency classes of bird species of the project area

D. Critical natural and modified habitat Assessment

Critical habitats are areas that contain features that are vital for conservation of species. These are habitats of conservation concern and require targeted management and conservation. The IFC Performance Standard 6 define critical habitats as "Habitat is defined as a terrestrial, freshwater, or marine geographical unit or airway that supports assemblages of living organisms and their interactions with the non-living environment." These habitats are of high biodiversity value10 and meet the one or more of the following criteria11. These criteria are:

i. *Criterion 1:* Critically endangered (CR) and/or Endangered (EN) species

ii. *Criterion 2:* Endemic or restricted-range species

10 *http://www.ifc.org/wps/wcm/connect/115482804a0255db96fbffd1a5d13d27/ PS_English_2012_Full-Document.pdf?MOD=AJPERES*

11 *http://www.ifc.org/wps/wcm/connect/a359a380498007e9a1b7f3336b93d75f/ Updated_GN6-2012.pdf?MOD=AJPERES*

iii. *Criterion 3:* Migratory or Congregatory species

iv. *Criterion 4*: Highly threatened and/or unique ecosystem

v. *Criterion 5:* Key evolutionary processes

Criteria 1-3 are concerned with species occurrence and criteria 4 & 5 are about ecosystem. Where the project falls inside IUCN's Protected Areas Categories 1a, 1b and II, IFC guidance note 6 (Biodiversity Conservation and Sustainable Natural Resources Management, G9 stipulates that a Biodiversity Management Plan to be prepared. A critical habitats assessment will be carried out in such case. The project area falls under IUCN's Protected Areas Category VI (protected area with sustainable use of natural resources). Category VI protected areas12:

- Conserve ecosystems and habitats together with associated cultural values and traditional natural resources management system;
- Large with most area in natural conditions and etc.

The primary objective of Category VI is o protect natural ecosystems and use natural resources sustainably, when conservation and sustainable use can be mutually beneficial. G10 of the IFC guidance note 6 also mentioned provisions for Key Biodiversity Areas (KBA) including Important Bird Areas.

The IFC Standards provide detailed descriptions for the Tiers of Critical Habitats. These Tiers are based on the degree of vulnerability and irreplaceability. Qualitative and quantitative thresholds are provided to assign Tier 1 or Tier 2 to Critical Habitats (Table 6-3).

Table 6-3. Qualitative thresholds for Critical Habitats (IFC Performance Standard 6, 2012)

Tier 1 Critical Habitat	Tier 2 Critical Habitat
Criterion 1: Occurrence of Critically endangered (CR) or Endangered (EN) species	
a. Habitat required to sustain ≥ 10 % of the global population of a CR or EN species/subspecies where there are known, regular occurrences of the species and where that habitat could be considered a Discrete Management Unit (DMU) for that species. b. Habitat with known, regular occurrences of CR or EN species where that habitat is one of 10 or fewer discrete management sites globally for that species	c. Habitat that supports the regular occurrence of a single individual of a CR species and/or habitat containing regionally important concentrations of a Red-listed EN species where that habitat could be considered a discrete management unit for that species/subspecies. d. Habitat of significant importance to CR or EN species that are wide-ranging and/or whose population distribution is not well understood and where the loss of such a habitat could potentially impact the long-term survivability of the species. e. As appropriate, habitat containing nationally / regionally important concentrations of an EN, CR or equivalent national / regional listing

12 https://www.iucn.org/theme/protected-areas/about/protected-areas-categories/category-vi-protected-area-sustainable-use-natural-resources

Tier 1 Critical Habitat	Tier 2 Critical Habitat
Criterion 2: Occurrence of endemic and/or Restricted-Range species	
a. Habitat known to sustain ≥ 95% of the global population of an endemic or restricted-range species where that habitat could be considered a discrete management unit for that species (e.g. a single-site endemic).	b. Habitat known to sustain ≥ 1% but < 95% of a global population of an endemic or restricted-range species where that habitat could be considered a discrete management unit for that species, where data are available and / or based on expert judgment.
Criterion 3: Occurrence of Migratory and/or Congregatory species	
a. Habitat known to sustain, on a cyclical or otherwise regular basis, ≥ 95% of a global population of a migratory or congregatory species at any point of the species' lifecycle where that habitat could be considered a discrete management unit for that species	b. Habitat known to sustain, on a cyclical or otherwise regular basis, ≥ 1% but < 95% of the global population of a migratory or congregatory species at any point of the species' lifecycle and where that habitat could be considered a discrete management unit for that species, where adequate data are available and / or based on expert judgment. c. For birds, habitat that meets Birdlife International's Criterion A4 for congregations and / or Ramsar Criteria 5 or 6 for Identifying Wetlands of International Importance. d. For species with large but clumped distributions, a provisional threshold is set at ≥ 5% of the global population for both terrestrial and marine species e. Source sites that contribute ≥ 1% of the global population of recruits.

Criterion 4 focuses on ecosystems that contain biome-restricted assemblage of organisms and threatened or recognized for their high conservation values. No quantitative thresholds were given in IFC Performance Standard 6. The project crosses the transition zones (highly altered and converted landscape) of Yayu Forest Coffee and Sheka Forest UNESCO Biosphere Reserves. There are National Forest Priority Areas embedded in the RoW of the project, but these areas were converted to agriculture long time ago. Therefore, the project will not trigger Criterion 4.

Criterion 5 focuses on landscape of evolutionary significance in terms of enhancing evolutionary processes. The temperature and humidity regime and exposure to sun radiation is different across a landscape. This unique landscape configuration is important to facilitate *in-situ* climate change adaptation and innovations of new characters for organisms to withstand global warming. During the ESIA study, such unique features were not recorded along the RoW of the project. Therefore, the Project will not trigger Criterion 5.

Fifty-Five biodiversity features have been assessed for critical habitats under IFC Performance Standard 6 (Table Annex VI). Details of the findings of the Critical Habitats Assessment are described in this Annex.

A total of 55 biodiversity aspects have been assessed for critical habitats in the project area. There are endemic species and cosmopolitan species in the project area. The project also crosses cultivated areas and small sections of the transition zone of UNESCO Biosphere Reserves (Yayu and Sheka Forest). Since the species occurring in the project area are widely distributed in

Ethiopia, throughout Africa and some Asian countries, IUCN Critical Habitats Criterion 1 is not triggered by this project. Furthermore, the project area is also not critical habitats that determine a long-term persistence of the species. Table 6-4 gives a summary of the Critical Habitats Assessment for VU and EN species.

Table 6-4..Summary of Critical Habitats Assessment

Trigger species/Habitat	Tier	Remarks
Criterion 1: Occurrence of Critically endangered (CR) or Endangered (EN) species		
Clarke's Banana Frog Status: EN	The RoW is not Critical Habitats	This species have been recorded from relatively undisturbed areas and intact forest. The RoW is, thus, not its breeding area. It is also a widely distributed species. In view of these findings, the occurrence of this species inside Sheka Forest does not trigger Critical Habitats.
Criterion 2: Occurrence of endemic and/or Restricted-Range species		
There are 6 endemic species, i.e., 1 plant, 2 amphibians, 1 reptile 1 rodent, 1 Bat species (Annex VI).		
Yalden's Desmomys	It is widely distributed	It occurs in humid Afro-montane Forest dominated with Ficus sur with coffee undergrowth. It is not common in the project AOI.
Scott's Mouse-eared Bat	It is widely distributed	It mainly occurs in relatively less disturbed Afromontane forests and shrublands. It is not common in the project AOI.
Clarke's Banana Frog	It is widely distributed	It occurs mainly in vegetations around pools inside forests and forest edges as well. It also breeds in marshy areas inside emergent vegetation. It is not common in the project AOI
Dime Forest Frog	It is widely distributed	It mainly occurs in forest and forest patches. It is not common in the project AOI
Bearded Ethiopian Montane Chameleon	This species has a wide geographical range	It occurs inside forest areas and forest patches. The project AOI is not its area of concentration and thus, it is not common.
Erythrina brucei	It is widely distributed	It occurs at the edge Afro-montane Forest and woodland. The project AOI is not a high concentration of its populations.
Criterion 3: Occurrence of Migratory and/ Congregatory species There is no species that triggers Criterion 3.		
Criterion 4. Presence of Highly threated and/or unique ecosystems There is no species that triggers Criterion 4		
Criterion 5: Key Evolutionary Processes The findings during the ESIA study do not show any species triggering Criterion 5		

E. Ecosystem services

The project area crosses different land use/land cover types. The agricultural system of the project area is a mixed system where the local communities grow crops and practice coffee-agroforestry system. Noteworthy is that the local livelihoods depend on the ecosystem services derived from forested areas.

The forests of the project area provide the following ecosystem services.

- *Provisioning services*. These include timber products for construction purposes, non-timber forest products such as honey, spices and water supply.
- *Regulating services*. The forests sequester CO2, which an important regulatory factor for climate change. The forests also regulate soil erosion.
- *Cultural services*. Forests aesthetic values and visual impressions promoting spiritual values of the local communities.
- *Supporting services*. Forest provides habitats for important species for enhancing agricultural production, i.e., habitats for natural enemies of pests, pollinators and etc.

6.2. Physical baseline environment

Topography

The slope of the project area ranges from almost flat t0 over 45% (Figure 6-19). The slope of the Right-of-Way of the Metu-Masha 230 kV power transmission line passes through different slope, which falls below 25%.

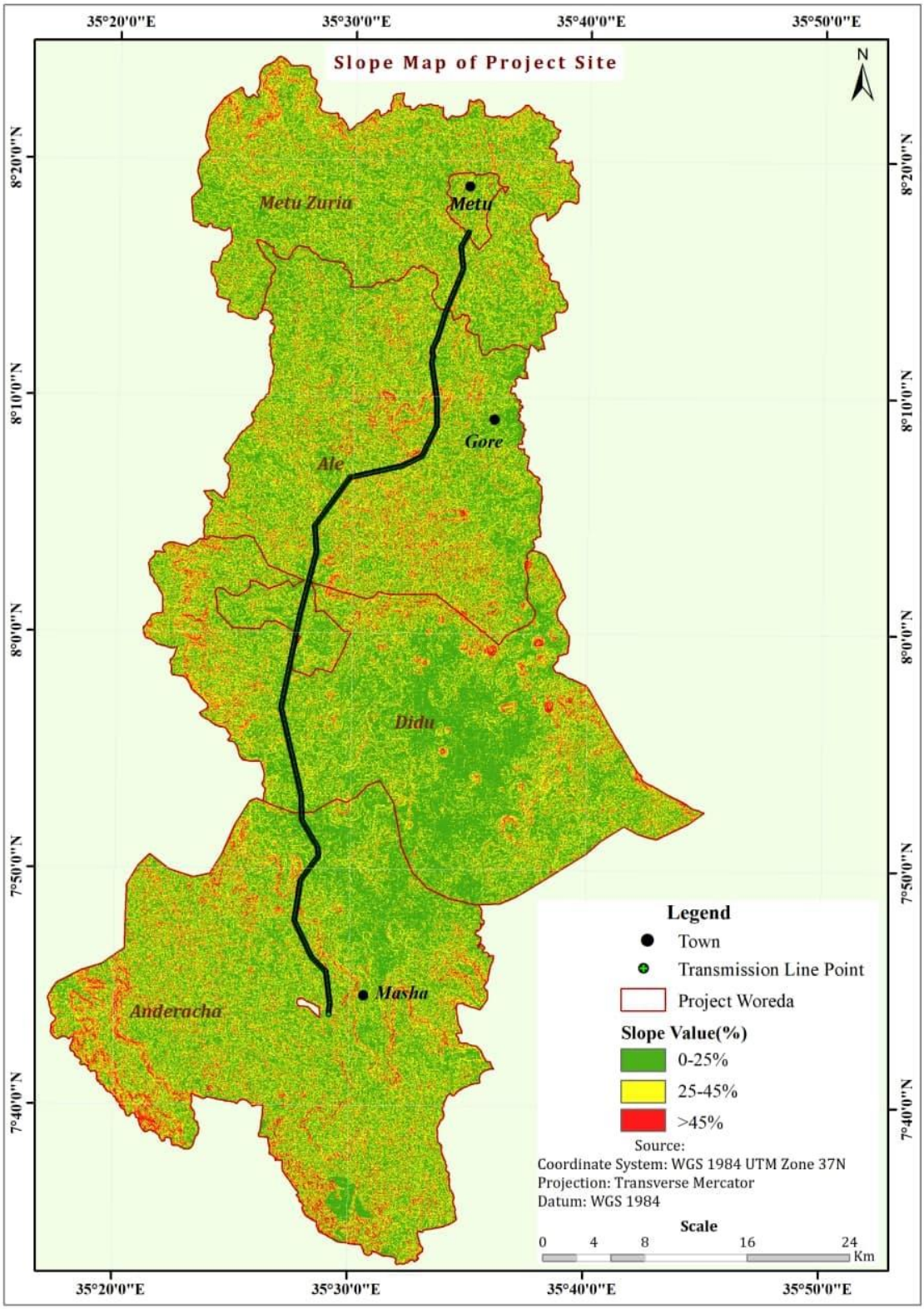


Figure 6-19. Slope map of the project area

Weather conditions

Masha gets rainfall in all months (Figure 6-20). It gets more than 15 days in a month for 10 months. The rainfall is relatively smaller in January and February, where there are only 10 days of rain in each month. The day-time temperature of Masha ranges from 21° C (July) – 31° C (February). The night-time temperature ranges from 12° C for 4 months - 16° C (February and March). Masha area is generally the wettest part of Ethiopia and harbours the Moist Afro-montane forests of the country.

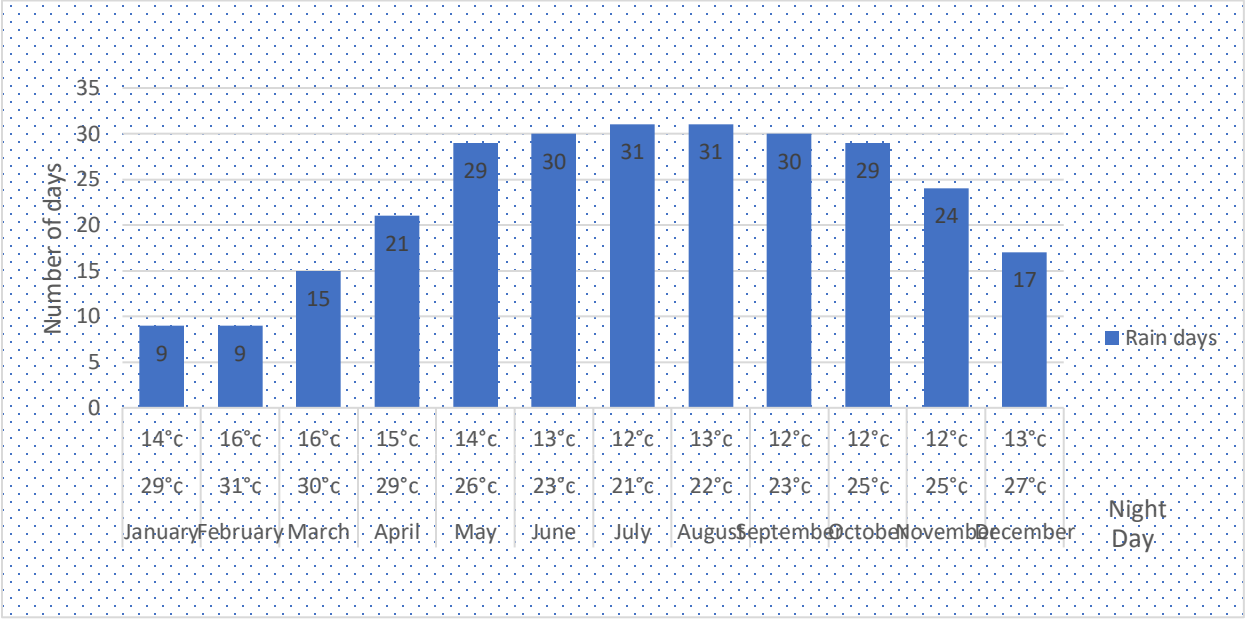


Figure 6-20. Average weather condition of Masha (data sources: https://www.worldweatheronline.com/masha-weather-averages/et.aspx)

Metu

Metu gets rainfall for 9 months with at least 15 days in each month (Figure 6-21). Months from May – October are with the highest number of rain days. Relatively less rain days were recorded for January and February. With regard to temperature, the coldest night characterizes 4 months, i.e., July, September, October and November. The highest day-time temperature was recorded in February (31° C) and followed by March (30° C). The average temperature in January and April is 29° C. Similar rainfall and temperature patterns characterize Gore area as well.

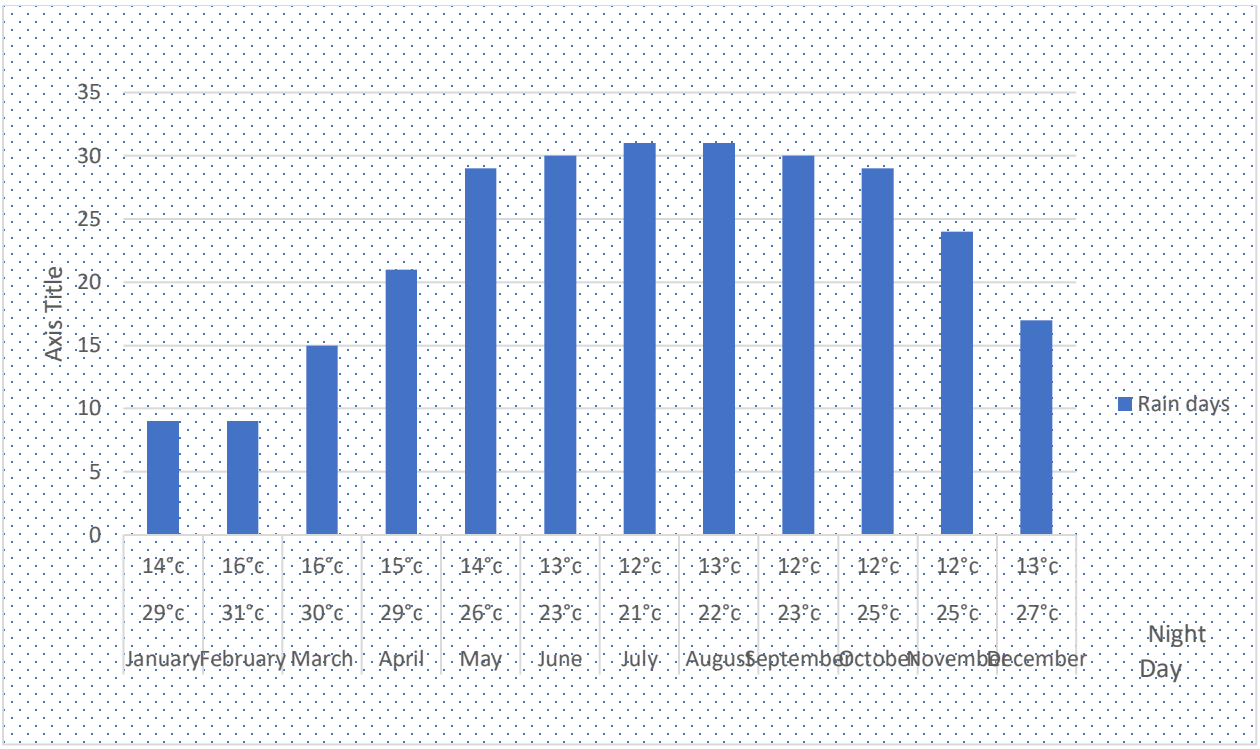


Figure 6-21. Average weather condition of Metu (data sources: https://www.worldweatheronline.com/masha-weather-averages/et.aspx)

Elevation

The elevation of the project area ranges from 1200 – 2650 masl. (Figure 6-22). The Metu – Masha 230 kV single circuit transmission line project crosses its highest elevation around Gore area. It has the lowest elevation at and around Masha Town.

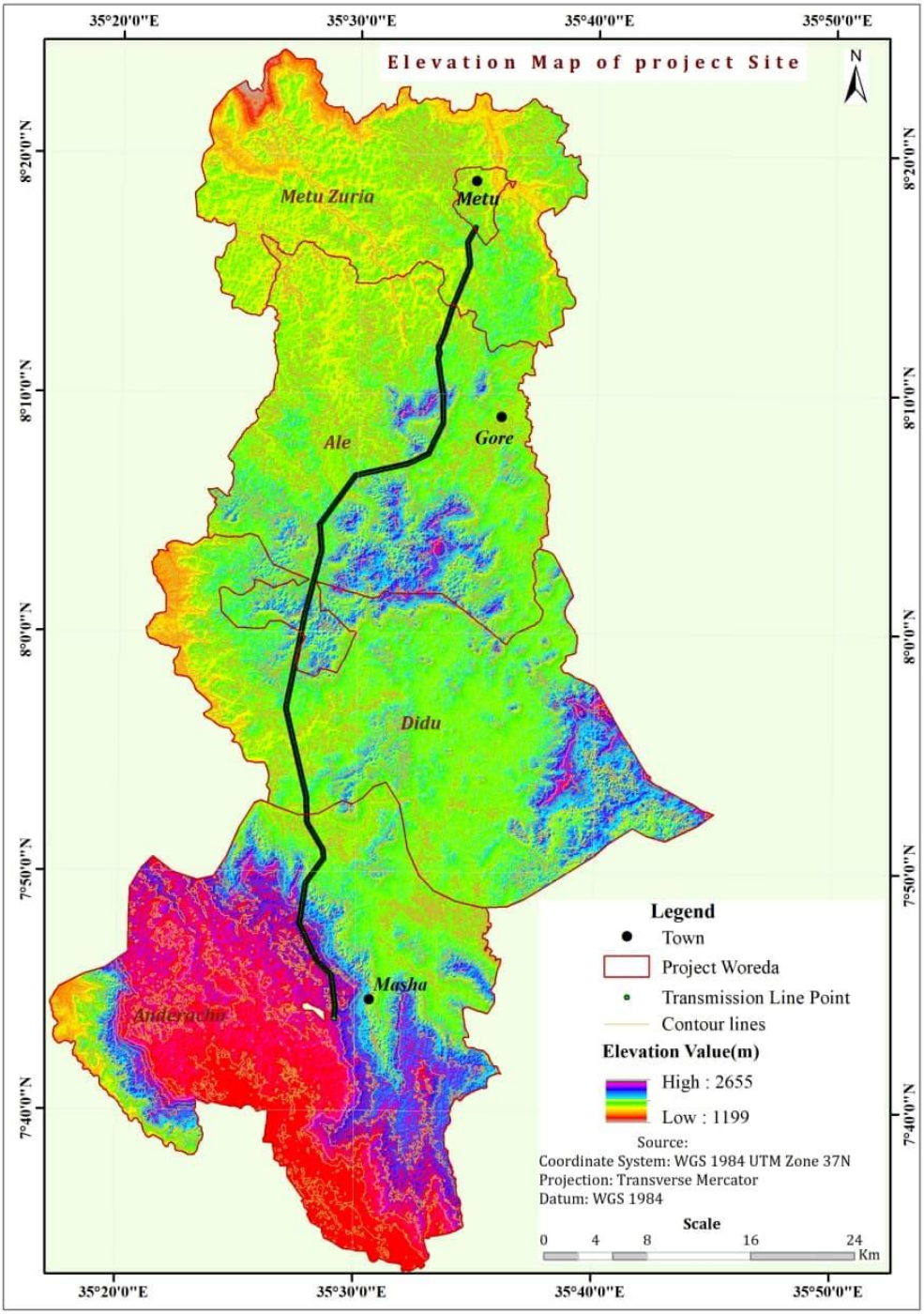


Figure 6-22. Elevation map of the project area

Geology

The geology of the project area was comprised of four different types of formations in different period (Figure 6-23). These are Archaen, late Eocene – late Oligocene, Oligocene – Miocene and

quaternary undifferentiated. The Metu – Masha 230 kV power transmission line crosses two of these geological formations, i.e., the Archean and the Oligocene – Miocene.

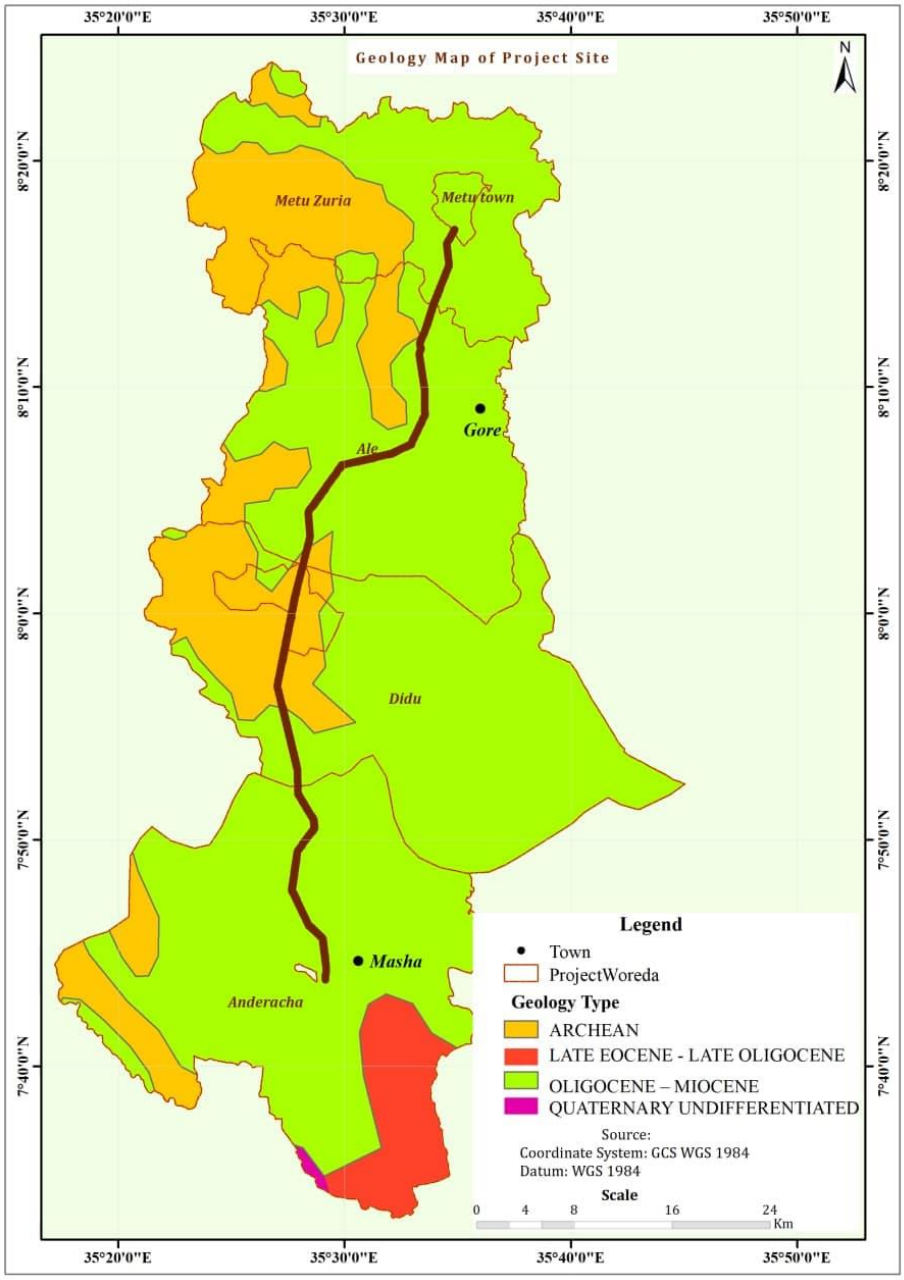


Figure 6-23. Geological map of the project area

Soil

There are seven soil types in the project area (Figure 6-24). But the Metu – Masha 230 kV single circuit transmission line project crosses only two soil types. These are Nitisols and Gleysols.

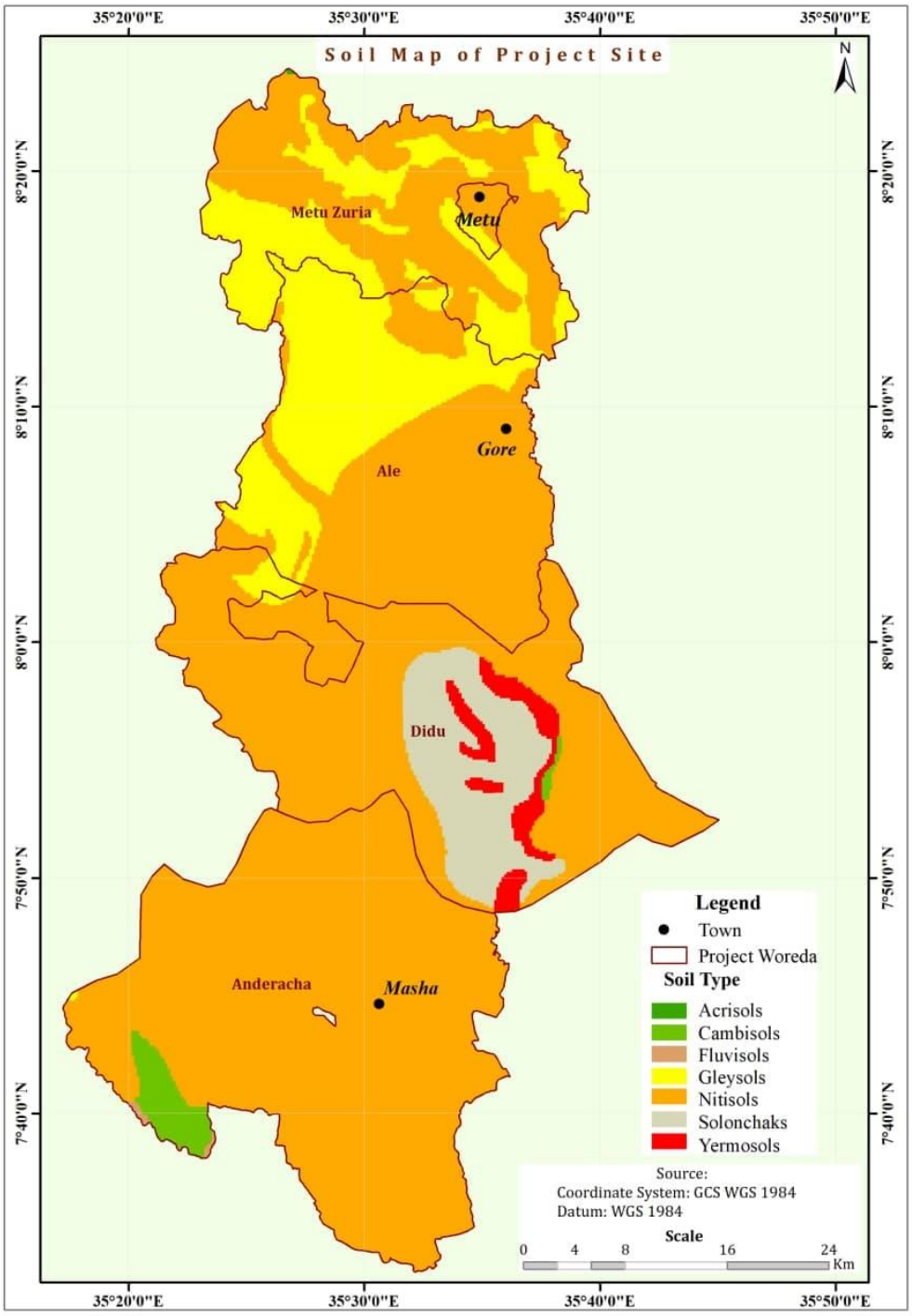


Figure 6-24. Soil map of the project area

The general overview of soil erodibility in Ethiopia is given in Figure 6-25. The soil erodibility value of Ethiopia is low. Five erodibility ranges were produced for Ethiopia. The soil erodibility (susceptibility the soil to erosion and the rate of runoff) of the project area falls in the 0.001 – 0.135.

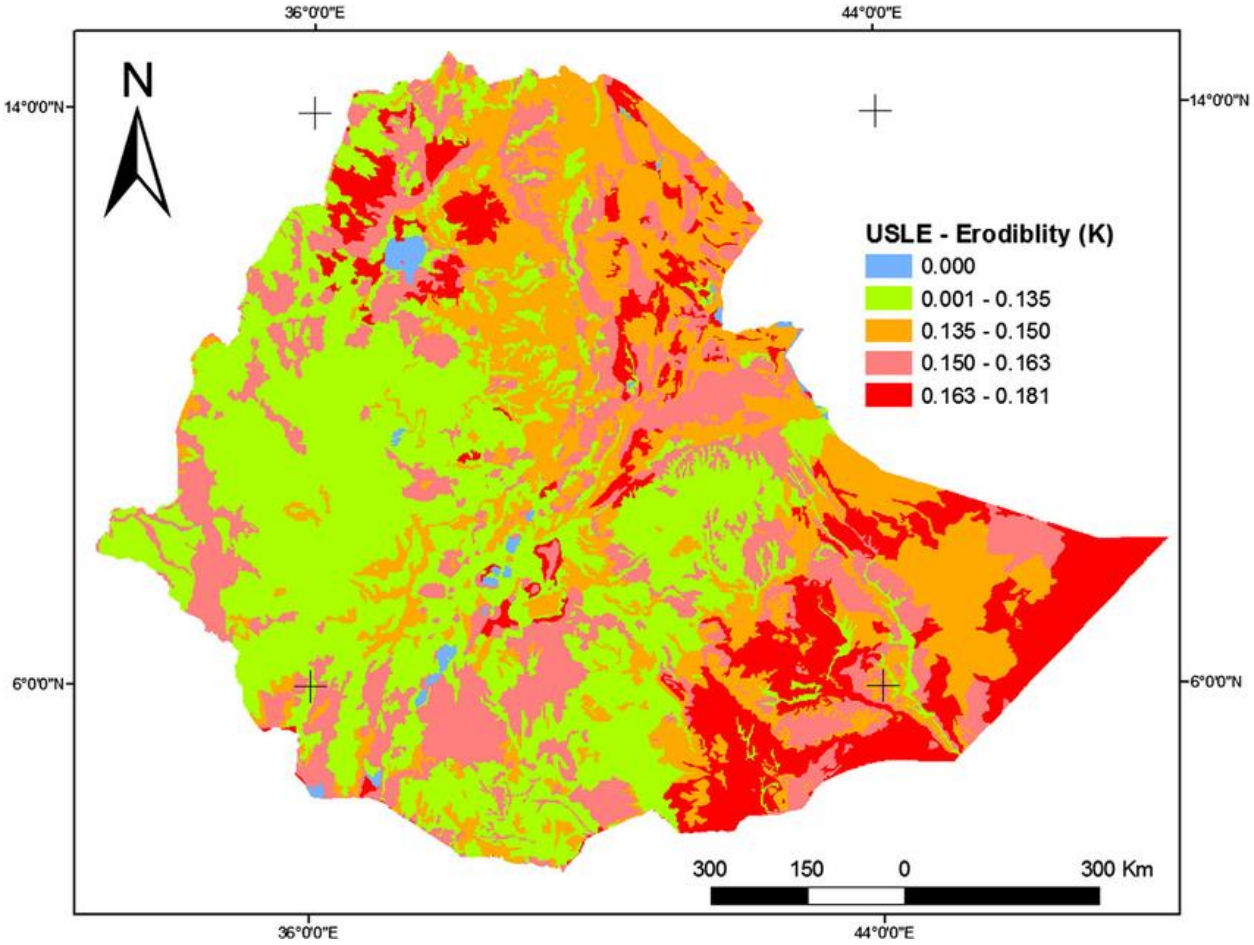


*Figure 6-25. Soil erodibility in Ethiopia. (source: Berhanu et al., 2013: GIS-based hydrological zones and soil geo-database of Ethiopia; Catena 104: 21-31_*

Air quality

The air quality of the project area is mainly dominated by naturally occurring sources. Examples are naturally occurring whirlwind inducing dust emission to air. There are not any development activities affecting the air quality of the project area. Therefore, the baseline air pollution due to dust emission is considered as a function of natural event (e.g., strong wind) and almost absent in the project area.

Noise quality

There are no conditions that emit high noise. The ambient noise quality is characterized as limited to the songs of birds and noise from wildlife.

Land use and land cover

Five major land use/land cover types were recorded in 1990 (Figure 6-26 & Figure 6-27). The proportion of the forest within 235,016 ha of the area along the entire stretch of the project was over 140,000 ha in 1990. On the other hand, the area covered by farmland was well below 40,000 ha in the same year. Furthermore, plantation in the same area has covered less than 2,000 ha in 1990.

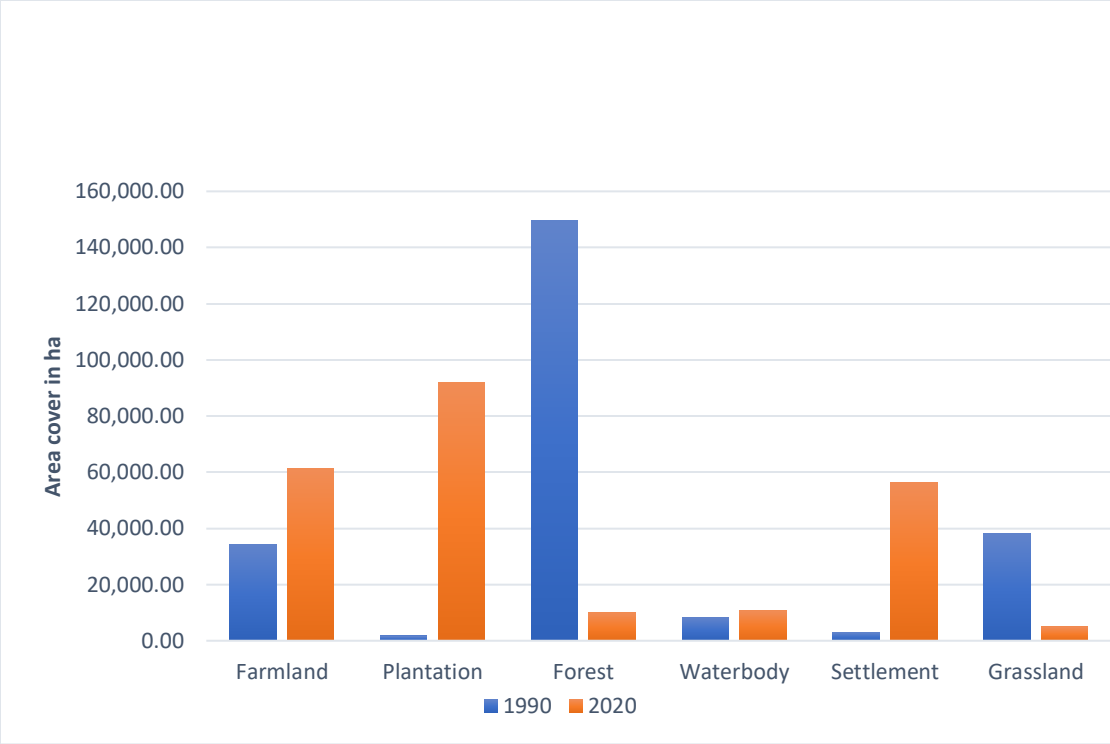


Figure 6-26. Land use/land cover change in 1990 and 2020.

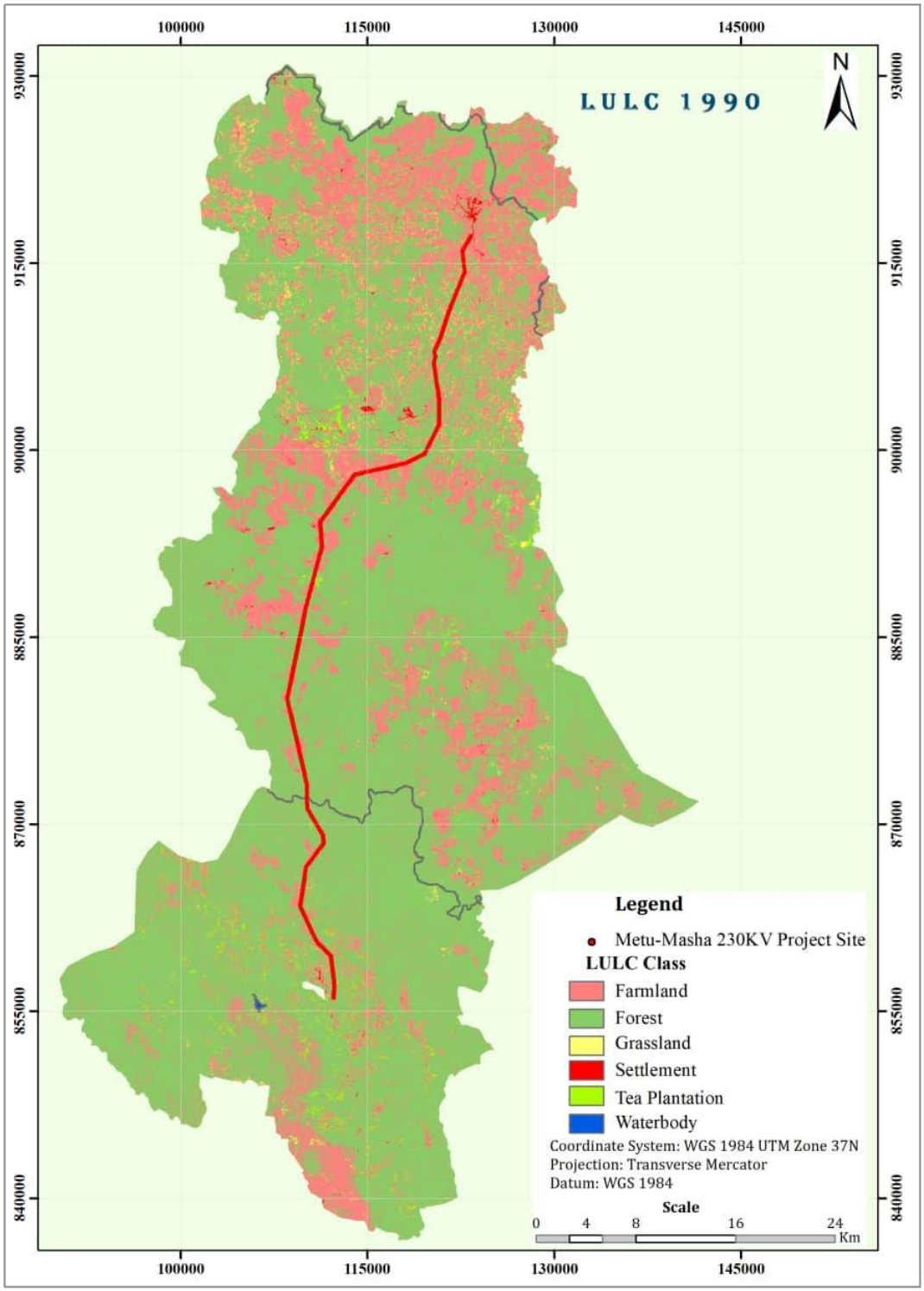


Figure 6-27. Land use/land cover conditions of the project area in 1990.

In 2020, there is a significant increase in the farmland and a decrease in the area cover of forest (Figure 6-28). Farmland has increase by about 39% while forest has reduced by 38.5% compared to their aerial cover in 1990. Furthermore, there is also an increase in the plantation of exotic tree species.

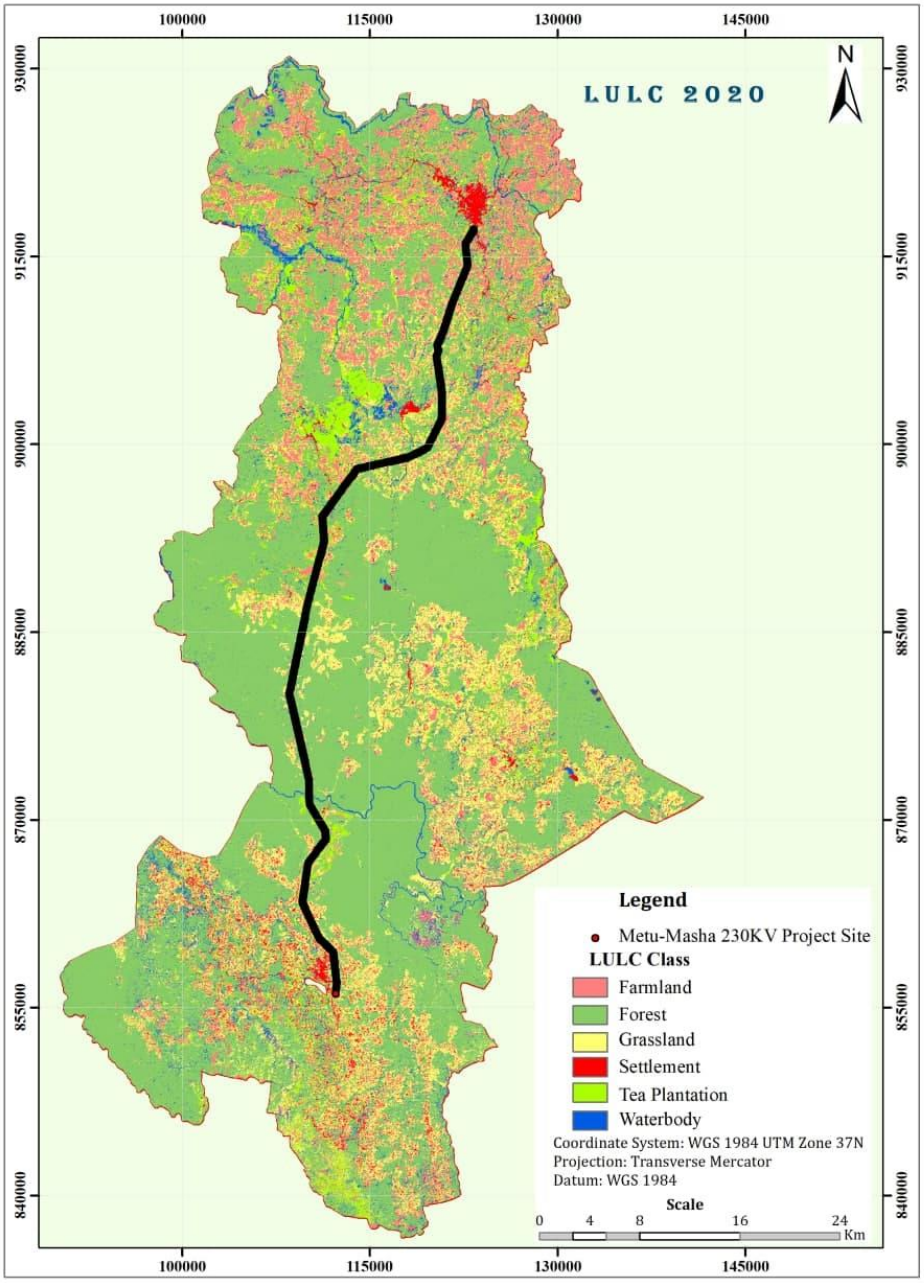


Figure 6-28. Land use/land cover conditions of the project area in 2020.

6.3. Socio-economic baseline environment

6.3.1. Location and administrative organization

The proposed Metu – Masha 230 kV single circuit transmission line project is located in South-west Ethiopia Peoples and Oromia regional states of Ethiopia. The South-west Ethiopia Peoples and Oromia regions are two of the eleven Regional National States of Ethiopia. The regions are structured into Special Zones/Zones, Special Woredas/Woredas and kebeles.

Administratively, the proposed project overlaps two administrative zones and four Woredas. Accordingly, Table 6-5 shows lists of administrative set-ups by regions, zones, woredas and *kebeles*.

Table 6-5. Lists of administrative set-ups affected by the envisaged project

S\No	Region	Zones	Woredas	# of Kebeles covered by the project		
				Rural	Urban	Total
1	Oromia	Ilubabor	Metu	3	2	5
			Didu	2	-	2
			Alle	1	-	1
2	South-west Ethiopian Peoples	Shaka	Masha	3	2	5
Total		**2**	**4**	**9**	**4**	**13**

Source: Field Survey, 2021

6.3.2. Demographic Profile

Knowing the number of populations provides the basis to understand and to design the development projects like electric power transmission line and distribution substations. It is also important for the wise use of resources according to the size of population. The total population of Illubabor zone is estimated to be 987, 191 both in rural and urban areas. Of this most of the population, i.e., 858,423 (87%) lives in rural parts of the zone (**Table 6-6**). This implies that if the project electrifies the rural parts of the area, it will have more customers as it is a cash crop producing area.

Table 6-6. Population profile of the project area

Zones, towns and woredas	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Illubabor Zone	64,757	64,012	128,768	428,977	429,446	858,423	493,734	493,458	987,191
Metu town	-	-	-	-	-	-	-	-	-
Metu woreda	-	-	-	-	-	-	-	-	89,830
Ale woreda	7,729	7,748	15,477	30,270	30,338	60,608	37,999	38,086	76,085
Didu woreda	4,324	3,753	8,077	21,689	20,266	41,955	26,013	24,019	50,032
Sheka zone	-	-	-	-	-	-	124,772	123,102	247,874
Masha town	4,680	4,651	9,332	-	-	-	-	-	-
Masha woreda	6,594	7,119	13,713	19,546	20,218	39,764	26,140	27,337	53,477

Total populations in project affected woredas/towns	71,351	71,131	142,481	493,355	494,662	988,017	618,506	616,560	1,235,065

Source: Socio-economic Profile Report of the Respective Zones, 2021

Table 6-7 shows that gender wise the population of the project area is almost equally distributed indicating that half segments of the community are women population and they should get emphasis in the project. The average family size is 5 persons in the zones. The dependency ratio ranges from 30.01% at zonal level to 94.13% in Alle woreda in Illubabor zone. The later shows that 94 inactive persons depend on every 100 economically active /productive/ people in the area. Table 3 also shows that the population density of the zone varies from 52.1 people per KM^2 in Didu woreda to 133 people per KM^2 in Ale woreda. As to housing characteristics, 99% of housing types in the urban areas are made of corrugated iron roofing while in rural areas they are entirely tukuls, i.e., almost 85%.

Table 6-7. Percentages of project area population by gender and place of residence, density, household size and dependency ratio

Zones, towns and woredas	*Percent of male population*	*Percent of female population*	*Percent of urban population*	*Percent of rural population*	*Population density*	*Household size*	*Dependency ratio*
Illubabor Zone	50	50	13	87	90.4	5	30.01%
Metu town	-	-	-	-	-	-	-
Metu woreda	-	-	-	-	-	-	-
Ale woreda	49.9	50.1	20.3	79.7	133.5	5	94.13
Didu woreda	52	48	16.1	83.9	52.1	5	
Sheka zone	50.3	49.7	19.1	80.9	-	5	-
Masha town	-	-	-	-	-	-	-
Masha woreda	48.1	51.9	25.6	74.4	-	5	-

Source: Socio-economic Profile Report of the Respective Zones and own calculations, 2021

6.3.3. Ethnic groups of the project area

There are several ethnic groups in Ethiopia based on the national census of the Central Statistical Agency of Ethiopia (2007). These are presented below.

Illuabor Zone:

- Oromo
- Amhara
- Tigrayan

But the ethnic groups in the project area are Oromo and some Amhara.

Sheka Zone:

- Shakacho
- Amahara
- Oromo
- Kafficho
- Bench
- Majang

But the ethnic groups in the project area are Shakacho, Oromo and Amhara.

6.3.4. Livelihood strategies and economic activities

Agriculture

Agriculture is the dominant livelihood strategy in Ilubaror and Sheka zones in which the project is going to be implemented. More specifically, in Illubabor zone 87% of the population are engaged in the agricultural sector which is greater than the national average. In so doing there is crop production and livestock rearing as the major economic activities for subsistence means of livelihood in the project affected areas particularly in the rural areas. As to crop production, there are annual and perennial crops grown in the area. The major annual crops produced in the area are cereals, pulses and oil seeds. Cereals mainly include teff, sorghum and maize. Table 6-8 shows that 115,951 hectares of land were covered by cereals in 2020 with an average productivity of nearly 39 quintals per hectare in Illubabor zone. The major perennial or cash crops are coffee, mango, lemon, orange, papaya, banana, avocado, sugarcane, and chats. Table 6-8 also shows that 12,620 hectares of land were covered by cash crops in 2020 with an average productivity of nearly 133 quintals per hectare in Illubabor zone. Table 6-8 also shows that 9041hectares of land were covered by cereals in 2020 with an average productivity of 35 quintals per hectare in Sheka zone. The major perennial or cash crops are coffee, lemon, banana, and apple. Table 6-8 also shows that 2,626 hectares of land were covered by cash crops in 2020 with an average productivity of 200 quintals per hectare in Sheka zone. Farmers in the proposed project area produce crops using traditional farming system mainly by hoe cultivation system using oxen for ploughing. Moreover, farmers are not using different machineries important for their mainly crop production and preparation due to lack of power. However, if the proposed project is going to be implemented in the area, farmers can also use modern technologies to produce surplus and earn additional income from their crop production. Though most farmers practice sedentary crop production there is also shifting cultivation which involves clearing of the forest and burning the thrash before cropping. This practice affects the forest since after some years of cropping the land is left fallow in order to restore the fertility of soil and farmers will clear other areas of forests for similar purposes of cultivation and such practice continues.

Table 6-8. Major crops average productivity in quintals per hectare

Illubabor Zone			Sheka Zone		
Major crops Cultivated	Cultivated area in hectare	Average productivity in quintals per hectare	Major crops Cultivated	Cultivated area in hectare	Average productivity in quintals per hectare
Cereal	115951.69	38.84	Cereals	9041	35
Pulses	9,982	15.02	Pulses	4493	50
Oil Crops	3,351.9	7.62	-	-	
Cash crops	12,620.71	132.29	Cash crops	2626	200

Source: Project Affected Zones Planning and Economic Development Offices, 2021

Table 6-9 shows Illubabor and Sheka Zone farmers land holding size and more than 60% of farmers own less than 2 hectares in Illubabor zone. On the other hand, average household size of the zone is 5 and there is low productivity per hectare in the proposed project areas which in turn affects their endeavour of fulfilling livelihood security. This shows that modern technologies should be introduced and practiced in order to increase productivity through different mechanisms. One of the important infrastructures in introducing and practicing modern technologies is the supply of power. Hence, the implementation of this project will highly benefit the local communities.

Table 6-9. Farmers land holding size in Illubabor and Sheka zones

Illubabor Zone			Sheka zone		
Land holding size	Number of farmers	Percent	Land holding size	Number of farmers	Percent
< 1	36,105	26.20	< 1	44,379	26.6
1.01 - 2	47,816	34.70	1.01 - 2	69,688	41.7
2.01 - 3	28,526	20.70	2.01 - 3	26,680	16.0
3.01 - 4	16,992	12.33	3.01 - 4	13,731	8.2
4.01 - 5	8,365	6.07	4.01 - 5	12,553	7.5
Total	137,804	100	Total	167,031	100

Source: Project Affected Zones Planning and Economic Development Offices, 2021

Livestock

Table 6-10 shows that in 2020 there are about 1,369,585*cattles*, 682,566 *sheep*, 304,598 *goats*, 2,496,401 *chickens,* 115,164 *horses,* 32,973 *mules*, and 87,521 *donkeys* in Illubabor zone. There are about 1,363,080 *cattle*, 902,561 *sheep*, 402,476 *goats*, 1,577,535 *chickens,* 115,501 *horses,* 5,111 *mules*, and 2,829 *donkeys* in Sheka zone (Table 6). Livestock raised for various economic and social reasons such as transport, and food (milk, meat, eggs), and as a source of cash income for the farming households. Cattles in the project area are used primarily for dairy and meat production, as well as, farm traction. Mules and donkeys are most frequently used for transportation. Goats, sheep and poultry and their products are used as households' income sources and expenditure. However, contrary to huge number of the livestock population in the zones, the yield obtained is very low due to shortage of feed, lack of improved breeds and veterinary services.

Table 6-10. Illubabor and Sheka Zones Number of Livestock (Animals) in 2020

Type of animals	Cattle	Goats	Sheep	Horses	Mules	Donkey	Chicken
Illubabor Zone	1,369,585	304,598	682,566	115,164	32,973	87,521	2,496,401
Sheka Zone	1,363,080	402,476	902,561	115,501	5,111	2,829	1,577,535

Source: Project Affected Zones Planning and Economic Development Offices, 2021

Dependence on natural resources for livelihoods

Participants during public consultation have indicated that the local communities have preserved the forest and they get 50% and the government gets 50% from the forest income. Accordingly, the forest is one means of livelihood for the people living the project area. Moreover, households use the forest to produce honey using traditional beehives. Table 6-11 shows honey production in kilograms for two years in which there is a decreasing trend, and the total production of honey is decreased from 21,191,597 Kg in 2019 to 10,733,034 Kg in 2020. Therefore, the concerned body should give attention as this might be one of the signs of tree degradation. The main reason for such decreasing trend may be attributed to a significant decrease in tree cover from 2010 – 2020 in Ethiopia (https://www.globalforestwatch.org/map/country/ETH/). In 2010, there are 12.4 Mha of tree cover in Ethiopia. This tree cover has been reduced to 18 Kha in 2020. Furthermore, there is an indication that bee populations have generally decreases in these areas (personal communication with some members of the communities).

Table 6-11. Trends of honey production from beehives in the forest

Year	**Traditional beehives**		**Transitional beehives**		**Modern beehives**	
	Honey production	Number of participants	Honey production	Number of participants	Honey production	Number of participants
2019	8,578,516	134,219	9,710,040	42,705	2,713,813	12,304
2020	5,758,547	131,145	2,535,380	101,905	2,192,196	13,861
Total	14,337,063	265,364	12,245,420	144,610	4,906,009	26,165

Source: Project Affected Zones Planning and Economic Development Offices, 2021

Off-Farm Activities

Projected affected people practice off-farm activities in addition to their on-farm activities of crop production and livestock rearing. Most of the income generation activities of the communities are traditional, similar and mostly practiced to meet their daily demands. Some of the activities widely undertaken include petty trade, sell of fuel wood, and gathering wild honey from the forest they have preserved. This shows that there is low awareness in creation and implementation of other businesses, lack of skill and experience in income generating activities, limited number and capacity of the private sectors to absorb the growing number of unemployed youths, weak saving culture of the community to create employment opportunities, and shortage of credit and saving facilities in the project area. One of the reasons for such kinds of problems is lack of power and the implementation of the proposed project to some extent will address most of the problems.

Poverty Analysis

Poverty is due to several factors, for example, access to productive resources, education and access to credit. There is also disparity of land sizes among people on one hand and female headed and male headed households. The inhabitants of the project area in Sheka Zone have enough resources to sustain their life. Those people living close the East African Tea Estate, namely, Keja Kebele, Masha Woreda also work there to support their household income.

The total poverty line for an adult per year is 7,184.00[13] ETB. Based on the assessment of the populations of the project areas, the annual household income is well above this poverty line. They also produce cash crops such as coffee and Khat (Chat).

6.3.5. Social services

Education Service

Education is a backbone of development in general and a principal means of improving the lives of individuals in particular. Accordingly, the government and its partners have made great efforts to make accessible for pre-primary, primary, secondary, college and university education at the proximity of the students in Ethiopia. As a result, the numbers of educational institutions have increased highly in all over the country including the project area though there is a problem of offering quality education in those institutions. Table 6-12 shows that a significant number of students learn in different levels of education in Illubabor zone. Of these, 3,104 students learn in 30 pre-primary schools, 179,960 students learn in 438 primary schools and 33,600 students learn in 55 secondary schools with a net enrollment ratio (NER) of 54.7 and 37.7 in primary and secondary educations respectively. However, Table 6-12 also shows that there are 3.8% and 8.5% dropouts in primary and secondary education respectively. There are also 193, 6890 and 1664 teachers in pre-primary, primary and secondary schools respectively. This implies that all these students, teachers and schools are eagerly waiting for access to electricity from this project especially for those which are not still getting the service.

Table 6-12. Education in Illubabor zone, 2021

Level	Number of institutions	Number of students	Number of teachers	Ownership	GER	NER	Student Dropout rate
Pre-primary (KG)	30	3,104	193	Private			
Primary (Grade 1-8)	438	179,960	6890	GO & NGO	NA	54.7	3.8
Secondary (Grade 9-12)	55	33,600	1664	GO & NGO	NA	37.7	8.5
Colleges							
University	1			GO			

Source: Socio-economic Profile Report of the Respective Zones and own calculations, 2021

[13] Federal Democratic Republic of Ethiopia: Poverty and Economic Growth Analysis (Planning and Development Commission, 2018)

Health Service

Healthy people are productive. Hence, when the people are healthy, they have a great contribution for development and growth. Thus, to be healthy and in order to be productive and in turn to contribute for development and growth, they should protect themselves from diseases. Disease prevention helps to ensure the health of a person without large expenditures on medicine, medical equipment and medical expertise. However, if in case these people become sick they should get appropriate health services. One of the important things to provide them with proper health services is the supply of electricity. In so doing this electric power project will have an immense contribution for proper and quality health service provision. In the proposed project area, there are different health institutions providing health services. Table 6-13 shows that there are 2 hospitals, 40 health centers, 91 clinics, 279 health posts, 7 rural drug vendors and 14 pharmacies in Illubabor zone. One of the main input to make these health institutions function well are health professionals. Accordingly, there are 28 doctors, 136 health officers, 297 nurses, 82 laboratory technicians, 4 X-ray technicians, 78 pharmacists, 49 environmental health/sanitary professionals, 11 health assistants and 549 health extension workers. Within these health institutions and professionals, the health coverage is 96% though there are lots of question raised on the quality of the service due to lack of infrastructures like electricity power supply. Table 6-13 also shows that there are 1 hospital, 13 health centers, 46 clinics and 57 health posts in Sheka zone.There are 18 doctors, 50 health officers, 24 nurses, 10 laboratory technicians, 7 X-ray technicians, and 10 pharmacists working in these health institutions. Thus, the implementation of the proposed project in these areas will improve the quality of health services.

Table 6-13. Health Institutions & Professional in Illubabor and Sheka Zones Project areas, 2021

Type of Health Institution	Number		Type of Health Professionals	Number	
	Illubabor zone	Sheka zone		Illubabor zone	Sheka zone
Hospitals	2	1	Doctors	28	18
Health Centers	40	13	Health Officers	136	50
Clinics	91	46	Nurses	297	24
Health Posts	279	57	Laboratory technicians	82	10
Rural Drug Venders	7	-	X-Ray technicians	4	7
Pharmacies	14	-	Pharmacists	78	10
Total	433	117	Environmental Health/Sanitary	49	
			Health Assistants	11	
			Health extension	549	
			Total	1234	
			Health Coverage	96%	

Source: Socio-economic Profile Report of the Respective Zones, 2021

Stakeholder and public consultation participants have pointed out that most health institutions are suffering from shortage or lack of power. Thus, the implementation of this project will solve their problem and they will get access for electricity so that they will be able to function successfully. On the other hand, the residents of the project area are suffering from top 10 diseases (Table 6-14) and these diseases demands power to investigate them. Hence, this project

will have paramount importance to address the health problems of the local community in the project area.

Table 6-14. Top 10 diseases in Illubabor and Sheka zones in 2020

S.No	Illubabor zone		Sheka zone	
	Type of diseases	# of cases	Type of diseases	# of cases
1.	Pneumonia	32,337	Pneumonia	73,636
2.	Dyspepsia	27,186	All Respiratory diseases	70,748
3.	Disorders of urinary system	24,983	Acute upper respiratory infections	70,251
4.	Acute upper respiratory infections	19,640	Diarrhea	48,864
5.	Typhoid and paratyphoid	18,307	Typhoid fever	36,442
6.	Functional intestinal disorders	13,584	Dyspepsia	27,758
7.	Fever of unknown origin	11,789	Urinary tract infection	27,553
8.	Joint disorders	11,430	Epidemic typhus	21,458
9.	Hypertension	10,830	Infections of the skin and subcutaneous tissue	18,791
10.	Helminthiases	10,797	-	-

Source: Socio-economic Profile Report of the Respective Zones, 2021

6.3.6. Physical Infrastructures and Institutions

Institutions and physical infrastructures are crucial for socio-economic development in a given country. Hence, the Ethiopian Government is striving to construct different institutions and physical infrastructures throughout the country including the project area. Accordingly, the existing institutions and physical infrastructures mainly pure water supply and sanitation, transportation and communication networks, waste disposal management and recreational services are assessed in the proposed project area.

Water Supply

The proposed project area gets water from different sources such as shallow well, hand dug well, spring development, river diversion, gravity spring, and SPDD (Table 6-15). However, most of them are not functional; one of the reasons for such non-functionality is lack/shortage of power. Thus, the implementation of the proposed project will improve the supply of water in the project areas.

Table 6-15. Water sources with their functionality and non-functionality in Illubabur Zone

Water Schemes	2019			2020		
	Functional	Non functional	Total	Functional	Non functional	Total
Deep wells	20	2	22	25	6	31
Shallow well	27	29	56	27	29	56
Hand dug well	1537	165	1702	1516	194	1710
Spring development	2537	195	2732	2777	215	2992
River diversion	3	0	3	3	0	3
Gravity Spring	2	0	2	2	0	2
SPDD	8	7	15	9	7	16
Total	4134	398	4532	4359	451	4810

Source: Ilubabor Zone Water and Energy Resource Development Office, 2020

Power and Energy Supply

In the proposed project area, some towns are supplied with electricity. The towns supplied with electricity in the zone are Alge 01 and Suphe, Gobora, Gore and Onga, Becho and Leka, Bilo and Nopha, Bure and Sibo, Dupha and Gobe, Lalo and Gordomo Elemo, Halu Hurumu 01, Mettu town and Burusa Birbirsa, and Yayo. This shows that many rural towns in Illubabor zone have no access to power and the implementation of the proposed project creates access for electricity for those which have not yet supplied with power.

On the other hand, Table 6-16 shows that, the majority of people used firewood, electricity and crop residue ranking from 1to3 in 2019 and 2020. This shows that most local people use firewood as their source of energy which in turn causes deforestation and health problems due to indoor air pollution.

Table 6-16. Energy source in Illubabur Zone

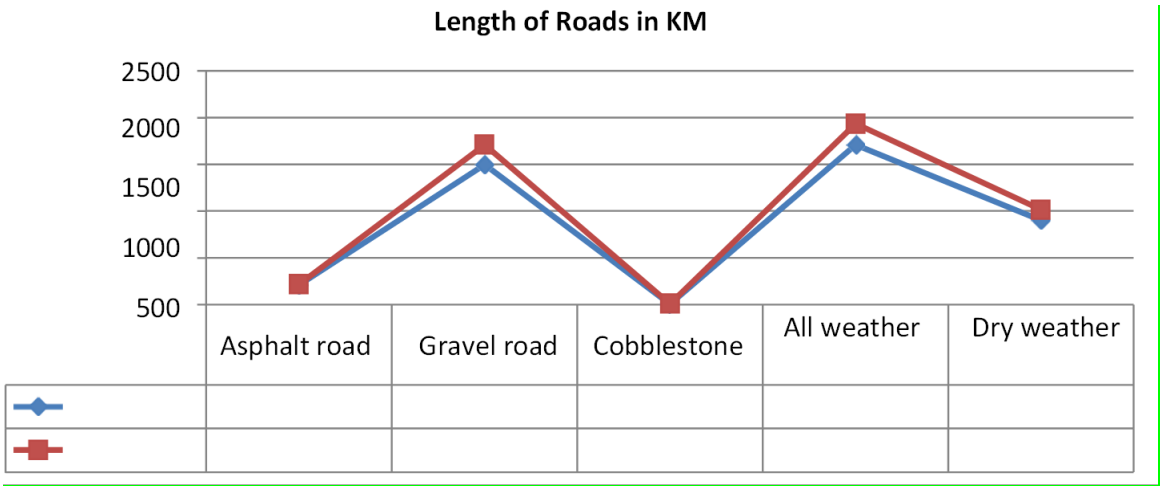
Domestic energy source	2019		2020	
	No of Population	Rank	No of Population	Rank
Charcoal	4,852	5	4,852	5
Firewood	678,532	1	6677081	1
Dung	90	6	470	6
Crop residue	18,658	3	18658	3
Kerosene	11,009	4	11009	4
Electricity	219,798	2	220871	2

Source: Ilubabor Zone Water and Energy Resource Development Office, 2020

Road, Transportation and Communication Services

Road, transport and communication services are fundamental inputs in improving development activities being undertaken in a given locality. Since they provide services to other sectors of the development, it would be impossible to bring socio-economic development in the absence of adequate transport and communication infrastructure and services. As a result, the existing services in the proposed project area are assessed in this study.

Roads: Road infrastructures are very important for the development and utilization of resources and promoting investment in the area which in turn such investment and development activities bring significant socio-economic benefits both at local and national levels. Accordingly, there are different types of roads in the proposed project area. The figure below shows that the trends of the construction of roads in 2019 and 2020. For instance, the gravel road increased from 1,495 km to 1,710 km, and all-weather roads increased from 1,707 km to 1,934 km. This will contribute for the implementation of different projects such as the construction of transmission lines.



2019	208.43	1,495.27	4.135	1,707.84	900.28
2020	216.84	1,710.01	7.75	1,934.60	1,013.75

Source: Socio-economic Profile Report of the Respective Zones, 2021

Transport: Transportation is crucial for the movement of human beings and moving materials from place to place. Thus, the existence of transportation infrastructure such as roads and vehicles are very important for achieving development in a certain locality. Accordingly, transportation facilities are paramount for the construction and implementation of the proposed project in the area.

Telecommunication: Telecommunications services such as internet, cable and satellite television services, wireless communication services like cellular telephony, paging, and telephony which are important for facilitation of development activities in a certain area. In so doing, there is expansion of those telecom services in the proposed project area though it is not enough due to lack of power and other factors. Hence, the construction an implementation of the proposed project will help Ethio-telecom to maximize its efforts in the expansion and provision of its services for both urban and rural communities in the area.

Banks and Other Financial Institutions

Banks: There are totally 30 branches of banks in 2020 belonging to Development Bank of Ethiopia, Commercial Bank of Ethiopia, Oromia International Bank, Oromia Cooperative Bank, Awash Bank, Dashen Bank, Wagagen Bank and Hibret Bank in Illubaor zone. The availability or access to financial resources and institutions is a key to provision and expansion of goods and services, promoting credit and savings, and accelerating rural and urban investment. However, most of these financial institutions suffer from lack or shortage of power supply.

Saving and credit associations: There are different types of saving and credit institutions in the zone which initiate saving and facilitate credit for business activity and economic development

in the proposed project area. Accordingly, different governmental and non-governmental institutions are delivering loan, saving, credit activities, and regulate the flow of money to facilitate the economic growth of the zone through those saving and credit institutions.

6.3.7. Gender Issues and Vulnerable Groups

Gender Issues

Projects should be gender sensitive to create equal access for services and resources especially if people are going to be displaced due to the proposed project. On the other hand, during public consultation it was raised that women suffered during delivery due to lack of power, health problems due to indoor pollution in cooking foods and other domestic activities in project areas. Moreover, women participation in development as compared to men is low though there are improvements nowadays. This implies that the burden of the work in the family makes women not to participate in outdoor development activities as like as men. Hence the implementation of the project will reduce the load/burden of women by letting them for getting access to electricity in the project area which in turn makes the local women to participate in different socio-economic developments equally like men by completing their domestic activities easily using electric power.

Vulnerable Groups

There might be vulnerable groups in the project areas such as disabled people, old people, lactating women, pregnant women, and children who are going to be affected by the proposed project. Therefore, during the preparation of resettlement action plan such groups of people should be seriously identified and taken into considerations for appropriate compensations.

6.3.8. Religious institutions, Historical, Cultural and Archeological Sites

Though Ethiopia is endowed with various historical, cultural as well as natural tourist attractions, there are no any historical, cultural and archaeological sites in this project site. However, there might be religious institutions, burial places and others. Hence, such kinds of issues should be taken into considerations.

7. Public and Stakeholder consultations

7.1. The Need for Stakeholder and Public Consultation in ESIA Process

In ESIA process, Stakeholder and Public Consultations are paramount importance and mandatory practices, in accordance to the requirements, as set forth in national and WB policy and legal frameworks on ESIA procedures and course of actions, as well as, on public consultation and participation.

Public and stakeholder consultations are useful for gathering environmental data, understanding likely impacts, determining community and individual preferences, selecting project alternatives and determine community and individual preferences, designing viable and sustainable mitigation and compensation plans. Public and stakeholder consultations in the ESIA process is undertaken at all stages of project phases (the project planning, design, implementation and operation phases). The aim is to provide information to interested and affected parties, solicit their views and consult on sensitive issues. Hence, stakeholder and public consultations are important components of development projects. Thus, the same holds true for the proposed 230 kV Electric Power Transmission Line Project, which will be implemented from Metu-Mesha in South-west Ethiopia Peoples and Oromia regional states.

7.2. Stakeholder consultations

Stakeholder's consultations were held at three Government administrative layers. The types of stakeholders are given below accordingly.

Zone level

- Administrator
- Vice Administrator
- Advisor to the Administrator
- Ruling Party Head
- Road Construction head
- Forest, Environment and Climate Change Head
- Urban and Rural Development Head
- Education Head
- Agriculture Head
- Land Administration Head
- Women, Youth and Children Head
- Government Communication Affairs Head
- Finance Head
- Oromia Wildlife and Forest Enterprise Head
- Investment Office Head

Woreda Level

- Administrator
- Ruling Part Office Head
- Agriculture office Head
- Investment Office Head
- Finance office Head
- Agriculture Head
- Health office Head
- Forest and Environment protection Head
- Land Administration Head
- Livestock office representative

Town Administration

- Mayor
- Municipality Office representative
- Advisor to the Mayor
- Ruling Party Office Head
- Urban and Rural House Office Head
- Trade Office
- Agriculture
- Health Office head
- Environmental protection head
- Women, Youth and Children Office Head
- Land Administration Office Head
- Water supply Office Manager
- Investment Office head
- Livestock team representative

Kebele Level

- Chairman
- Vice chairman
- Kebele Council representative
- General Manager
- Security Head

7.2.1. Illubabor Zone Stakeholders Consultation

Stakeholders at Illubabor Zone were conducted regarding Metu – Masha 230 kV single circuit transmission line project (Figure 7-1). They are familiar with the project and raised various benefits and some negative effects of the project on those projects affected peoples (PAPs) as like as any other projects. More specifically they have pointed out that the project has many benefits such as getting access for electric power for those who haven't and providing power without interruption for those who have access before. On the other hand, since 87 percent of the residents of the zone are farmers, the project has negative effect on the PAPs as it affects their cash crops, forests and fruits. Moreover, they have indicated that both the local government and community benefit from the forest equally with 50 percent each sharing from the income of the forest. After a detail discussion, the participants have reached at consensus that the PAPs should be compensated based on Ethiopian Proclamation No 1161/2019 and Regulation No 472/2020 and the project should be implemented as soon as possible.

Figure 7-1. Consultation with Illubabor Zone Stakeholders

Metu Town Stakeholders Consultation

Since the expansion of Metu distribution station and the erection of some electric towers for transmission affect some people in Metu town, stakeholders under Metu town administration were also consulted about Metu – Masha 230 kV single circuit transmission line project (Figure 7-2). In so doing, participants have raised different benefits of the project and their concerns about PAPs. As to the benefit, the participants have argued that the project will benefit both the Metu and Masha towns and many small towns and rural areas all the way from Metu to Masha. However, it will have also negative effects on especially PAPs since it might affect their plots of land, house, cash crops and others. Accordingly, the participants said that the PAPs should be compensated based on appropriate proclamations and regulations. More importantly, the Metu town Mayor has pointed out that the town administration will give a plot of land for those PAPs if their land and/or house are affected by the project. Moreover, he pointed out that town housing

development, land administration, and construction offices will contribute a lot to solve any problems created in relation to the project.

Figure 7-2. Consultation with Metu Town Administration Stakeholders

Metu Woreda Stakeholders Consultation

Stakeholders at Metu woreda administration were also consulted about Metu – Masha 230 kV single circuit transmission line project (Figure 7-3). The participants argued that any project has benefits and some negative effects and the same holds true for this project. Previously, the participants have argued that we were not consulted as a result not able to answer the questions/concerns raised by the proposed PAPs such as loss of their plots of land and house. However, from now onwards the participants stated that we are familiar with the project and will follow up and monitor its implementation together with the concerned bodies. Moreover, the participants have emphasized on the appropriate compensation of PAPs based on the right proclamations and regulations. Furthermore, they have indicated that there are two categories of land holdings those with green card and those with a plan done by GPS, and two of them are legal and they are entitled for compensation if there are any such PAPs.

Figure 7-3. Consultation with Metu Woreda Administration Stakeholders

Alle Woreda Stakeholders Consultation

Stakeholders in Ale woreda are consulted and they have pointed out that they know well the project that includes the expansion of Metu distribution station, construction of Masha distribution station, and construction of Metu – Masha 230 kV single circuit transmission line project (Figure 7-4). They also indicated that the project gives access to electric power not only to urban areas but also to rural areas to their vicinity on which the distribution stations are going to be constructed and/or upgraded. On the other hand, the project has a negative effect on some people as project uses 400m^2 of their land, forest, houses, cash crops and others for the erection of each tower. Thus, as much as possible the project should try its best to minimize the destruction of the households' properties and their natural resources. However, taking all the necessary measures if there are households' properties and their natural resources to be destructed by the project, they should be compensated based on the new proclamation and regulation. Moreover, when estimation of compensation is made it should be clear based on proclamation and regulation. Furthermore, the participants have mentioned that if the PAPs are compensated properly, they will develop a sense of belongingness to the project. If not, they may complain as like the Masha – Gore road project that does not still pay the compensation for PAPs by arguing that we have lost our land, natural resources and other properties without being compensated properly and also not getting electric power that passes through our land. This negatively affects the success and sustainability of the project.

Figure : Consultation with Alle Woreda Administration Stakeholders

Figure 7-4. Consultation with Alle Woreda Administration Stakeholders

Didu Woreda Stakeholders Consultation

Didu woreda stakeholders are consulted about Metu – Masha 230 kV single circuit transmission line project (Figure 7-5). They know the project and even recommended to be implemented more of on the farmland rather than on forest areas since the lives of the community mainly depends on the forest, cash crops in the forest, beehives and others. The project has many benefits for both urban and rural areas. The participants of the woreda said that they are happy in the project but when it passes on their woreda if it makes us access to electric power from particularly the nearest newly constructed Masha distribution station, we will be happier. They have indicated that Didu woreda is connected to Metu distribution station with a distance of nearly 60 KMs. However, they get electricity once in a week and even when the light comes it does not have a power even to lighten the bulb. As result almost all the residents of the woreda uses fuel wood which indirectly affects the forest in their locality. Thus, if this project is implemented, they hope that they will have access of a good power from the newly constructed Mash distribution station which is less than 30 KMs distance from Didu woreda. On the other hand, the project affects the forest which is one of the livelihood sources of the local people, cultivable land, houses, cash crops, traditional beehives and others that affects some of the local people. Hence, the participants have argued that the PAPs should be compensated based on appropriate proclamation and regulation after the estimation is done properly.

Figure 7-5. Consultation with Didu Woreda Administration Stakeholders

7.2.2. Sheka Zone Stakeholders Consultation

Sheka zone stakeholders have said that we all know well the Metu – Masha 230 kV single circuit transmission line project and we are waiting for its implementation eagerly and we all are worried about its delay since we are living without electric power (Figure 7-6). The project has a significant benefit for the zone in general and Masha town in particular since these areas are far from Addis Ababa or the center without the necessary infrastructures. Thus, if these areas get electric power, it will contribute a lot to bring socioeconomic development. The participants have argued that residents of the zone are suffering from lack of electric power as a result the local people are using fire wood for cooking food by deforesting the forest which in turn affects their health due to indoor pollution, students are not learning and studying well, mothers are not getting even the minimum services during their delivery, youths are not getting or creating employment opportunities, and people are not able to have access to mills and the like. Hence, having access to electric power in these areas will solve and/or minimize these problems. On the other hand, the project may have some negative effects on the forest, cultivable lands, houses, cash crops and others since 400M^2 lands are required to erect each electric tower. This implies that individuals using such resources will be affected by the project, and those PAPs should be compensated properly using the appropriate proclamation and regulation after the estimation is done properly by the estimation committee established by incorporating professionals, local elders and other concerned bodies. Participants have also argued that the local people is willing to accept the compensation done by the committee as long as it is estimated properly and paid timely and make free the area for the project and the zonal stakeholders will work towards that day and night. Finally, the stakeholders make emphasis on timely payment of the compensation for the PAPs and they will follow up for its action and the zone together with the town will give a plot of land for PAPs to reconstruct their affected houses.

Figure 7-6. Consultation with Sheka Zone Administration Stakeholders

Masha Town Stakeholders Consultation

The stakeholders of the town have argued that they are waiting eagerly for Metu – Masha 230 kV single circuit transmission line project implementation since the town has no electric power (Figure 7-7). Participants have said that though there is distribution line connected from Metu substation it is better to say that there is no light or power because the light comes once or twice in a week and when it comes it works for few hours. Even the light that comes during those few hours let alone to use for other purposes it does not lighten the bulbs. As a result, there is very limited socioeconomic development in the town. Consequently, youths do not have access to employment opportunities, students are studying by torches and candles, women are forced to use totally fuel wood for cooking that in turn affects their health, and mothers are not delivering in health institutions due to lack or shortage of power. However, though all town residents will be benefited with this project directly or indirectly, there are some PAPs, and they should be compensated for their properties based on appropriate compensation proclamation and regulation. Moreover, stakeholders indicated that the town administration will follow up whether the compensation is made properly and paid timely. Furthermore, the town administration will offer a plot of land for those PAPs on the other parts of the town.

Figure 7-7. Consultation with Masha Town Administration Stakeholders

Masha Woreda Stakeholders Consultation

Masha woreda stakeholders know well Metu – Masha 230 kV single circuit transmission line project and they are following up for its implementation (Figure 7-8). The participants have said that electric power is very important for everything both in urban and rural areas. It creates employment opportunities for youths, lets the students to learn and study well, mothers can get better services during their delivery in health institutions, and women can use electric stoves and others for cooking food. On the other hand, when the distribution substation is built in Masha town and towers are erected in Keja and Wollo rural *kebeles* of the woreda, some people will be affected, and those PAPs should be compensated based on the newly revised proclamation and regulation after a proper estimation is made by the committee. The woreda stakeholders will follow the proper and timely payment of the compensation for PAPs and also make free the compensated land/area for the project by working day and night within a short period of time. Moreover, the woreda administration will work together with other concerned organs to offer a plot of land for those PAPs if their house is damaged totally and they do not have a land to reconstruct their house both in rural and urban areas.

Figure 7-8. Consultation with Masha Woreda Administration Stakeholders

7.3. Public consultations

7.3.1. Illuababor Zone

Kola Korma Kebele Public Consultation

Project affected people of both gender groups living in Kola Korma *kebele* of Metu woreda were consulted about expansion of Metu distribution substation and Metu – Masha 230 kV single circuit transmission line project (Figure 7-9). The participants have indicated that they know the project and it will benefit both the local people and government. While the local people benefit from electric power for different purposes, the government will get sales revenue by selling electric services. However, the participants have argued that we will be affected by the project if our small plot of land which is 10m by 20m is going to be used for the expansion of Metu distribution

substation and erection of some towers which are going to be constructed in their local area. Thus, Metu town administration should establish appropriate estimation and valuation committee and our properties should be counted and valuated one by one and the PAPs have to get appropriate compensation payment that is done based on the new compensation proclamation and regulation. The participants have pointed out that since there were problems in relation to compensation payment for PAPs in their local area such kinds of problems should not be repeated in this project. Moreover, they have indicated that the town should give them a plot of land to reconstruct their damaged house in some parts of the town. If the town does not have a plot of land in its land bank since almost all lands in the vicinity of the town are covered by perennial crops and trees, it should give the PAPs even by taking some lands from the better off households somewhere in the town territory who are not affected by the project like us after paying them the necessary compensations. Finally, women were consulted separately, and they also emphasized on the appropriate valuation and payment of compensation and provision of plot of land when they are displaced. Otherwise, they argued that they will become a street family with a very worst living condition.

Figure 7-9. Consultation with Project Affected People (PAPs). A, consultation with project affected male and female; B, consultation with project affected females

Sagi Kebele Public Consultation

Project affected people of both gender groups living in Sagi *kebele* of Ale woreda were consulted about Metu – Masha 230 kV single circuit transmission line project (Figure 7-10). The participants have indicated that they know the project and it has various benefits for those rural and urban areas which have no access for electricity and some negative effects on some people like us especially if we are not compensated appropriately. Accordingly, the participants have hotly discussed about the issue of compensation. They argue that the properties of the PAPs who were affected by the Masha – Gore Road project in their locality were not appropriately valuated and even the estimated compensation that was signed by the PAPs is not paid till now though the Masha – Gore Road project is underway. The participants added that when they are asking for their payment and if that is not the case the project should not be started, they are beaten by the

policemen and this is creating conflict between the local people and government. Hence, they emphasized that such kinds of problems should not be repeated in this project. Moreover, if a project comes in one area, it should create employment opportunities for the local youths and others. However, what has been happing in some projects like the current Masha – Gore Road project in their locality is bringing workers including the day laborers from other areas. As a result, the local youths are complaining about such issues and they hope that the upcoming project will solve such problems. Furthermore, the participants have stated that the transmission line passes in their rural *kebele* but if the PAPs are not benefited from the project by getting access to electricity by fulfilling the necessary requirements, they might not feel a sense of ownership to the project. Hence, the concerned bodies should work towards that to make them to develop a sense of ownership for the project by letting them to access to electric power. Finally, women were consulted separately and they argued that such study was done before eight years and stated "you are again studying similar issues, we need action beyond the study". Moreover, they emphasized on the appropriate valuation and payment of compensation on time; otherwise, it will affect the success and sustainability of the project.

Figure 7-10. Consultation with Project Affected People (PAPs)

7.3.2. Sheka Zone

Keja and Wollo Kebeles Public Consultation

Project affected people of both gender groups living in Keja and Wollo *kebeles* of Masha woreda were consulted about the construction of Masha distribution substation and the Metu – Masha 230 kV single circuit transmission line project (Figure 7-11). The participants have indicated that they know the project and it has various benefits and some negative effects on some people like us particularly if we are not appropriately compensated. Some of the benefits of the projects are creating employment opportunities for youths, letting the students to learn and study well, rescuing the forest from being deforested for fuel wood, keeping the health of women/mothers

who were affected by indoor air pollution when using fuel wood for cooking, providing better services for mothers during their delivery in health institutions, and letting women to use electric stoves and others for cooking food. As result the promised to support the project by what they can even by carrying stones and other inputs for the project. On the other hand, when the distribution substation is built in Masha town and towers are erected on 400M^2 lands in Keja and Wollo rural *kebeles*, their cultivable land, houses, cash crops, forest and traditional beehives and others will be affected, and they have to be compensated properly after a proper estimation and valuation is made by the appropriate committee that includes professionals, local elders and other concerned bodies. If this is the case, they state "we will be happy and welcome the project as like as the majority of people in the *kebele* and the woreda". Finally, the issue of forest was raised at both gender group discussion and when discussion was held with women separately, they have indicated that the local communities have preserved the forest and they get 50% and the government gets 50% from the forest income. As a result, we hope that the project will try its best not to significantly affect the forest. But if some forests are affected by the project while erecting some towers we can replace the loss by planting trees in other areas based on their previous experiences and practices of preserving forest for many years.

Figure 7-11. Consultation with Project Affected People (PAPs)

The summary of key issues raised by stakeholders of the Metu – Masha 230 kV single circuit transmission line project, and the responses provided by the project team are summarized below:

Table 7-1. Key issues raised by stakeholders and responses

Date of consultations	Zone/Woreda/ town	Number of participants	Key issues raised	Responses provided
Illubabor Zone				
October 06, 2021	Iluabobor Zonal Administration	8 (1 female)	• The project affects houses, cash crops and coffee shade	• The project impacts are both temporary and

Date of consultations	Zone/Woreda/ town	Number of participants	Key issues raised	Responses provided
			trees which have direct impact on household incomes. • Compensation ti the PAPs should be paid on time and before the start of the project.	permanent. There are houses and trees that will be permanently lost. • The Client will pay compensation before the start of the project.
October 07, 2021	Metu town Administration	8 (1 female)	• The project affects houses and trees falling inside the Right-of – Way of the project. • The Metu Town Addministration will provide the PAPs with plots of land to construct new houses • The Client should pay compensation for the PAPs	• The Consultant has explained that there will be permanent loss of some houses and *Eucalytus* trees inside the RoW of the project. • Since the PAPs are living in Metu town administration and have only 200 square meters of land, they do not have any spare land to construct new houses even if compensation is paid. The Metu town administration will help the PAPs by providing plots of land to construct new houses.
October 07, 2021	Metu Woreda Administration	11 (1 female)	• Previous projects do not normally consult their office to explain about the project. They appreciated the importance of consultations • There are two type of land ownership, i.e., (1) a green card and (2) a plan with GPS readings. Both are legal and the PAPs with these land	• Any compensation will be paid based on the currently functional laws and regulation of Ethiopia. • The Consultant has explained compensation processes, i.e., asset inventory, asset valuation and etc. • Compensations will be paid

Date of consultations	Zone/Woreda/ town	Number of participants	Key issues raised	Responses provided
			ownerships status should be compensated if the project affects their asset. • Appropriate compensation should be implemented.	before the commencement of the project activities.
October 8, 2021	Metu Woreda, Kolo Korma Kebele	17 (6 female)	• They are concerned that their small plot of land10 m x 20 m size will be permanently lost due to the project. They do not have any spare land to build new houses even if they are paid compendation. Therefore, the Metu town administration should give them a replacement plot of land from its land bank or elsewhere in its jurisdiction to build their new houses. • There should be appropriate asset valuation committee and appropriate compensation should be paid before the project starts. • They have bad experiences from previous projects where compensation was not paid in an appropriate manner (their assets were undervalued).	• The Consultant has informed the PAPs that a consultation was conducted with the Metu town administration concerning loss of houses and trees from communities at Kolo Korma Kebele. • The Metu town administration has said that they could provide plots of land for house construction. But this is something to be seen in the process in the coming period. • Any compensation for lost assets will be paid based on the existing Ethiopian laws and regulations. • Paying compensation for lost assets will be done before the commencement of the project.

Date of consultations	Zone/Woreda/ town	Number of participants	Key issues raised	Responses provided
October 8, 2021	Metu Woreda, Kolo Korma Kebele	6 females	• The Metu town administration should replace plots of land to enable us build new houses since their current houses will be permanently lost. • Compensations should be paid before the start of the project • If the Metu town administration fails to give them plots of land to construct new houses and compensation is not paid before the start of project, their livelihood will be seriously affected. They do not have spare money to rent houses for a long time and they will be homeless and dependent.	• The Metu town Administration has promised to give plots of land for permanently affected houses, but this is to be seen in the coming period. • Compensation will be paid before the start of the project to give time for relocation and construction of new houses
October 09, 2021	Alle Woreda Administration	9 males	• They stated that the project should avoid as much forest areas and houses as possible. This should be considered its route selection. • Compensation should be paid according to the existing law and regulation • If not compensated properly, the PAPs will file repeated complaints.	• This ESIA study will evaluate alternative routes to minimize negative impacts of the project. • Payment of compensation is based on existing law and regulation. • The Client will pay compensations for impacted asset before the project starts.
October 10, 2021	Didu Woreda Administration	8 males (1 female)	• They support the project. They, however, stated that they would like to have a new	• This ESIA study mainly focuses on the identification of impact of the project, propose

Date of consultations	Zone/Woreda/ town	Number of participants	Key issues raised	Responses provided
			connection from the new substation at Masha. Currently, they are getting power from Metu substation only once a week. This new project will solve this problem. • Due to the shortage of power, every member of the urban community uses fuel wood. This has negative effect on the health of the forest and increases degradation of the forest (e.g., selective cutting and thining the tree stands). • Compensation should be paid properly and before the start of the project.	mitigation measures and prepare Environmental and Social Management Plan. Practical activities such as issues connected to power distribution will not be addressed in this ESIA study. • The Client will pay compensation before the start of the project.
Sheka Zone				
October 11, 2021	Sheka Zonal Administration	10 males (3 females)	• They stated that power is very important for them to trigger local business enterprises and improve living quality of the communities. • The use of firewood for cooking and this has negative effect on forests • Compensation should be paid before the start of the project.	• The Client will pay compensation before the start of the project. The due process of payments of compensation has been explained. • It is true that power plays important role for local businesses. But the ESIA study should be completed snd approved to enable the project to start.
October 11, 2021	Masha town administration	6 males (1 female)	• There is a severe power shortage. As a resul, youth	• The Client will pay compensation based on law and

Date of consultations	Zone/Woreda/ town	Number of participants	Key issues raised	Responses provided
			of the town have no job opportunities. • Compensation should be paid in a proper manner based on the existing law and regulation. This should be done before the project starts.	regulation of Ethiopia. • Payments of compensation will be completed before the project starts.
October 11, 2021	Masha Woreda	6 males (1 female)	• There are loss of assets due to this project. Compensation should be paid in a proper manner based on existing law and regulation. • Once the Woreda administration proves that compensation is paid for PAPs, it will help the project for clearing compensated assets to facilitate the implementation of the project.	

8. Analysis of Project Alternatives

8.1. General

The IFC Guidance Note 1 (GN 25) requires the examination of technically and economically feasible project alternatives and documentation of the rationale for selecting a particular course of action. The core objective of the Metu – Masha 230 kV power transmission line is to supply power to Masha town and its surrounding areas. This section outlines how the project represents an optimal route that is environmentally and socially feasible through minimizing impacts of these receptors. It also starts with no or zero option and thoroughly evaluate details of three alternative routes. Based on these detailed analyses, the optimal route will be selected for further impact assessment, mitigation measures and Environmental and Social Management Plan. These alternatives are described below and Annex 13.5 for further details.

Given that the location of the Masha substation was fixed, no location alternatives were examined for the substation. Thus, alternatives assessment is based on transmission line route alternatives. The present ESIA Update revises the selection of Alternative I which was made at the 2016 ESIA and examines Alternative 2, which is a clear improvement over Alternative 1, in the sense that the crossing of large, dense forest areas is avoided at the expense of crossing cultivated areas and tea farm areas. Alternative 3 offers a further improvement of Alternative 2, by minimizing the impact to tea farms, using existing tracks as far as possible. Alternatives are examined for a section of 34.3 km of the transmission line route, which presented the greatest challenges in terms of forest and biodiversity loss. The parts of the route before and after this section are common for all alternatives.

Details are provided in the following paragraphs and in Figure 8-1 at the end of this section.

8.2. The No-project or zero alternative

In the No-project option, there are not anticipated impacts due to the implementation of the Metu – Masha 230 kV power transmission line, i.e., it entails the maintenance of the status quo. That is no 24 hours/week power supply to Masha Town. This project option, however, has impacts on the local economy and livelihoods of the communities of Masha Town and its surrounding areas such as Woredas of the Sheka Zone. It is anticipated that the new sub-station at Masha could serve as a springboard for at least the electrification of Woreda towns of the Sheka Zone. This project also enables the students to study their subject longer than usual by clean energy source. Masha Town currently uses Diesel run generator for power supply and the Metu – Masha 230 kV power transmission line helps the town to reduce cost. Furthermore, more local economic activities and investments will be triggered by the implementation of the Metu – Masha power transmission line. In view of these factors, **the No-project option was dismissed.**

8.3. Alternative 1

This alternative passes through both cultivated areas and large section of forests. In this case, large trees of highly valued tree species will be removed. Some of these tree species are *Pouteria adolfi-friderici*, *Cordia africana*, *Albizia gummifera*, *Prunus africana*, *Milletia ferruginea, Schefflera abyssinica* (an important resource for honey), *Syzygium guinese* and etc. These trees have a diameter of more than 1 m and it has taken 100 of years for them to get to this size. Cutting these indigenous trees along the ROW of the Metu – Masha 230 kV single circuit transmission line project negatively affects the biodiversity of the project area. Furthermore, these mature tree species are also habitats for epiphytic plants and their removal will also result in the loss of these epiphytic plants. Table 8-1 shows some features of Alternative 1.

Table 8-1. Characteristics of Alternative 1.

Length of the section	Area of forest cleared	Key biodiversity issues
70 km	A large area of forest will be cleared; significant loss of biodiversity	a. Vulnerable plant species will be removed along this long stretch of the ROW of the power transmission line, e.g. *b.* A high proportion of highly valued and the flagship plant species of the forest will be removed, e.g. *Pouteria adolfi-friderici* c. A large proportion of plant species that are important source of non-timber forest products, e.g. honey will be removed. Examples are *Syzygium guineese* and *Schefflera abyssinica* d. Potential loss of epiphytic plant species such as orchids and little-known bryophytes14.

Furthermore, Blue Monkey, *Cercopithecus mitis*, lives in the canopy of these high trees. This species is of least conservation concern, but its population is decreasing. Therefore, the removal of a long stretch of forest area and forest disturbance create open spaces and could potentially affect this species having a decreasing population trend. Due to the high negative impacts of Alternative 2 on the biodiversity, this option was not selected for further ESIA study.

8.4. Alternative 2

This project alternative passes through cultivated fields avoiding forests. A total length of this alternative is 69.7 km and a large forest area will fall in the RoW of the Metu – Masha 230 kV single circuit transmission line project in this alternative. There are tree species along this RoW. By avoiding forest of the project area, which are also designated as National Forest Priority Areas,

14 Previous studies in moist Afro-montane Forest, which is close to the project area, has resulted in several new records of rare Bryophytes and new species of the same group. Since there is little information on this group of plant biodiversity, a removal of their hosts (tree species) for a long stretch will have potentially adverse impact them (cf. Hylander et al, 2010; Hylander et al., 2013)

the RoW crosses a long stretch Tea Estate causing significant damages to tea shrubs. Table 8-2 gives details of the characteristics of Alternative 2.

Table 8-2. Characteristics of Alternative 2.

Length of the section	Area of forest cleared	Key biodiversity issues
69.7 km	The forest area that needs to be cleared is minimized by crossing scattered forest areas and cultivated areas Crossing tea farms	a. Minimum biodiversity loss due to avoidance of crossing dense forest areas

8.5. Alternative 3

This alternative is meant to reduce the damage to the tea Estate and use existing foot tracks of the Estate for ancillary activities such as depositing and mixing construction materials for tower foundation. The total length of this alternative is 1.4 km longer than Alternative 2. Due to its significantly low level of forest disturbance, conservation of key indigenous tree species, reduced adverse impacts on Tea Estate, Alternative 3 was selected for further ESIA study.

A summary comparison of route alternatives is provided below:

Criteria	Alternative 1	Alternative 2	Alternative 3
Length of section	69 km	69.7 km	71.1 km
Accessibility	Good	Excellent	Excellent
Terrain conditions	Mountainous, sloppy, deep waterways, flat areas	Hilly, waterways and flat areas	Hilly, waterways and flat areas
Dense forest crossed	21 km	6 km	4 km
Scattered forest crossed	5 km	12 km	12 km
Farm and open land	8 km	19 km	18 km
Loss of biodiversity	Clearing of mature trees of *Cordia abyssinica, Fiucs sycomoros* and Coffee shade trees; Removal of vulnerable species such as *Prunus africana* and a flagship plant species of the forests, i.e., *Pouteria adolfi-friderici*	Significantly improved footprint in terms of biodiversity loss, due to avoiding crossing dense forest; Significant damage to tea farms	Significantly improved footprint in terms of biodiversity loss, due to avoiding crossing dense forest; reduced adverse impacts on tea farm
Resettlement	Approx. 50 houses affected	Approx. 35 houses affected	Approx. 35 houses affected

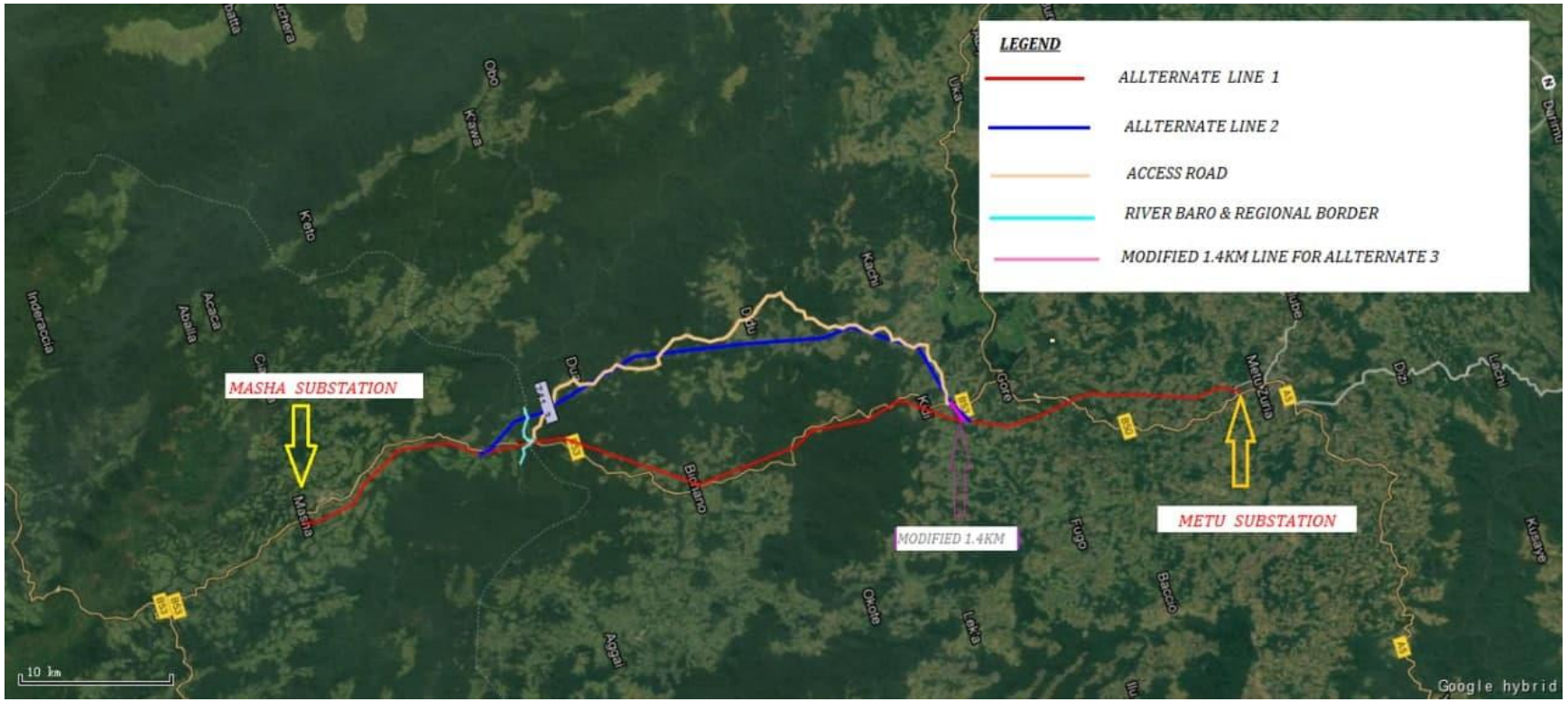


Figure 8-1. Project Alternatives

9. Assessment of Impacts and mitigation measures

The assessment of impacts of the project on receptors (biological, physical, social and OHS issues) are arranged according to the project activities for the construction phase. Table 9-1 gives the details of the impacts of these project activities on the receptors and how these impacts are assessed and evaluated. For the operation phase, the assessment of impacts is organized by receptors, potential impacts and mitigation measures.

Table 9-1. Details of assessment of impacts of project activities on receptors.

Impact	Impact features			
Impact nature	adverse	positive	neutral	
Impact types	direct	indirect	induced	
Impact duration	temporary	permanent		
Impact extent	local	regional	international	
Likelihood	probable	possible	certain	
Receptor sensitivity	low	Medium	high	
Impact significance	negligible	low	medium	high

9.1. Positive impacts

The Metu – Masha 230 kV single circuit transmission line project has the following beneficial impacts.

i. Employment opportunity
ii. Development of different enterprises and trades
iii. Boost investment, e.g., coffee mill
iv. Improve quality of life
v. Improve education delivery systems and students study norm

9.2. Adverse environmental and social impacts

The anticipated adverse environmental and social impacts of the project are given below according to the different phases of the project.

9.2.1. Pre-construction Phase

The activities of the project during the pre-construction phase include workforce mobilization and vegetation clearing by the contractor. The mobilization of workforces for clearing vegetation and cutting trees is one of the major activities of the project, which leads to environmental and

public health concerns. Some of the tree species impacted by this project includes vulnerable species such as *Prunus africana* and isolated mature individuals of *Pouteria adlofi-friderici* and etc. If the direction of the fall of these high trees is not pre-determined, additional damages of the surrounding vegetation and even *Crematogaster* ant nests are inevitable. The noise of the workforces will impact wildlife at least on a temporary basis. This temporary increase in local population triggers public health issues such as HIV/AIDS and STDs, which will eventually affect household economy. Table 9-2 provides the project activities and environmental and social receptors during the pre-construction phase

Table 9-2. Environmental and social Impacts of the project during the pre-construction phase. Key: x denotes impacts on concerned bio-physical and social conditions will be triggered by the project activity. X denotes that the project activities adversely affect a receptor, i.e., all receptors with "x" are impacted on by the project.

Receptors / Project Activity		Physical		Biological and social								
		Air quality	Noise quality	Flora	Fauna	Population growth	Public health	Occupational health & safety	Livelihoods	Settlement	Solid wastes	
Pre-construction phase	Workforce mobilization	x	x	x	x	x	x	x			x	
	Vegetation clearing along RoW and access road			x	x				x			
	Land Acquisition for Tower foundations			x					x			
	Acquisition of Assets inside the RoW			x					x	x		

a. Workforce mobilization

The contractor mobilizes its workforce to embark on site clearing. This new workforce will adversely impact the air and noise quality of the project area and lead to an increase in the population of the project site. Such an increase in population could trigger public health issues such as STDs and HIV/AIDS. It is anticipated that a large quantity of used plastic bottles will be left at the project area. These solid wastes could be accidentally consumed by livestock apart from their environmental nuisance. Furthermore, while cutting big trees, there is a high likelihood that these trees fall in the wrong direction damaging vegetation and coffee stands in the immediate vicinity of the ROW.

Mitigation Measure:

- Orientation of the workforce by the contractor prior to commencing duties
- Health education for the workforce and awareness creation for HIV/AIDS and other STDs
- Apply the best industry practice and applicable law and regulation of Ethiopia for employing workers
- Collect all used plastic water bottles and dispose them at designated areas
- Apply all requirements of the Solid Waste Management Plan
- Apply all requirements of Occupational Health and Safety Management Plan
- Apply all requirements of Air Quality Management Plan
- Apply all requirements of the Forest Management Plan
- Apply all requirements of Biodiversity Management Plan

Conclusion:

The duration and magnitude of this impact is low and reversible. Applying the mitigation measure will reduce this impact to negligible in the case of HIV/AIDS and STDs. The dust emission due to the activities of the workforce could also be reduced to an acceptable level if the mitigation measures is strictly used, i.e., prior orientation of the workforce. There will be an increase in the ambient noise level of the project area but the impact is temporary.

Details of the impacts associated with workforce mobilization are given below.

Project activity	Impacts on:											
		Spatial scale	duration	intensity	Cumulative effect	Probability of occurrence	magnitude	reversibility	Adverse/ beneficial	Direct/ indirect	Objective/ subjective	Actual/ perceived
Workforce mobilization	Population growth	local	Short-term	low	none	certain	low	reversible	adverse	direct	objective	Actual
	Public Health (HIV/AIDS_	local	Short-term	low	none	probable	low	reversible	adverse	direct	objective	perceived
	Occupational health & Safety	local	Short-term	low	none	probable	low	reversible	adverse	direct	objective	perceived

b. Vegetation clearing along ROW and access road

This activity of the project results in the emission of dust to the environment. It also potentially leads to potential injuries, which in turn triggers occupational health & safety. Detailed studies of the plant species of the Row and access road revealed that most species occurring in these areas are of least conservation concerns and some are vulnerable (e.g., *Prunus africana*) or with decreasing trend of populations. Furthermore, some tree species are even not locally abundant (e.g., *Pouteria adolfi-friderici* and *Olea welwitschii*). The tree species of the project area provide habitats for other species (epiphytes) and ant nests for *Crematogaster* (useful organisms for coffee pest control). During this activity of the project, a large quantity of used plastic bottles could be left in the project area uncollected. There will be an increase in the ambient noise level of the project area but it has a temporary impact on the social environment.

The details of the type and number of indigenous and cash crop trees that are adversely impact due to the removal of vegetation along the RoW of the project is given in

Table 9-3. A total of 191 mature individuals of the vulnerable *Prunus africana* and 40 isolated mature individuals of *Pouteria adolfi-friderici* will be permanently removed from the RoW of the project.

Table 9-3. Types and number of tree species removed from the RoW in different Kebeles of Ilu Aba Bor Zone of the Metu – Masha 230 kV power transmission line.

Kebele	CA	FS	DA	SE	EU	CM	SG	AD	SA	OW	PA	Pad	PR	AA	AG	MF	GR	CL	EB	EC	PF
Jeto	208	21	27	124	7750	202	0	22	0	0	0	0	100	0	254	0	110	106	105	0	0
Gebre Dima	50	12	61	205	2308	236	0	62	0	0	0	0	0	0	32	0	4691	81	0	0	0
Doha	96	31	0	283	16002	441	0	94	302	0	0	40	0	0	45	0	0	281	0	0	0
Kolo Korma	0	0	0	0	966	0	0	0	0	0	0	0	0	0	0	0	0	91	0	0	0
Chatu & Kawo	44	0	0	0	1202	73	0	0	0	0	0	0	0	0	124	0	54	3	0	0	0
Gaba Guda	58	0	0	0	66	90	0	0	0	0	0	0	0	0	106	0	23	5	0	0	0
Gagi Bicha	209	0	0	0	658	168	0	0	0	0	4	0	0	0	235	0	667	79	0	0	0

Key:

CA = Cordia africana; Ficus sycomorus; DA: Diospyros abyssinica; SE: Sapium ellipticum; EU: Eucalyptus species; CM: Croton macrostachyus; SG: Syzygium guineese; AD: Apodytes dimidiata; SA: Schefflera abyssinica; OW: Olea welwitschii; PA: Prunus africana; Pad: Pouteria adolfi-friderici; PR: Phoenix reclinata; AA = Acacia abyssinica; AG: Albizia gummifera; MF: Millettia ferruginea; GR: Grevillea robusta; CL: Cupressus lustanica; EB: Erythrina brucei……; EC: Ekebergia capensis; PF: Polyscias fulva

There is a high number of *Eucalyptus* trees that are adversely affected by the project across different Kebele of Masha Woreda (Table 9-4). A total of 30 mature individuals of the vulnerable *Prunus africana* and 10 of the scattered mature individuals of *Pouteria adolfi-friderici* will be removed along the Row of the project in different Kebeles of Masha Woreda. A handful of coffee shade trees, e.g., *Albizia gummifera* and *Millettia ferruginea* will be removed. Furthermore, important trees for honey production, i.e., *Syzygium guineese* and *Schefflera abyssinica* will be also permanently removed from the RoW of the project.

Table 9-4. Types and number of tree species removed from the RoW in different Kebeles of Masha Woreda, Sheka Zone of the Metu – Masha 230 kV power transmission line.

Kebele	CA	FS	DA	SE	EU	CM	SG	AD	SA	OW	PA	Pad	PR	AA	AG	MF	GR	CL	EB	EC	PF
Wolo	0	8	0	0	1250	5	17	0	4	0	2	0	0	0	0	1	0	7	0	1	1
Keja	12	38	0	0	11113	76	8	0	0	3	28	10	0	0	30	25	56	0	0	0	57
Masha 02	0	0	0	0	15025	4	18	0	0	0	0	0	0	0	0	0	0	1	0	0	0

Mitigation measures

- Provide workers with personal protective equipment (PPE)
- Avail first aid kits at the work places
- Undertake vegetation clearing in the presence of an Environmentalist or a Forester
- Prepare and execute a tree plantation program to compensate for the environmental loss of the trees felled
- Suppress dust emission by watering the work areas on a regular basis
- Apply all requirements of Biodiversity Management Plan
- Apply all requirements of the Air Quality Management Plan
- Apply all requirements of the Occupational Health & Safety Management Plan
- Apply all requirements of the Emergency Response Plan
- Collect used plastic water bottles
- Apply all requirements of the Solid Waste Management Plan

Conclusion

This project activity is temporary, but the scale of the anticipated impacts is local and their duration are both temporary and permanent. Cutting of mature tree species and damaging *Crematogaster* ant nests within the RoW is a permanent impact. The supervision of vegetation clearing and tree cutting should be done by an Environmentalist and a Forester to provide on-site advises to guide this project activity. At the canopy of high tree species of the project area standing inside the RoW, there are rare epiphytic orchids. Cutting their host tree will have a permanent impact on their survival. To compensate for the environmental loss of the indigenous trees felled, planting of new saplings (10 times the number of indigenous trees cut) is proposed in the ESMP. A Forester of the Contractor should record all orchid species from the fallen trees inside the RoW and report to the client for further conservation actions. The anticipated potential injuries and accidents can be effectively mitigated if the mitigation measures and the relevant ESMP are implemented by the contractor. Furthermore, the local level biodiversity loss can be effectively mitigated by the implementation of the requirements of the Biodiversity Management Plan.

Details of the impacts associated with vegetation clearing and access roads are given below.

Project activity	Impacts on:	Spatial scale	duration	intensity	Cumulative effect	Probability of occurrence	magnitude	reversibility	Adverse/ beneficial	Direct/ indirect	Objective/ subjective	Actual/ perceived
Vegetation clearing along RoW	Air quality	local	temporary	low	none	certain	low	reversible	adverse	direct	objective	Actual
	Total Flora	local	permanent	high	none	certain	high	irreversible	adverse	direct	objective	Actual
	Noise	local	temporary	low	none	certain	low	reversible	adverse	direct	objective	Actual
	Tree species	local	permanent	high	none	certain	high	irreversible	adverse	direct	objective	Actual
	Crematogaster nests	local	Permanent	high	none	certain	high	irreversible	adverse	direct	objective	perceived
	Fauna	local	temporary	negligible	none	probable	negligible	reversible	adverse	direct	objective	perceived
	Occupational health & safety	local	temporary	low	none	probable	low	reversible	adverse	direct	objective	perceived
Vegetation clearing along access roads	Air quality	local	temporary	low	none	certain	low	reversible	adverse	direct	objective	Actual
	Noise quality	local	temporary	low	none	certain	low	reversible	adverse	direct	objective	Actual
	Total flora											
	Tree species	local	permanent	medium	none	certain	medium	irreversible	adverse	direct	objective	actual
	Crematogaster nests	local	permanent	high	none	certain	high	irreversible	adverse	direct	objective	actual
	Fauna	local	temporary	negligible	none	probable	negligible	reversible	adverse	direct	objective	perceived
	Occupational Health & Safety	local	temporary	low	none	probable	low	reversible	adverse	direct	objective	perceived

c. Land acquisition for Tower foundations

The selected Metu – Masha 230 kV power transmission line entails the acquisition of land for tower foundations. For each tower, there is a need to acquired a total of 10 m x 10 m plot of land. These plots are distributed across different land use types of the project

area. These are farmland, forests and Tea Estate. The total number of towers will be 180 for the project. As a result, 1.8 ha of land will be permanently impacted by the construction of Tower foundation. The estimated length of RoW inside forest is about 4 km resulting in a total number of about 14 Towers inside forest. Therefore, about 0.14 ha of land will be permanently impacted. The length of the RoW inside the Sheka Forest Biosphere Reserve is 700 m, which will translate into about 2 Towers (0.02 ha of land). Noteworthy is that there are coffee shrubs and spice plants (*Piper capense* and *Afromomum corrorima*) inside this forest. The remaining 3.3 km of the RoW falls inside Gebre Dima forest. In this forest, a total of about 0.44 ha of land will be permanently lost. i.e., trees, coffee shrubs and spices will be removed permanently for tower foundations.

Some plots of land of the Tea Estate will also permanently lost due to Tower foundation. The estimated number of Tower inside the Tea Estate is about 12, which results in a permanent loss of about 0.12 ha of tea shrubs. The remaining 152 Towers will be erected in cultivated land and a total of about 1.52 ha of land will be permanently lost.

The East African Agri-business PLC currently owns 10,000 ha of Tea Estate. There are 1400 tree shrubs in 100 m^2 of land. Therefore, the total number of tea shrubs are 14,000. It has been estimated that a single tea shrub will yield about 4 kg of tea leaves. There will be foundations for 12 Towers inside this Estate requiring a total area and this amounts to 1200 square meter of land. As a result, there will be a permanent loss of 1680 tea shrubs, which will be 6,720 kg of leaves annually.

Mitigation measures

- Apply all provisions of the Resettlement Action Plan of the Metu – Masha 230 kV power transmission line
- Payment for permanently lost coffee shrubs and spices plants
- Payments for permanent loss of assets of PAPs due to Tower foundation

Conclusion

The impact of a construction of Tower foundations of the Metu – Masha 230 kV power transmission line is permanent. About 85% of the Tower foundations are located in the farmlands while only about 8% of these are inside forests. Noteworthy is that only 1% of the areas of the Tower foundations of the project are inside Sheka forest Biosphere Reserve. Coffee shrubs, spice plants and tree species will be removed. Furthermore, there will be a permanent loss of tea shrubs of the East Africa Agri-business PLC at Chewaka. Therefore, the Client should acquire these plots of lands/implement the Resettlement Action Plan (RAP) before the commencement of the Construction Phase of the project.

Details of the impacts associated with land acquisition for tower foundation are given below.

Project activity	Impacts on:											
		Spatial scale	duration	intensity	Cumulative effect	Probability of occurrence	magnitude	reversibility	Adverse/ beneficial	Direct/ indirect	Objective/ subjective	Actual/ perceived
Tower foundation	Coffee shrubs	local	permanent	medium	none	certain	medium	irreversible	adverse	direct	objective	Actual
	Spice plants15	local	permanent	high	none	certain	high	irreversible	adverse	direct	objective	Actual
	Households' income	local	permanent	high	none	certain	high	irreversible	adverse	direct	objective	Actual
	Tea shrubs	local	permanent	high	none	certain	high	irreversible	adverse	direct	objective	Actual

d. Acquisition for assets along the RoW

The RoW also affects residential areas, i.e., 39 Tukuls and 94 CIS in different parts of the project area. Details of the impacted houses is given below. The level of this impact is different in various Kebeles. In Kolo Korma (Metu Town), 20 Project Affected Persons (PAPs) have a total area of 200 m^2; they do not have extra plot of land to construct new houses. As a result, there are highly affected by the project. On the other hand, those PAPs in the Remaining rural Kebeles have sufficient land and they can move the location of their house to new plots. Although the project impact is high in this case as well, it is not as severe as those PAPs in Kolo Korma. Another major impact of the RoW is the cutting of coffee shade trees falling within its 40 m width. (See Table below). Both indigenous and exotic cash tree crops belonging to PAPs will be affected.

15 The density of spice plants inside these forest areas for Tower foundations is noticeable. They are also important economic sources of household as coffee shrubs are.

A total of 113,450 coffee shrubs will be permanently lost following the cutting of their shade tree (Table below). Furthermore, a total of 57,158 *Eucalyptus* and 789 *Cupressus lustanica* trees will be lost. These cash crop trees are used by the local community as one of the sources household livelihood income generations.

Kebeles	Houses		Coffee[16]	Total number of PAPs
	Tukuls	CIS		
Kolo Korma	0	20	34	22
Qawo & Chatu	3	17	225	43
Gaba Guda	3	3	102	16
Gagi Bachano	0	4	364	56
Gagi Kundi	0	2	11	22
Yubi Mari	3	8	1266	21
Sagi Baqi	5	15	0	39
Bebbe	0	2	0	13
Medalu	1	1	0	4
Dildila Boru	0	2	0	22
Jeto Koyami	5	11	24,489	80
Gerba Dima	5	4	32,238	22
Duwa	8	5	51,675	55
Wolo	4	0	123	15
Keja	1	0	2923	17
Masha Kebele 02	1	0	0	10
Total	39	94	113,450	457

16 The coffee shade trees such as *Albizia gummifera, Cordia africana, Ficus sycomorus* and others are inside the RoW of the Metu- Masha power transmission line. These coffee shade trees will be cut. Since the coffee shrubs need the shade of these trees, cutting these trees will affect coffee production of the smallholder farmers. Therefore, the client need to acquire the land falling in its project's RoW.

Mitigation measures

- Apply all requirement of the Resettlement Action Plan (RAP)
- Payment of compensation for permanent and temporary loss of assets of the PAPs.
- Apply all provisions of the Livelihood Restoration Plan of this project
- Enable the PAPs at Kolo Korma get new plots of land to construct new houses at least close to where they are living now to ensure social cohesion and their traditional social activities.

Conclusion

These activities of the Metu – Masha 230 kV single circuit transmission line project require the removal of houses and cutting of indigenous coffee shade trees and cash tree crops such as *Eucalyptus* result in a permanent loss of assets. This impact has a different magnitude across the entire length of the RoW. Some PAPs are more affected than others. That is, those PAPs in the rural Kebeles should be compensated for their houses and construct new houses in their remaining lands. But those PAPs at Kolo Korma (Metu Town) do not have extra plot to construct new houses. Therefore, a replacement plot of land to construct new houses should be provided by Metu Town Municipality, Metu Woreda and Kolo Korma Kebele. Other permanently impacted assets of the PAPs such as coffee shrubs, indigenous coffee shade trees and cash tree crops should be compensated for by the Client before the commencement of the Construction Phase of the Project. A RAP study is needed to valuate these assets and provide details for compensation of these assets of PAPs.

Details of the impacts associated with acquisition of assets are given below.

Project activity	Impacts on:											
		Spatial scale	duration	intensity	Cumulative effect	Probability of occurrence	magnitude	reversibility	Adverse/ beneficial	Direct/ indirect	Objective/ subjective	Actual/ perceived
	Houses	local	permanent	high	none	certain	high	irreversible	adverse	direct	objective	Actual
	Scattered trees at the new substation	local	permanent	negligible	none	certain	negligible	irreversible	adverse	direct	objective	Actual

Project activity	Impacts on:											
		Spatial scale	duration	intensity	Cumulative effect	Probability of occurrence	magnitude	reversibility	Adverse/ beneficial	Direct/ indirect	Objective/ subjective	Actual/ perceived
	Coffee shade trees	local	permanent	high	none	certain	high	irreversible	adverse	direct	objective	Actual
	Coffee shrubs	local	permanent	high	none	certain	high	irreversible	adverse	direct	objective	Actual
	Cash tree crops	local	permanent	high	none	certain	high	irreversible	adverse	direct	objective	Actual
	Household livelihood	local	permanent	high	none	certain	high	reversible	adverse	direct	objective	Actual
	Basic public services, e.g. education and provisions of utilities17	local	temporary	high	none	certain	high	reversible	adverse	direct	objective	perceived
	Social cohesion18	local	permanent	negligible	none	probable	negligible	reversible	adverse	direct	objective	perceived
	Traditional community associations, e.g. Idir19	local	permanent	low	none	probable	low	reversible	adverse	direct	objective	perceived

17 If the members of the current community are relocated to new places far from their current location, household should change schools for their kids. If these areas are new with less developed basic public services such as water and power, these PAPs will be highly affected. This impact may be temporary since these utilities will be developed sooner or later.

18 If the members of the current local community are relocated to different places

19 If the members of the current local community are relocated to different places

9.2.2. Construction Phase

This phase of the project is where most of the activities of the project take place. Table 9-5 gives the list of project activities and their receiving environmental and social environments

Table 9-5. Environmental and social Impacts of the project during the construction phase. Key: x denotes impacts on concerned bio-physical and social conditions that will be triggered by the project activity.

Receptors / Project Activity		Physical			Biological		Social						
		Air quality	Noise quality	Soil	Flora	Fauna	Population growth	Public health	Occupational health & safety	Economy and employment	Livelihoods	Settlement	Solid wastes
	Labor influx	x	x										
	Excavation of Tower Foundations			x	x	x				x	x	x	x
	Access road to Tower foundations to transport construction materials			x	x	x			x				x
	Stringing				x	x			x				

a. Workforce mobilization (labor influx)

Social impacts are critical to address, as even a modest labor influx may lead to negative impacts on the host community. Pre-existing social issues in the host community can easily be exacerbated by the influx of labor. The list below indicates expected categories of risks associated with project induced labor influx:

- **Risk of social tension**: Conflicts may arise between the local community and the construction workers, which may be related to differences due to competition for local resources. Tensions may also arise between different groups within the labor force, and pre-existing conflicts in the local community may be exacerbated.
- **Increased risk of illicit behavior and crime:** The influx of workers and service providers into communities may increase the rate of crimes and/or a perception of insecurity by the local community. Such illicit behavior or crimes can include theft, physical assaults, and substance abuse. Local law enforcement may not be sufficiently equipped to deal with the temporary increase in local population.
- **Increased burden on and competition for public service provision**: Presence of construction workers and service providers (and in some cases family members of either or both) can generate additional demand for the provision of public services, such as water, electricity, medical services, transport, education and social services. This is particularly the case when the influx of workers is not accommodated by additional or separate supply systems.
- **Increased risk of communicable diseases and burden on local health services**: The influx of people may bring communicable diseases to the project area, including sexually transmitted diseases (STDs), or the incoming workers may be exposed to diseases to which they have low resistance. This can result in an additional burden on local health resources. Workers with health concerns relating to substance abuse, mental issues or STDs may not wish to visit the project's medical facility and instead go anonymously to local medical providers, thereby placing further stress on local resources. Local health and rescue facilities may also be overwhelmed and/or ill- equipped to address the industrial accidents that can occur in a large construction site.
- **Gender-based violence**: Construction workers are predominantly younger males. Those who are away from home on the construction job are typically separated from their family and act outside their normal sphere of social control. This can lead to inappropriate and criminal behavior, such as sexual harassment of women and girls, exploitative sexual relations, and illicit sexual relations with minors from the local community.
- **Child labor and school dropout**: Increased opportunities for the host community to sell goods and services to the incoming workers can lead to child labor to produce and deliver these goods and services, which in turn can lead to enhanced school dropout.

- **Inadequate waste disposal and illegal waste disposal sites**: Large populations of workers generate increased amounts of waste, for which no sufficient local waste management capacities may exist, which would likely lead to improper disposal practices.
- **Camp related land use, access roads, noise and lights**: The camp use can result in increase in noise and light pollution especially at night. The construction of new access roads can also lead vegetation removal and landscape transformation.

Mitigation measures

- The Contractor will prepare the construction camp management plan which, in addition to other components, will include the labor influx management plan. This will be reviewed and approved by EEP and the World Bank.
- The Contractor will select the specific work shift for the construction activities particularly near the settlements, to cause least disturbance to the local population, particularly women.
- The Contractor will take due care of the local community and observe sanctity of local customs and traditions by his staff. Contractor will warn the staff strictly not to involve in any unethical activities and to obey the local norms and cultural restrictions.
- During construction activities, if privacy of the nearby households is affected, the Contractor will inform the house owner to make particular arrangements. Similarly, Contractor will take care as much as possible that the construction activities should not affect the privacy.
- The contractor will also ensure that solid waste and wastewater is disposed of in an environmentally friendly manner in designated areas and by approved methods only. Contractor will ensure that soil and water is not contaminated by improper disposal of solid waste and waste water.
- The contractor will explore alternative water sources and ensure that water usage by the project does not affect or compete with water requirements of the local community.
- The Contractor will also ensure that noise and light pollution from the labor camp is kept at minimal levels especially at night.
- The contractor will be required to provide qualified key personnel to address the specific risks identified in the project including Sexual Exploitation and Abuse risks. Contractors will specify key staff with the technical skill and experience to implement the recommendations and mitigations included in this ESIA.

- The bidding documents will include specific requirements that minimize the use of expatriate workers and encourage hiring of local workers through skill development program, thereby minimizing labor influx.
- The bidders will be required to submit Codes of Conduct (CoCs) with their bids. The CoCs will set clear boundaries for acceptable and unacceptable behaviors of all individuals and companies and will be signed by companies, managers and individuals.
- The contractor will be required to establish anti-sexual harassment policies that governs conduct in the workplace.
- The contractor will be required to provide mandatory and repeated training to workers on sexual exploitation and abuse and HIV/AIDS prevention and on the content and obligations derived from the code of conduct
- Provisions will be set in contracts for dedicated payments to contractors for SEA prevention activities (e.g., training) against evidence of completion.
- The Contractor will ensure the implementation of the recommendations and mitigations related to SEA risks included in this ESIA. The implementation will be regularly reported by the Contractors and internally monitored by EEP. Implementation of these recommendations and mitigations will also be monitored by the third-party M&E Consultant and presented in its monitoring reports.
- The contractor will make all PPEs (face masks, hand sanitizers etc.) available at site and should also arrange for Covid vaccination at site when required. All the employees of the contractors (including skilled and non-skilled) must be vaccinated and their certificates should be checked before their mobilization/engagement.

Conclusion

The scale of these impacts is local, and temporary. Their magnitude, however could be medium to high. With the appropriate mitigation measues, as described above, and with continuous monitoring, the residual impacts are considered low.

Details of the impacts associated with workforce mobilization are given below.

Project activity	Impacts on:	Spatial scale	duration	intensity	Cumulative effect	Probability of occurrence	magnitude	reversibility	Adverse/ beneficial	Direct/ indirect	Objective/ subjective	Actual/ perceived
Workforce mobilisation	Public health	local	temporary	medium	none	probable	low	reversible	adverse	direct	objective	perceived
	Occupational health & safety	local	temporary	high	none	probable	high	reversible	adverse	direct	objective	perceived
	Competition on resources	local	temporary	Medium	none	Probable	Medium	reversible	adverse	direct	objective	perceived
	SEA and GBV	local	temporary	High	None	probable	high	reversible	adverse	direct	objective	perceived
	Solid waste	local	temporary	high	none	probable	high	reversible	adverse	direct	objective	perceived

b. Excavation of tower foundation and construction of Access roads

Excavation of tower foundations and construction of access road is one of the main activities of the project during the construction phase. This activity results in the emission of dust to the environment. This impact is mitigable and not considered significant. Since concrete is used to fill tower foundations, there are excess soil around the tower foundations are exposed to soil erosion. If the proposed mitigation measure is used, the impact can be minimized. The construction of access roads to tower locations results in the clearing of vegetation and felling some indigenous trees and cash tree crop, e.g., *Eucalyptus*. Furthermore, this activity triggers OHS issues such as accidents and injuries.

Mitigation measures

- Water the project area on a regular basis to suppress dust emission
- Spread excess soil around the tower foundation evenly and use the cleared vegetation as mulch to minimize soil erosion
- Prepare Resettlement Action Plan (RAP) and apply all of its requirements
- Restrict all excavation activities to the tower foundation areas and access roads
- Provide workers with PPE

- Apply all requirements of Biodiversity Management Plan
- Avail first aid kits
- Apply all requirements of the Air Quality Management Plan
- Apply all requirements of the Occupational Health & Safety Management Plan
- Apply all requirements of the Emergency Response Plan
- Avoid excavation of religious sites (graveyards and others)

Conclusion

The scale and magnitude of the anticipated impacts are local and low, respectively and mitigable. Dust emission is one major issues during excavation and construction of access roads. The implementation of the proposed mitigation measures will minimize these impacts. During this activity, potential accidents and injuries have been foreseen but the provision of PPE for the workers and first aid kits will significantly minimize these impacts. Some tree species will be adversely affected along the access roads, which need to be expanded to allow a passage of vehicles for transporting construction materials. Therefore, impacts due to these project activities are mitigable.

Details of the impacts associated with excavation for tower foundation and construction of access roads are given below.

Project activity	Impacts on:											
		Spatial scale	duration	intensity	Cumulative effect	Probability of occurrence	magnitude	reversibility	Adverse/ beneficial	Direct/ indirect	Objective/ subjective	Actual/ perceived
Excavation of tower foundation and construction of access roads	Air quality	local	temporary	low	none	certain	low	reversible	adverse	direct	objective	actual
	Soil erosion	local	temporary	medium	none	certain	medium	reversible	adverse	direct	objective	actual
	Occupational health & safety	local	temporary	low	none	probable	low	reversible	adverse	direct	objective	perceived
	Biodiversity components	local	permanent	high	none	certain	high	irreversible	adverse	direct	objective	actual

Project activity	Impacts on:											
		Spatial scale	duration	intensity	Cumulative effect	Probability of occurrence	magnitude	reversibility	Adverse/ beneficial	Direct/ indirect	Objective/ subjective	Actual/ perceived
	Settlement	local	permanent	high	none	certain	high	irreversible	adverse	direct	objective	actual

9.2.3. Operation Phase

I. Soil

During the operation phase, the location of tower foundations and access roads will be revegetated naturally. As a result, a significant soil erosion is not anticipated.

II. Air quality

Once the construction phase is completed, no significant impacts on air quality is anticipated.

III. Noise and vibration

Once the construction phase is completed, no significant impacts on noise level is anticipated.

IV. Flora and Forest

There will be adverse impact on the vegetation during the operation phase, i.e., vegetation clearance for maintenance purposes. Since the vegetation in the RoW are cleared, a significant impact is not anticipated. But there is a chance for the germination of seeds of big indigenous trees in the surrounding forest inside the RoW corridor. Although these seedlings require many years to become a mature tree, they may not pose risks to the Metu – Masha 230 kV single circuit transmission line project. Maintenance activities also provide an enabling environment for the introduction of invasive species into the project area. If invasive species produce seeds, these seeds stay in soil as soil seedbank and results in a permanent risk for their spread to other areas in the project area. Due to the presence of forested areas in the surrounding, the operation phase impact on flora and forest is low. It is, however, permanent since the Metu – Masha 230 kV single circuit transmission line project operates for a couple of years.

Mitigation measures

- Identify seedlings of indigenous tree species before clearing the vegetation
- Transplant any seedlings of tree species of the forest that are growing inside the RoW
- Identify invasive species and clear them (uproot the seedlings) before reaching maturity (seed production stage).

V. Fauna

During the operation phase, bird collision with the transmission line could occur. There is no migratory route in the project area. Furthermore, the project area is not known as a steppingstone habitat for migratory birds. The impact on migratory bird is anticipated to be not significant.

VI. Economy and employment

The project creates opportunities for employment creating positive impacts on the livelihood income. At a national level, the operation of the Metu – Masha 230 kV single circuit transmission

line project provides electricity to improve quality of life and boost national economy through attracting of investments. Generally, this impact of the project during the operation phase is positive. Besides the impact is indirect and long-term.

VII. Displacement of physical structure (houses, shade trees and crop trees)

During the operation phase, restrictions inside the RoW applies. No houses and big shade coffee trees are allowed. This limits the capacity of smallholder farmers to grow shade coffee, which leads to a permanent loss od or at least reduced incomes. Some PAPs in the Urban area, e.g. Metu town (Kolo Korma Kebele) will physically relocate their residential areas to a new site. But PAPs in the rural Kebeles have sufficient land outside the RoW corridor to build their new houses. Table 9-6 depicts the pre-mitigation impacts.

Table 9-6. Pre-mitigation impacts

Impact	Displacement of physical structure			
Impact nature	**Adverse**	positive	Neutral	
Impact Type	**Direct**	Indirect	Induced	
	The impact is direct since houses inside the 40 m corridor of the RoW will be removed.			
Impact duration	Temporary	**Permanent**		
	The impact is permanent since no new house will be allowed to be built inside the 40 m corridor of the RoW			
Impact extent	**Local**	Regional	International	
Impact scale	The ESIA study has identified 133 houses (Tukul and CIS) to be relocated as they are inside the 40 m corridor of the RoW			
Frequency	The impact occurs only once (a one-time event)			
Impact magnitude	Low	Medium	**High**	
	The magnitude of the impact is high since urban PAPs have no additional land outside the RoW corridor to build new houses. These PAPs should get a replacement land to build new houses			
Receptor sensitivity	Low	Medium	**High**	
Impact significance	Negligible	Low	Moderate	**High**

Mitigation measures

- Monitor and follow-up to support households to restore their livelihoods during the operation phase. That is the details of the Livelihood Restoration Plan (LRP) details this aspect.
- Maintain the functionality of the Grievance Redress Mechanism (GRM) developed for Resettlement Action Plan (RAP) for the construction phase to create enabling environment for communities to voice their concerns.

VIII. Land and livelihoods

During the operation phase, lands will be permanently lost to tower foundations. But cultivation of cereal crops including Enset and growing tea shrubs are allowed. The incomes from the land

occupied by the tower foundation is permanently lost. This land loss variously affect PAPs in the urban and rural areas. PAPs in the urban area have a total plot size of 200 square meter, which they use for houses and cultivation of certain crops. For the rural PAPs, they have sufficient land for cultivation but the impact is still permanent and adverse. For the Tea Estate, there is a permanent loss of income from lands occupied by tower foundation. The details of pre-mitigation impacts are given in Table 9-7.

Table 9-7. Pre-mitigation impacts

Impact	Land and livelihoods			
Impact nature	**Adverse**	positive	Neutral	
Impact Type	**Direct**	Indirect	Induced	
	The impact is direct since it leads to a permanent loss of land.			
Impact duration	Temporary	**Permanent**		
	No crops are allowed to be grown on tower foundations			
Impact extent	**Local**	Regional	International	
Impact scale	The ESIA has identified that urban PAPs are more affected than rural PAPs			
Frequency	The impact occurs only once (a one-time event)			
Impact magnitude	Low	Medium	**High**	
	The magnitude of the impact is high since urban PAPs have no additional land to grow crops. These PAPs should get a replacement land to build new houses			
Receptor sensitivity	Low	Medium	**High**	
Impact significance	Negligible	Low	Moderate	**High**

Mitigation measures

- Strictly follow-up PAPs, especially those in the urban area with only 200 square meter of land, to provide support to restore their livelihoods in the operation phase
- The requirements of Livelihoods Restoration Plan developed for the construction phase should apply for the operation phase as well.

IX. Community health and safety impacts from exposure to Electromagnetic Fields (EMF)

The Electromagnetic Fields are usually emitted by electric devices such as transmission lines and any other electric equipment. These invisible forces pose health risks such as chronic health effects. They also cause acute public health effects. Although there are public health risks due to high voltage OHTL, the IFC Guidelines for electric power distribution states that there is empirical data to support that there is chronic public health concern from power transmission lines and equipment. On the other hand, the International Commission on Non-ionizing Radiation Protection (ICNIRP) Guidelines state that the existence of well-established cases of acute health effects of exposure to low frequency of EMF. The RoW of the Metu – Masha 230 kV single circuit transmission line project crosses cultivated fields, tea Estate and some part of

forests, the spatial location. Given the IFC Guidelines, the impact of EMF on the public health is low. Details of the pre-mitigation impact of EMF is given in Table 9-8.

Table 9-8. Pre-mitigation impacts

Impact	Public health risks due to exposure to Electromagnetic Fields (EMF)			
Impact nature	**Adverse**	positive	Neutral	
Impact Type	**Direct**	Indirect	Induced	
	The impact is direct since the local communities move and farm around the OHTL to meet their livelihood needs			
Impact duration	Temporary	**Permanent**		
	Once the OHTL is operation, the emission of EMF is inevitable			
Impact extent	Local	**Regional**	International	
Impact scale	The Metu – Masha OHTL crosses different regions			
Frequency	The impact occurs only once (a one-time event)			
Impact magnitude	**Low**	Medium	High	
	The magnitude of the impact is high since urban PAPs have no additional land to grow crops. These PAPs should get a replacement land to build new houses			
Receptor sensitivity	**Low**	Medium	High	
Impact significance	Negligible	**Low**	Moderate	High

Mitigation measures

- Avoid installation of transmission line above densely occupied settlements.
- The Client should measure exposure levels once the Metu – Masha 230 kV single circuit transmission line project is operational to ensure that the exposure of the public to EMF is within the accepted limit.
- Awareness creation of the effects of EMF for the public by the Client
- Annual monitoring the RoW to make sure that no new houses are built inside the 40 m corridor.

X. Worker's health and safety

During the operation phase, there will be maintenance of the Metu – Masha 230 kV single circuit transmission line project. Workers will be exposure to EMF and potential risks of electrocution. The workers should be provided with PPE to mitigate the impact. It is anticipated that this impact is not significant.

XI. Religious sites

There is no significant impact on the religious site due to the Metu – Masha 230 kV single circuit transmission line project.

10. Assessment of cumulative impacts

10.1. Road Construction project

Currently, there is Masha – Gore Asphalt Road construction project. This project crosses through the forest. Lots of indigenous trees were falling to expand the width of the road. Large areas of forest have been cleared. Big trees such as *Pouteria adolfi-frifderici, Polycias fulva, Olea welwitchi, Cordia africana* and etc. have been clear. Since the clearing is wide, this activity negatively impact forest integrity and tree density.

10.2. Agricultural expansion

Agricultural expansion (circled areas; these are labeled for year 2020 in Figure 44) is one of the major factors affecting the forest cover of the project area (Figure 10-1). An estimate of agricultural expansion from 1984 – 2020 is given in Table 10-1. Three sites (Figure 10-1: A1, A2 and A3) were randomly selected to show the impacts of agricultural expansion on the forests of the project area.

Table 10-1. A quantitative estimate of the length of agricultural expansion from one forest edge to the other from 1984 – 2020.

Year	Selected sites	Expansion distance (from one forest edge to another) in km	Remarks
1984	A1	1.7	Forest disturbance is observable but there are remnant patches of forests inside these disturbed areas of the forest (Figure 44). Some remnant patches were distributed along streams.
	A2	1.2	
	A3	1.8	
1996	A1	2.0	Forest disturbance can be clearly noted but there are small remnant patches inside disturbed areas; most of these are located along streams (Figure 44).
	A2	0.92	
	A3	2.0	
2006	A1	3.47	Forest areas heavily converted to agricultural lands; remnant patches of forests were removed from inside the disturbed areas(Figure 44).
	A2	1.0	
	A3	3.3	
2020	A1	2.5	Forest has been fully converted; agricultural landscape has become dominant (Figure 44).
	A2	2.0	
	A3	3.5	

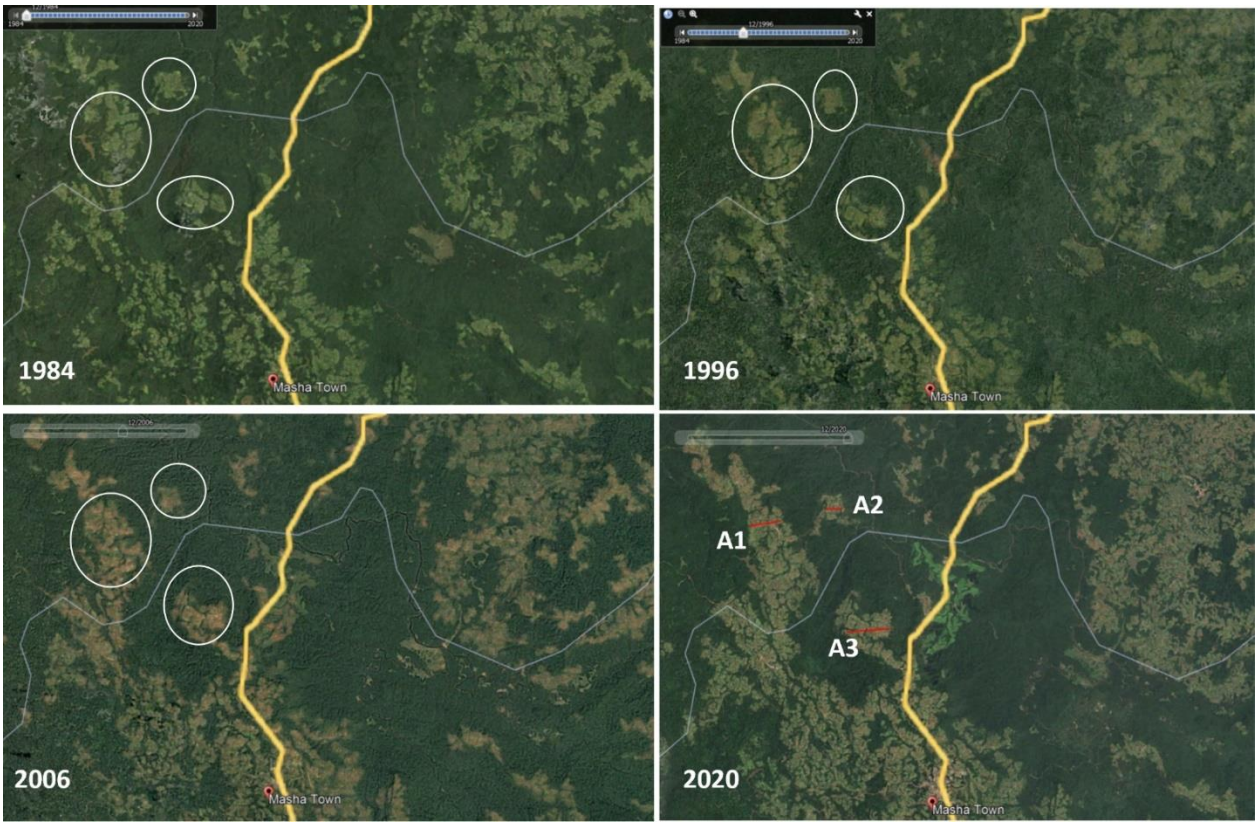


Figure 10-1. Agricultural expansion and change in forest cover of the project area from 1984 – 2020

10.3. Large-scale investment

The forest cover (cf. circled area) was disturbed in 1984 but the forest in the surrounding area was intact. (Figure 10-2). This intact forest has been gradually converted into tea Estate. Currently, the size of the tea Estate has increased significantly.

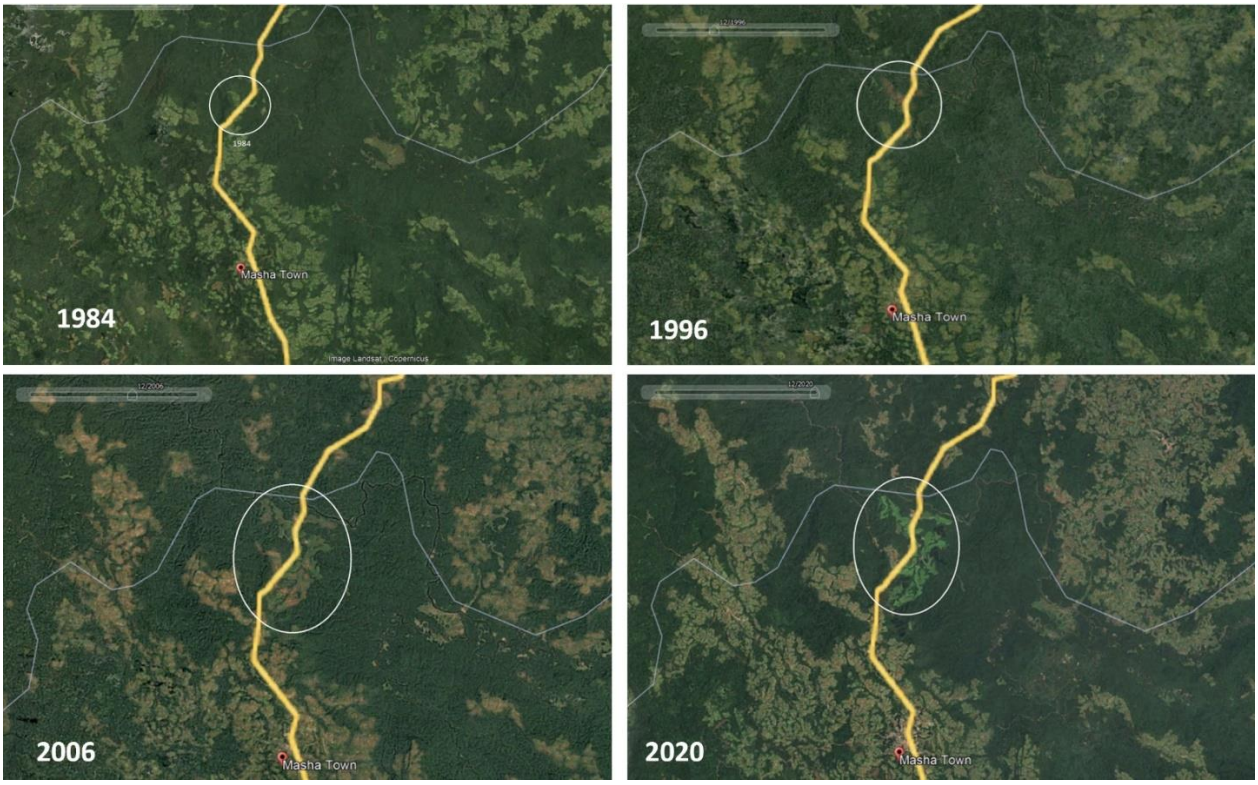


Figure 10-2. Change in forest cover from 1984 – 2020 due to large scale investment.

10.4. Cumulative effects and their significance

A summary of the cumulative effects of other activities on the selected VEC is given in Table 10-2. The cumulative impacts are of a high-risk level. But the current Masha – Gore Road Project is rated as moderate considering the full implementation of its ESMP by the Contractor.

Table 10-2. Significance of cumulative effects on the selected VECs

VECs	Other activities	Scenario: long-term (2040) Likelihood (Certain < likely < possible < probable)	Consequences (High, moderate and Low)	Risk level
Natural Habitats and Biodiversity	Agricultural expansion	Likely: the past trend shows that there is an increase in the expansion of agricultural fields triggered by an increase in population of the project area. With the current	High impact: the aerial extent and quality of the natural habitats will decline leading to depauperated biodiversity and compromised	H

VECs	Other activities	Scenario: long-term (2040) Likelihood (Certain < likely < possible < probable)	Consequences (High, moderate and Low)	Risk level
		trend of population growth, it is likely that more forest area covers will be both simplified to grow coffee and converted to crop fields.	long-term persistence of species.	
	Large-scale investment	Likely: Historical trend shows that there is an increased clearing of forest areas for large-scale planation of cash crop (e.g. Tea). There will be more large-scale investment that could simplify forest cover and lead to total clearing for forests for development of Estate. The current 230 kV power line and a new sub-station at Masha could attract more investors.	High impact: significant parts of the forests will be reduced in extent and there is a major decline in the quality of natural habitats. All of these result in local-level biodiversity loss and induced habitat fragmentation.	H
	Road Construction	Certain: The current Masha – Gore Road Construction project has resulted in a permanent loss of certain tree species and their associated lower organisms living on them (e.g., epiphytes).	Moderate impact: The activities of the Road project led to falling of selected trees along its Right-of-Way. The direct impact is a reduced number of individuals of	M20

20 The risk level will be moderate if the Road Contractor plants seedlings of these tree species in the project area as part of implementing the requirements of the ESIA of the Road project

VECs	Other activities	Scenario: long-term (2040)	Consequences (High, moderate and Low)	Risk level
		Likelihood (Certain < likely < possible < probable)		
			these tree species in the forest.	

11. Environmental and Social Management Plan (ESMP)

11.1. Institutional arrangement

The Ethiopian Electric Power (EEP) will procure the services of contractors for construction the proposed the Metu - Masha OHTL. It is likely that the main contractor will procure local services of sub-contractors mainly for certain project activities. The responsibilities of major parties of are outlined below.

- **Ethiopian Environmental Protection Authority (EPA).** The EPA will review and approve ESIA reports of the Metu – Masha 230 kV single circuit transmission line project. It is also a sole authority for providing environmental clearance for the implementation of the project. Furthermore, EPA is responsible for monitoring the implementation of the provisions of ESMP.
- **Ethiopian Electric Power (EEP).** EEP is the project proponent and will contract a consultant (Project Implementation Consultant, PIC) to supervise the implementation of the proposed Metu – Masha 230 kV OHTL project. The PIC will supervise and monitor the implementation of the provisions of the ESMP and will report to EEP on a regular basis. EEP will also assign own experts (Project Implementation Unit, PIU) to monitor the implementation of all requirements of the ESMP of this project.
- **Zonal and Woreda Forest and Environmental Protection Offices.** They are expected to get involved in the monitoring of the implementation of the ESMP of the project**.**
- **Contractors.** The Contractor is mainly responsible for the implementation of all of the mitigation measures outlined in the ESIA to avoid or minimize environmental, health & safety and social impacts of the project. Besides, the Contractor should have an Environment, and Social Management (E&S) Unit, which is solely responsible for the implementation, management and monitoring of all the environmental and social mitigation measures according to the ESMP. This Unit should have at a minimum one Environmentalist, one Forester and one Sociologist/Social expert. The Contractor is responsible for ensuring its subcontractors are in compliance with the international and national environmental and social standards. The Contractor will submit weekly reports and monthly reports to EEP.

11.2. ESMP for Construction

The Contractors will comply with requirements within the scope of work. This ESMP requires all contractors to develop a detailed Environmental, Social, Health and Safety Plan in accordance with their own policy framework and management system to foster environmental and social sustainability of the project. The following sections provide the EHS requirements of civil works (construction works).

General Requirements

Risk management.

The Contractors shall ensure the safety of its workforce through evaluating and documenting whether or not an adequate operational risk assessment has been taken into consideration. This includes job safety and potential hazardous events.

EHS induction and training.

The Contractor shall establish an EHS induction program for all workforces at the project site. This induction program should also include all personnel of the subcontractors.

EHS monitoring and inspection.

The Contractor should also establish an EHS monitoring plan in accordance with the ESMP and in compliance with applicable laws of Ethiopia.

EHS meeting.

The Contractor should hold regular meetings with the representatives of the Client to review the effectiveness ESMP implementation and resolve EHS problems and planning future activities of EHS.

Incident Reporting.

The Contractor should have a standard procedure for documenting and reporting incidents. All types of incidents should be report on time.

11.2.1. Solid waste management Plan

All wastes including used plastic water bottles should be sorted on site and deposited at designated areas. Wastes of any types should be removed on time and regular basis.

Solid Waste includes those materials which are no more used for project activities and excavated soil materials.

The following national legislation and policy are relevant.

- **The Constitution of the Federal Republic of Ethiopia.**

  Article 44 states that all persons have the right to clean and health environment. Article 92 tasks the Federal Government to ensure that all Ethiopians live in a clean and health environment.

- **Environmental policy of Ethiopia**

  This policy advocates the "polluters pay policy" and authorizes competent authorities to close down or relocate any enterprise if its activities are considered as posing risks to human health and the environment.

- **Prevention of Industrial Pollution Regulation (159/2008)**

There are sections which uphold the principles of environmental safety.

- **Public Health Proclamation (200/2000)**

  This proclamation prohibits the disposal of solid or liquid wastes in a condition that contaminate the environment.

Responsibilities and accountability

The responsible Parties and their roles and responsibilities are given below.

Responsible Parties	Roles and Responsibilities
General Manager	• Review monthly waste report • Work with Environmental and Social Officers to address outstanding waste related issues
Environmental and Social Officers	• Ensure wastes are disposed on time • Ensure the provisions of ESMP are implemented for waste management • Ensure all applicable national legislations and policy are observed by the contractors and their subcontractors • Prepare and submit monthly waste management issues to the representative of the client for review
All workforces of the contractors and their subcontractors	• All workers are responsible for good practice waste management at the project sites
Implementation schedule	• Construction phase of the project

Management Actions

- Establish a waste management procedure at the project sites which also takes domestic solid and liquid wastes and used oils into consideration

Dispose all excavated soil wastes by using the ESMP provisions as a guide.

11.2.2. Soil Erosion Management Plan

The extent of soil erosion during the construction phase depends on the type and physical properties of soil, slope of the topography, vegetation cover and the duration of the construction. The project crosses through different types of soil and slopes of topography. The slope of the RoW of the project ranges from flat to 25%.

The Metu – Masha 230 kV single circuit transmission line project crosses two major soil types, i.e., Nitisols and Gleysols. Soil erodibility of the project area is low but human factors and construction activities enhance soil erosion. Both the Nitisols and Gleysoils are moderately erodible.

Purpose and scope of this Management Plan

The excavation of foundations and access roads to the tower foundations trigger soil erosion. This impact likely occurs but its extent is limited to tower foundations areas and the access roads. The impacts of these activities of the project will have a short duration, i.e., limited to the direct zone of the AOI of the project. Given the high moisture condition of the area, vegetations growth will cover these impact areas within a short period of time.

Responsibilities and accountability

The responsible Parties and their roles and responsibilities are given below.

Responsible parties	Roles
The Contractor	• Ensure that all required Environmentalist/forester are employed • Ensure that all management actions are implemented • Submit its Company Soil Erosion Management Procedures/policy for approval by the Client
Zonal and Woreda Environmental Protection Office	• Regular supervision of the construction activities • Regular recording of risks of the activities of the contractor for triggering soil erosion • Enforce all requirement of the soil management actions
The Ethiopian Electric Power	• Regular supervision of excavation activities of the Contractor • Record the presence of an Environmentalist/Forest at construction sites on a regular basis • Record activities of the Contract that pose risks for soil erosion • Provide corrective measures to minimize soil erosion •
Supervision Consultants	• Follow day-to-day construction activities of the Contractor • Hire an Environmentalist/Forester to follow and guide environmental due diligence of the Contractor

Management actions

- Minimize vegetation clearance and topsoil disturbance
- To minimize water runoff and soil erosion, contour access roads
- Use physical means (e.g., diversion culverts) to minimize sheet erosion
- Stockpile topsoils separately from subsoil. Fill the tower foundation first with subsoil and then topsoil.
- Evenly spread topsoil over excavated areas
- Backfilling of soil should follow the sequence of their removal
- Spread mulch of the cleared vegetation over excavated areas

Monitoring and verification

- The implementation of the management actions to mitigate soil erosion is done by visual inspections. Contractor's risk footprints will be used for verification of the implementation of this ESMP.

11.2.3. Forest Management Plan

There are forests in the project area. Coffee agroforestry, where big indigenous trees are uses as shade, is practiced in the project area. The Metu – Masha 230 kV single circuit transmission line project also crosses some section of the Yayu Coffee Forest and Sheka Forest Biosphere Reserve. The length of the Metu – Masha 230 kV single circuit transmission line project in these sections of the Biosphere Reserves is about 700 m. But there are forest vegetation and plants growing beneath this big vegetation.

Purpose and scope of this Management Plan

Vegetation clearance along the Row in areas where the Metu – Masha 230 kV single circuit transmission line project crosses forested areas will likely happen. The purpose of the Forest Management Plan is to minimize vegetation clearance and limit it to the direct impact zone of the Project AOI. The duration of this impact is permanent since vegetation will be removed from the RoW. Furthermore, the habitats within the RoW will be modified.

Responsibilities and accountability

Responsible parties	Roles
The Contractor	• Ensure that all requirements of the Forest Management Plan are implemented • Ensure that the damaged forest sites are rehabilitated • Employ a Forester to follow day-to-day activities and give guidance for workforces • Ensure recording forest damages and report to the Client • Submit Company's Forest management procedure/policy and have it approved by the Client
Zone and Woreda Environmental Protection Office	• Supervise the implementation of the requirements of the Forest Management Plan • Give advice to avoid where possible or at least minimize forest damage
The Ethiopian Electric Power	• Supervise the implementation of the requirements of the Forest Management Plan • Revise and approve forest management procedure/policy of the Contractor • Evaluate and approve the records of damaged forest components based on Contractor's report
Supervision Consultant	• Deploy a forester/forest biologist to follow the activities of the Contractor • Record forest damages and report to the Client

- Record shortfalls of the implementation of the Forest Management Plant and report to the Client

Management actions

- Adopt avoidance of vegetation removal as a rule of thumb.
- Strictly limit forest clearance to the area of RoW.
- Invasive species could be transported with construction materials, namely sand. The forester of the Contractor should inspect the disturbed area for the seedlings of invasive species. In this case, remove all invasive species before they mature and produce seeds.
- Vehicles should use only access roads. There should not be deviations from the access road and damage other forest components.
- Collection of firewood by the personnel of the Contractor should be strictly forbidden
- Stockpiling of construction materials and equipment pre-maturely should be forbidden.
- Rehabilitate damaged areas before leaving the site

Monitoring and verification

- Visual inspection of the extent of forest damages
- Inspection for the introduction of invasive species on a regular based

11.2.4. Biodiversity Management Plan

There are diverse species in the project area. Most of the plant species are widely distributed in Ethiopia and were assessed as Least Concern from conservation viewpoint. But there are indigenous tree species such as *Prunus africana*, which is assigned a vulnerable IUCN status. Other species such as *Pouteria adolfi-friderici*, *Olea welwitschii, Apodytes dimidiata* and etc. occur in the project area. Indigenous trees of Ethiopia usually need decades to reach maturity. With regard to avifauna, they are of least conservation concern based on IUCN assessment criteria. Furthermore, there is no known route for migratory birds in the project area. On the other hand, there are ants species which are important to suppress coffee pests. They usually build their nests on these indigenous trees. Therefore, felling trees with ant nest affects these species.

The impact of the project on the biodiversity of the area is likely to occur. The impact is permanent since trees will be removed along the RoW and access roads.

Although the project area is not located within the flyways of migratory birds, there is a potential collusion of these birds and bats of the area with this new power transmission line. This results in an electrocution of birds and bat species in the project area.

Purpose and scope of this Management Plan

The purpose of this management plan is to minimize the impacts of the project on biodiversity of the area. The project triggers the felling of indigenous trees along the RoW. This impact is likely to occur and has a permanent duration since no big trees are allowed inside the RoW corridor. Although this impact can be minimized while constructing access road, it is still likely that some tree felling is unavoidable for access road construction in some place. However, the extent of this impact is limited to the direct impact zone of the project AOI.

Responsibilities and accountability

Responsible parties	Roles
The Contractor	• Implement all requirements of the Biodiversity Management Plan • Plant tree species impacted by the project activities • Develop nursery sites and/or work with already established Woreda nursery sites to germinate seedlings of impacted trees • Submit Company Biodiversity Management procedure for approval by the Client • Employ one Biodiversity expert • Give orientations (on-site) for the workforces
Zonal and Woreda Environmental Protection Office	• Supervise the planting of seedlings of impacted trees by the Contractor • Facilitate working conditions for the Contractor to use established Nursery sites for germinating seeds of impacted trees • Guide the Contractor where to plant these seedlings
The Ethiopian Electric Power	• Record the number of trees impacted in types of species and number of individuals of these species • Supervise the activities of the project and performance of the Contractor with regard to BMP • Evaluate and approve Contractor's company Biodiversity Management Procedure/policy • Advise Contractor's personnel to work in an environmentally friendly way such as avoiding felling big trees where possible and diverting access road to minimize biodiversity loss
Supervision Consultant	• Follow day-to-day activities of the implementation of this Biodiversity Management Plan • Record impacted trees by species types and number of individuals of each species • Advise the personnel of the Contractor to work in an environmentally friendly manner • Record frequency and type of on-site orientation for the workforce in connection to the implementation of all requirements of the Biodiversity Management Plan

Management actions

The direction for felling impact trees should be pre-planned to avoid additional damages other trees and the vegetation.

- Tree species of the project area are used by *Crematogaster* ants to build their nest. These ant species are critical for the integrity of pest-predator communities of the ecosystem of the project areas. The personnel of the Contractor will be given an orientation not to destroy these ant nests. When trees with ant nest fell, the Contractor personnel will mechanically detach the nest and attach it to other tree of the same species, under the supervision of the project environmentalist / biologist.
- Replacement of impacted indigenous trees with exotic trees is not allowed.
- For each impacted individual indigenous tree, plant 10 new individual seedlings of the same species
- Birds and bats of the project area could potentially collide with the power transmission line. To minimize or avoid the electrocution of birds and bats install visibility enhancement objects such as "Aviation" or marker balls and diverters following the World Bank EHS guidelines[21].

Monitoring and verification

- Visual inspection of the types and number of trees impacted will be used to quantify impacts.
- Counting the number and types of trees felled and planted to mitigate the adverse impacts.
- Evidence of the activities of the Contractor to either establish new Nursery sites or work with the existing one.
- Visual inspection and counting the number cut trees with ant nests

11.2.5. Air Quality Management Plan

All vehicles entering and leaving the project sites should be covered except when they are loading. Dust suppression methods such as spraying water on access and internal roads should be practiced by the Contractors on timely and regular basis in accordance with the ESMP.

The following national legislation and policy are relevant for the air quality management.

- **The Constitution of the Federal Republic of Ethiopia**

[21] Environment, Health and Safety Guidelines for Electric Power Transmission and Distribution (IFC – World Bank Group 2007)

Article 44 states that all persons have the right to clean and health environment. Furthermore, Article 51(3) of the Constitution states that the Federal Government shall establish national standards and basic policy criteria for public health.

- **Environmental Pollution Control Proclamation (No. 300/2002)**

  This law complementary to the Environmental Policy of Ethiopia (1997).

- **National guidelines**

  The Environmental Standards for industrial Pollution Control in Ethiopia. The contents of this Standard limit the emission of pollutants to the atmosphere.

The overall accountability for the implementation of the air quality management plan lays on the Contractors and their subcontractors. The table below provides roles and responsibilities of all concerned parties for the implementation of air quality management.

Responsible Parties	Roles and responsibilities
Project Manager	Ensure the availability of resources and authority for the implementation of the air quality management as specified in the ESMP Liaison with the community and stakeholders with regard to air quality management Ensure that all subcontractors implement provisions for the air quality management as indicated in the ESMP
Environmental and Social experts	Enforce the management and monitoring of air quality Ensure training the workforce and drivers to observe the provisions of the ESMP
Implementation schedule	Construction phase of the project

Management actions

Dust emission and be controlled and managed by implementing the following actions during the implementation of the project.

- Spraying water on access and internal roads
- Implement the speed limit of trucks and other construction vehicles
- Vehicles transporting loose soil materials shall be covered
- Stockpiling of excavated materials for a long period should be avoided
- Stockpiles, i.e., excavated soil wastes should be covered as much as possible

Monitoring and verification

The implementation of the provisions of the ESMP for air quality management will be done by visual inspections. This inspection shall be carried out on a regular period by the representatives of the client. On the other hand, the Contractors ES personnel should undertake visual inspection of dust emission on a daily basis.

11.2.6. Traffic Safety Management Plan

The Contractor shall submit a traffic safety plan to be reviewed by the representatives of the Client before commencing the work. This plan should specify key responsibilities and speed limit of vehicles it operates in accordance with the ESMP. Furthermore, the contractor should also develop a plan for on-site parking of cars.

The activities of the project during the construction and operation phase triggers certain issues with regard to potential traffic accidents. An increased movement of vehicles could lead to potential impacts on the livestock of the local communities.

Objectives

The objectives of the Traffic Management Plan (TMP) are as follow.

- Ensure the health and safety of the local communities
- Ensure the safety of the livestock of the communities
- Avoid potential traffic accidents due to the movements of vehicles due to the opening of this new road

Purpose and scope of the Traffic Management Plan

The purpose of this Management Plan is to guide the contractor to avoid potential traffic accidents during the construction phase by using designated access roads. The scope of this Management Plan includes the construction and operation phases of the project.

The following national policies and legislations are relevant with regard to this TMP.

- The Constitution of the FDRE
- Policy on Public health
- Public Health Proclamation (Proclamation No. 200/2000)

Responsibilities and Accountability

The responsible Parties and their roles and responsibilities are given below.

Responsible Parties	Roles and Responsibilities
Project Manager	

Responsible Parties	Roles and Responsibilities
	• Ensure that all its drivers observe the speed limits to avoid potential traffic accidents • Orient its drivers and create awareness for implementing the proposed mitigation measures • Ensure that all appropriate signposts are places before the completion of the project
Representative of the Client/the Client	• Review the performance of the contractor with regard to the implementation • Ensure that all signposts are placed at appropriate places to avoid potential traffic accidents
Woreda Administrations	• Assist in ensuring that all road signposts are placed to avoid accidents
Environmentalist	• Advise the contractor and orient its workforce to avoid potential traffic accidents • Prepare quarterly reports with regard to the implementation of the mitigation measures for avoiding potential traffic accidents • Work with the representative of the client • Update the TMP if there are new unplanned events
Implementation schedule	• Construction and operation phases of the project

Management Actions

- The Environmentalist of the contractor should take the lead in guiding the implementation of the TMP
- Periodic supervision of the management of vehicle movement to access tower foundations should be done by the Environmentalist
- Collect data form the local communities with regard to TMP

Reporting

The Environmentalist of the contractor should prepare quarterly reports about the status of the implementation of the requirements of the Traffic Management Plan.

11.2.7. Community and Occupational Health & Safety Management Plan

The contractor shall submit an Occupational Health and Safety (OHS) Plan to be reviewed by the representatives of the client before commencing the work. The plan should include at least the following:

- Description of the overall OHS policy of the organization
- Description of hazards and risks to the safety and health of the workers which arise from the working environment – including occupational health and safety hazards specific to electric power transmission and distribution projects, such as working close to live power lines; working at height; electric and magnetic fields; and exposure to chemicals.
- Identification of sources of injury and harm with preventive measures to avoid these injuries and harms
- Formulation of the organization's OHS policy for the project.
- The implementation schedule of this management plan is during construction phase of the project.

The contractors should ensure that all personnel are aware of the objectives and contents of the OHS plan and establish arrangements specifying responsibilities for all persons. Initiation and refreshment training should be conducted by the contractors.

Incident reporting. The contractors should report incidents without delay. Such reporting should be in written form.

Emergency Response. The Contractors should establish a procedure for emergency preparedness and response. This includes the establishment of on-site first aid station and system for registration of personnel.

Safety equipment and regulations. The contractors and all the subcontractors should provide standard PPE for all workers. They should also enforce the uses of these basic safety equipment by all its personnel and visitors on project sites. The minimum PPEs at site are the following.

- Protective helmet or hard hat
- Protective footwear/safety boots
- Working clothes with strong color

The activities of the proposed project triggers issues pertaining to community health and safety.

Purpose and scope of this Management Plan

The purpose of this Management Plan is to guide the contractor to ensure public health by avoiding potential impacts due to the activities of the project at its different phases. The scope of the CHSMP includes the pre-construction, construction and operation phase of the project.

The following national policies and laws are relevant in connection to the CHSMP.

- The Constitution of the Federal Democratic Republic of Ethiopia.
  Article 44 states that all persons have the right to clean and health environment. Article 92 requires the Federal Government to ensure that all Ethiopians live in a clean and health environment.
- Environmental policy of Ethiopia
  This policy advocates the "polluters pay policy" and authorizes competent authorities to close down or relocate any enterprise if its activities are considered as posing risks to human health and the environment.
- Prevention of Industrial Pollution Regulation (159/2008)
  There are sections which uphold the principles of environmental safety.
- Public Health Proclamation (200/2000)
  This proclamation prohibits the disposal of solid or liquid wastes in a condition that contaminate the environment.
- Solid Waste management Proclamation (Proclamation No. 513/2007)
- Environmental Pollution Control Proclamation (Proclamation No. 300/2002)

Management actions

- Heath education for communicable diseases such as HIV/AIDS and STDs. This activity will enhance personal protection and behavior to avoid this health risk
- The Contractors shall adhere to the following key Workforce Code of Conduct
  - Forbidding sale or purchase of alcohol
  - Forbidding sale or purchase of drugs
- Ensure that there is a free access to first aid stations for minor treatments

11.2.8. Workers/Labour Management Plan

The labor management of the Contractors should comply with the national labor and employment law. Details should such payments of wage, working hours and treatment provisions in cases of accidents. The contractors should employ local laborers and develop a procedure for equitable selection of laborers.

The contractors should maintain accurate records in relation to:

- Payment of wages and social security
- Working hours.

The contractors should also inform the workers about their rights in compliance with the labor law of Ethiopia. A standard grievance redress mechanism should be developed by the Contractors to enable the laborers to raise issues pertaining to workplace concerns. The contractors shall

ensure that this grievance mechanism is accessible to all workers. The following steps shall be used by the contractors for the grievance redress mechanism.

- Receiving and recording complains
- Reviewing complaint and allocate actions
- Notify the complaint of the proposed resolution
- Act and update complaint
- Close out and lessons learned
- Report actions to the representatives of the Client

The following national legislation and policy are relevant for worker management.

- The Constitution of the Federal Republic of Ethiopia
    - Article 16: the right of the security of the person
    - Article 18: the prohibition against inhuman treatment and forced and compulsory labor
    - Article 31: Freedom of association
    - Article 42(1) b: the right to express grievance
    - Article 35: Equality of women in the labor force
    - Article 36: prevention of exploitive practices
- Labor proclamation.

  This is main national law on labor issues such as employment relationships, contracts, obligations of employers and workers, wage, working time, working conditions and occupational health and safety, occupational injuries and labor disputes. The number of locally employed workers and issue on under aged workers should be considered while applying the provisions of this Proclamation.

- Occupational Health and Safety Directives (2008)

  The following provisions were indicated in this Directive/
    - Health and safety
    - Arrangements in the workplace
    - Ambient working conditions
    - Hazardous jobs or undertakings
    - Specific occupations & processes and requirements

- Duties of employers such as safety and health policy, and Personal Protective Equipment (PPE)
- Duties and rights of the workers

The responsible Parties and their roles and responsibilities are given below.

Responsible Parties	Roles and Responsibilities
Project Manager	Ensure that its human resources personnel implement procedures for employment and working conditions within the framework of the existing national and international legislations and standards.
Health and safety officer (First Aid Expert)	Ensure that all provisions in relation to OHS are implemented and workers are provided with PPE
Implementation schedule	Construction phase of the project

Management actions

- Ensure that all standards provisions, including PPE, are implemented to enhance the OHS issues
- Develop workers' OHS awareness program
- Develop a worker code of conduct in applying OHS requirements, including the use of PPE and monitoring system to enhance workplace health and safety

11.2.9. Emergency Response Plan

The following national legislation and policy are relevant for ensuring the occupational health and safety of the workers.

- Labor law. This specifies provisions for ensuring workers' rights, for example, minimum wages, collective bargaining rights and rights to association.
- Prevention of Industrial Pollution Regulation (159/2008). Sections of this Regulation state the need for emergency response systems and environmental safety monitoring.

The table below provides responsible parties and their roles and responsibilities.

Responsible Parities	Roles and Responsibilities
Project Manager	• Review emergency reports on a weekly basis • Appoint and emergency response coordinator (First aid expert)
Emergency Response Coordinator (First Aid expert)	• Undertake first aid treatment

	• Coordinate for further treatments of accidents and injuries in the nearby clinics and health centers • Orient workforces on the potential accidents and report mechanisms of accidents to be treated onsite. • Ensure notification of accidents and ensure proper response • Review weekly accidents or near misses to address them on time.
Implementation schedule	• Construction phase of the project

Management actions

All incidents shall be registered and reported accordingly for further actions. A standard checklist shall be used for this purpose. Incidents can be of the following categories.

- Environmental incidents
- Injuries of workers
- Injuries of people
- Security breach

Monitoring and verification

The Health and Safety officer (First aid expert) is tasked the responsibilities for supervising the implementation of the Emergency Response Plan of the Contractors and their subcontractors. This officer shall report incidents monthly to be reviewed by the representatives of the client.

11.2.10. Land and livelihoods

The communities of the project area are smallholder farmers who entirely depended on incomes generated from their lands. The impacts of the project during construction and operation phases are given below.

Construction phase	Operation phase
• High household income due to compensation payment from their lands • More household income due to employment opportunity • Displacement of physical structure, e.g., houses and cash crop trees	• Permanent loss of land to tower foundations

Houses

The project adverse impacts 133 houses (39 tukuls and 94 CIS). In the rural Kebeles, the PAPs have additional land to build their impacted houses. But this impact is significant and negative for the PAPs living in the urban areas where they are located inside the RoW of the Metu – Masha 230 kV single circuit transmission line project.

Coffee, Cash tree crops (*Eucalyptus*) and fruit crops

The smallholder farmers usually grow coffee under big shade trees such as *Cordia africana, Ficus sur, Albizia schimperiana* and etc. In some instances, felling these trees will be unavoidable. Since coffee plant need shade to give good yield, coffee production will reduce in the absence of shade trees. Therefore, these farmers are negatively impacted by the project. The also grow Eucalyptus and fruit crops to supplement their household incomes. The impact of the project on these assets is direct, adverse and permanent.

Management Actions

The impacts of the project on land and livelihoods is direct and permanent. The impacts are different in scale and magnitude across these PAPs.

- It is recommended that further studies are conducted to update the Resettlement Action Plan (RAP) and prepare a Livelihoods Restoration Plan (LRP).
    - Conduct asset inventory of PAPs
    - Conduct Livelihood Profile of PAPs

11.2.11. Drug and Alcohol Policy

Access control to the site shall be arranged to foster accountability of all personnel. This policy should apply during the construction phase of the project.

11.2.12. Community Relationships

The contractors and its personnel should interact with the local communities in such a way that promotes good relationship. Local norms and values should be observed and maintained by the contractors and all personnel. The contractors bear the sole responsibility for any damage to public properties that may occur outside the project area. This policy should apply during the construction phase of the project.

11.3. ESMP for Operation

During operation phase of the project, regular maintenance of the right-of-way to control vegetation growth will be implemented. This may involve the use of mechanical methods, such as mowing or pruning machinery, in addition to manual hand clearing and herbicide use. Such activities may disrupt wildlife and their habitats. However, given the size of the RoW, the impact is not considered significant. Care will be taken during maintenance to remove fauna species likely to be present in the RoW.

11.4. Estimate of cost of mitigation

The cost of mitigation measures is given in Table 11-1. The calculation of costs is based on background information such as the cost of one seedling for Biodiversity Management. Furthermore, the frequency of awareness creation was set as 2 times per Kebele with a total turnout of 50-60 participants and a publication of information leaflets. In other cases, lumpsum amounts are given. Employment of staff of the Environmental Unit of the Contractor was estimated based on current earnings for similar jobs (short-term employment for development projects).

Table 11-1. Summary of the Environmental and social mitigation measures

Impact source	Mitigation measures	Responsible body	Amount in ETB	ESMP to be addressed	Time schedule
Removal of mature indigenous trees	Plant 10 seedlings for each removed tree. It is anticipated that close to 25,000 seedlings will be planted	The Contractor	6,250,000.00	Biodiversity Management Plan; Soil Erosion Management Plan	Construction phase
Felling of trees with ant nests	Transplant the nest onto another tree of the same species	The Contractor	500,000.00	Forest Management Plan	Construction phase
Air quality: emission of dust	Dust suppression by watering access roads	The Contractor	100,000.00	Air Quality Management Plan	Construction phase
Public exposure to EMF	Awareness raising	The Contractor	250,000.00	Community and Health Safety Management Plan; workers/Labour Management Plan	Construction phase
Public health risks: HIV/AIDs and STDs	Health education	The Contractor	250,000.00	Solid Waste Management Plan; Emergency Response Plan	Construction phase
Occupational health and safety	Short-training on first aid for the contractor's workforce; Provision of PPE First aid kits	The Contractor	1,000,000.00	Workers/labour Management Plan; Emergency Response Plan	Construction phase

Impact source	Mitigation measures	Responsible body	Amount in ETB	ESMP to be addressed	Time schedule
Traffic incidents	Signposts at relevant location	The Contractor	375,000.00	Traffic Management Plan	Construction phase
Emergency Response events	First aid kits; transport injured subjects to nearby clinics or other places for treatment	The Contractor	2,500,000.00	Occupational Health $ Safety Plan	Construction phase
Grievance Redress Mechanism (GRM)	Setup GRM; manage grievances, report on GRM implementation	EEP	1,500,000.00	Labor Management Plan	Construction phase / Operation phase
Gender Based Violence	Training of personnel; establishment and strict implementation of CoC	The Contractor	1,500,000.00	Labor Management Plan	Construction phase
Stakeholder Engagement	Community liaison; regular meetings	The Contractor	2,000,000.00	Stakeholder Engagement Plan / Community H&S Plan	Construction phase
Establishment of Environment and Social Management Unit for the project for 24 months (Environmentalist, Forester and Sociologist)	Provide guidance for the implementation of the proposed Management Plans of the project; prepare reports as specified in the Management Plans liaison with the representative of the client and other stakeholders with regard to environmental and social issues	The Contractor	2,500,000.00	Supervision of the implementation of all ESMP	Construction phase
Total			**18,725,000.00**		

11.5. ESMP summary

Project Activities	Environmental and Social Impact	Mitigation / Compensation / Enhancement Measures	Institutional Responsibilities	
			Implementation	Supervision
A. PRE-CONSTRUCTION STAGE				
ESHS Impacts during Pre-Construction				
Workforce Mobilization	Transfer of responsibility for ESHS compliance to Contractor	• Orientation of the workforce by the contractor prior to commencing duties • Health education for the workforce and awareness creation for HIV/AIDS and other STDs • Apply the best industry practice and applicable law and regulation of Ethiopia for employing workers • Collect all used plastic water bottles and dispose them at designated areas • Apply all requirements of the Solid Waste Management Plan • Apply all requirements of Occupational Health and Safety Management Plan • Apply all requirements of Air Quality Management Plan • Apply all requirements of the Forest Management Plan • Apply all requirements of Biodiversity Management Plan	Contractor	PIC, PIU
RoW clearance	Impact on wildlife habitats due to RoW clearance Occupational H&S risks	• Provide workers with personal protective equipment (PPE) • Avail first aid kits at the work places • Undertake vegetation clearing in the presence of an Environmentalist or a Forester • Prepare and execute a tree plantation program to compensate for the environmental loss of the trees felled • Suppress dust emission by watering the work areas on a regular basis • Apply all requirements of Biodiversity Management Plan • Apply all requirements of the Air Quality Management Plan • Apply all requirements of the Occupational Health & Safety Management Plan • Apply all requirements of the Emergency Response Plan • Collect used plastic water bottles	Contractor	PIC, PIU

Project Activities	Environmental and Social Impact	Mitigation / Compensation / Enhancement Measures	Institutional Responsibilities	
			Implementation	Supervision
		• Apply all requirements of the Solid Waste Management Plan		
Land acquisition for tower foundations	Loss of approx. 1.8 ha of land as well as loss of cultivations within the RoW	• Apply all provisions of the Resettlement Action Plan (RAP) of the Metu – Masha 230 kV power transmission line • Payment for permanently lost coffee shrubs and spices plants • Payments for permanent loss of assets of PAPs due to Tower foundation	Contractor	PIC, PIU
Removal of structures from RoW	Loss of residential structures and means of livelihood	• Apply all requirement of the Resettlement Action Plan (RAP) • Payment of compensation for permanent and temporary loss of assets of the PAPs. • Apply all provisions of the Livelihood Restoration Plan of this project • Enable the PAPs at Kolo Korma get new plots of land to construct new houses at least close to where they are living now to ensure social cohesion and their traditional social activities.	Contractor	PIC, PIU
B. CONSTRUCTION STAGE				
ESHS Impacts during Construction				
Labor influx	Stress on local resources and services by project staff	The Contractor will prepare the construction camp management plan, including the labor influx management. This will be reviewed and approved by EEP and World Bank The Contractor will select the specific work shift for the construction activities particularly near the settlements, to cause least disturbance to the local population, particularly women. Contractor will take due care of the local community and observe sanctity of local customs and traditions by his staff. Contractor will warn the staff strictly not to involve in any unethical activities and to obey the local norms and cultural restrictions. During construction activities, if privacy of the nearby households is affected, the Contractor will inform the house owner to make particular arrangements. Similarly, Contractor will take care as much as possible that the construction activities should not affect the privacy.	Contractor	PIC, PIU

Project Activities	Environmental and Social Impact	Mitigation / Compensation / Enhancement Measures	Institutional Responsibilities	
			Implementation	Supervision
		The contractor will also ensure that solid waste and wastewater is disposed of in an environmentally friendly manner in designated areas and by approved methods only. Contractor will ensure that soil and water is not contaminated by improper disposal of solid waste and wastewater. The contractor will explore alternative water sources and ensure that water usage by the project does not affect or compete with water requirements of the local community. The Contractor will also ensure that noise and light pollution from the labor camp is kept at minimal levels especially at night.		
	Social and gender impacts created by project staff due to the unawareness of local customs and norms	The contractor will provide qualified personnel to address the specific risks identified in the project including Sexual Exploitation and Abuse (SEA) risks and implement the recommendations and mitigations included in this ESIA The bidding documents will include specific requirements that minimize the use of expatriate workers and encourage hiring of local workers through skill development program, thereby minimizing labor influx. The bidders will be required to submit Codes of Conduct (CoCs) with their bids. The CoCs will set clear boundaries for acceptable and unacceptable behaviors of all individuals and companies and will be signed by companies, managers and individuals. The contractor will be required to establish anti-sexual harassment policies that govern conduct in the workplace. The contractor will be required to provide mandatory and repeated training to workers on sexual exploitation and abuse and HIV/AIDS prevention and on the content and obligations derived from the code of conduct. Provisions will be set in contracts for dedicated payments to contractors for SEA prevention activities (e.g., training) against evidence of completion. The Contractor will ensure the implementation of the recommendations and mitigations related to SEA risks included in this ESIA. The implementation will be regularly reported by the Contractors and internally monitored by the PIU. Implementation of these recommendations and mitigations will also be monitored by the third party M&E Consultant and presented in its	Contractor	PIC, PIU

Project Activities	Environmental and Social Impact	Mitigation / Compensation / Enhancement Measures	Institutional Responsibilities	
			Implementation	Supervision
		monitoring reports.		
	Covid-19	The contractor will make all PPEs (face masks, hand sanitizers etc.) available at site and should also arrange for Covid vaccination at site when required. All the employees of the contractors (including skilled and non-skilled) must be vaccinated and their certificates should be checked before their mobilization/engagement.	Contractor	PIC, PIU
Excavation of tower foundations, tower erection, stringing of conductors, other works	Management of spoil generated due to the excavation works; Risk of soil pollution and soil erosion; Risk of water contamination; Dust and air pollution from construction activities; Noise and vibration from construction activities; Generation of solid waste and hazardous waste	• Water the project area on a regular basis to suppress dust emission • Spread excess soil around the tower foundation evenly and use the cleared vegetation as mulch to minimize soil erosion • Prepare Resettlement Action Plan (RAP) and apply all of its requirements • Restrict all excavation activities to the tower foundation areas and access roads • Provide workers with PPE • Apply all requirements of Biodiversity Management Plan • Apply all requirements of Waste Management Plan • Avail first aid kits • Apply all requirements of the Air Quality Management Plan • Apply all requirements of the Occupational Health & Safety Management Plan • Apply all requirements of the Emergency Response Plan • Avoid excavation of religious sites (graveyards and others)	Contractor	PIC, PIU
C. OPERATION AND MAINTENANCE STAGE				
ESHS Impacts during O&M				

Project Activities	Environmental and Social Impact	Mitigation / Compensation / Enhancement Measures	Institutional Responsibilities	
			Implementation	Supervision
TL RoW Maintenance	Impacts from tree cutting during O/M activities	• Identify seedlings of indigenous tree species before clearing the vegetation • Transplant any seedlings of tree species of the forest that are growing inside the RoW • Identify invasive species and clear them (uproot the seedlings) before reaching maturity (seed production stage).	EEP	PIU
Restrictions within the RoW	Impacts to livelihood of smallholder farmers	• Monitor and follow-up to support households to restore their livelihoods during the operation phase. That is the details of the Livelihood Restoration Plan (LRP) details this aspect. • Maintain the functionality of the Grievance Redress Mechanism (GRM) developed for Resettlement Action Plan (RAP) for the construction phase to create enabling environment for communities to voice their concerns.	EEP	PIU
Land loss	Impacts due to the land occupied by the towers	• Strictly follow-up PAPs, especially those in the urban area with only 200 square meter of land, to provide support to restore their livelihoods in the operation phase • The requirements of Livelihoods Restoration Plan developed for the construction phase should apply for the operation phase as well.	EEP	PIU
TL operation	Community H&S risks due to exposure to EMF	• Avoid installation of transmission line above densely occupied settlements. • The Client should measure exposure levels once the Metu – Masha 230 kV single circuit transmission line project is operational to ensure that the exposure of the public to EMF is within the accepted limit. • Awareness creation of the effects of EMF for the public by the Client • Annual monitoring the RoW to make sure that no new houses are built inside the 40 m corridor.	EEP	PIU

12. Grievance Redress Mechanism

Effective environmental and social grievance redress mechanism gives an opportunity for the client to implement a set of specific measures to ensure good governance accountability and transparency in managing and mitigating environmental and social issues of the project. This consists of defining the process for recording/receiving complaints to redress these complaints regarding environmental and social matters.

The following procedures will be followed by Woreda and Kebele GRC.

1. *Registration of grievance*: an aggrieved party registers a complaint at the Kebele level or with project liaison officer by using the Grievance Registration Form. The GRC chair will convene a meeting within 7 days the receipt of the complaints. and within seven days the committee meeting is convened by the chair.
2. *Recoding complaints*: The secretary of the GRC will record the complaints into the Grievance logbook and the aggrieved person is informed of the scheduled hearing. A maximum of 7 days shall be given between the date the case is recorded and the date when the hearing is held
3. *Meeting schedule of the GRC*: The GRC will meet once per week to address emerging complaints. The GRC will conduct proceedings of the complaints of the PAPs in the presence of witness.
4. *Communication of decisions by GRC*: The GRC will communicate its decisions to individuals who have filed their complaints within 7 days by using Complaint Resolution form.
5. *Appeal to Woreda GRC*: if the PAPs/individuals who have filed the complaints are dissatisfied with the decisions of the GRC at a Kebele level, the chairman of the Kebele GRC will deliver the decisions to the Woreda level GRC for deliberations within 7 days.
6. *Court pursuit*: if the PAPs/individuals who filed the complaints are not satisfied with the decisions of the Woreda level GRC, he/she can pursue the case in a court.

13. Environmental and Social Monitoring, Auditing and Reporting Plan

13.1. Environmental and Social Monitoring and Reporting

The monitoring of the construction practices and mitigation measures will be based on visual inspections. Table 13-1 give a monitoring plan of the project with key measures to be considered. It is to be noted that the contractors shall undertake self-monitoring their compliance with the ESMP and EHS plan. The contractors should perform regular monitoring inspections by using pre-developed checklists and prepare monthly report to be reviewed by the representative of the client (Engineering Consultant) and submitted to the competent authority, the Ethiopian Environmental Protection Authority, MoPD. The contractor should establish an Environmental Management Unit (EMU) comprised of one Environmentalist, one Forester and one Sociologist

to ensure the implementation of ESMP for monitoring purposes. The EMU is required to prepare monthly monitoring reports and submit it to the representatives of the client for review and further actions. Technical experts could be assigned by the Ethiopian Electric Power to ensure the implementation of all requirements of the ESMP.

Table 13-1. Proposed monitoring methods for the Contractor

Management issues	Performance indicators	Means of verification	Monitoring frequency
Air pollution and dust control	• The frequency of water sprayed on access road and internal roads • Evidences that trucks cover loose materials	• Visual inspections • Photographic documentation	Weekly inspections
Occupational health and safety	• Evidence of OHS plan and emergency response plan • Percentage of workers using PPE • Access to first aid station • Availability of first aid expert • Incidence statistics (injuries, treatments and etc.)	• Visual inspections • Written statistics of workers using PPE • Photographic documentation	Daily inspections
Labor management	• Proportion of women • Evidences of written contracts • Number of grievances of workers • The number of locally employed workers • Issue on under aged workers	• Visual inspections • Employment contracts	Weekly inspections
Biodiversity management	• Number of trees planted • Number of ant nests transplanted to trees of the same species as the ones felled	• Visual inspections • Photographic documentation	Monthly inspection
Community health and safety	• Number of community grievances • Incidences of damages to public properties	• Visual inspections • Photographic documentation	Weekly inspections
Waste management	• Amount and types of wastes generated • Evidences for timely disposal of wastes, e.g., excavated soil materials	• Visual inspections • Photographic documentation	Weekly inspections

Management issues	Performance indicators	Means of verification	Monitoring frequency
	• Domestic solid and liquid wastes • Used oils		

13.2. Environmental and Social Auditing and Reporting

Monthly report

The Contractors shall prepare a monthly report with regard to the environmental and social performance and their compliance to the ESMP. This report should be submitted the representatives of the client for review and further actions. The contents of this report shall be based on the monitoring results of the EMU of the contractors.

Annual Reporting

The Contractors shall prepare an annual environmental and social performance report and overall compliances with the ESMP. This report shall be reviewed by a supervision Consultant, who is also the representative for the EEP. This annual report should be submitted by EEP to the Ethiopian Environmental Protection Authority for a review and approval.

14. ESIA disclosure plan

The ESIA details will be communicated to the PAPs and stakeholders following approval by the Ethiopian Government and the World Bank.

15. Conclusion and Recommendation

15.1. Main findings

The Ethiopian Electric Power (EEP) has planned to construct Metu – Masha 230 kV single circuit transmission line project. This entails the construction of an extension of the Metu sub-station and a new sub-station at Masha. Masha town is currently without power. The Metu – Masha 230 kV single circuit transmission line project crosses modified landscape for most of its length and a very small length of it crosses forests. It is anticipated that the construction of this power transmission line and new sub-station at Masha stimulates local economic activities and attracts investments. The ESIA study has recorded a case where an investor in coffee processing in Sheka Zone has constructed all physical structures but did not start work because of the lack of power. Furthermore, this project will improve quality of life for Masha and its surrounding communities. Currently, the local communities use traditional means of flour milling. The implementation of the project attracts investors to establish flour mills and other related activities. It is anticipated that several business activities will come up with power, which in turn improve household incomes.

It is expected that any development project affects the status quo environmental and social conditions. The ESIA study has recorded the following impacts.

Biological conditions and natural habitats

The project area is a site where part of the remaining moist Afro-montane Forest is located. This forest is characterized by keystone species such as *Pouteria adolfi-friderici, Cordia africana, Prunus africana, Olea welwitchi* and etc. Coffee grows under the canopy of these trees. Furthermore, spices such as *Piper capense* and *Afromomum corrorima* grows as herbaceous layer of this forest and provide additional household incomes. IUCN conservation assessment was conducted for a handful of the flora and fauna of the project area. For example, Prunus Africana as assessed as Vulnerable and other are of Least Concern from the IUCN assessment perspectives. But at a national level, there are tree species which have low number of individuals in the forest and need to be protected. Examples are *Pouteria adolfi-friderici, Olea welwitchii, Cordia africana* and etc. Noteworthy is also that it takes decades for these tree species to reach maturity. A natural regeneration of some of these tree species is a challenge since young seedling survival is affected by wildlife browsing.

Different fauna species were investigated in this ESIA study. Selected amphibians, reptile, birds and mammals were studies. There are endemic amphibians, reptiles and a mammal species. But these are widely distributed and were not recorded along the RoW of the project. They occur in the Moist Afro-montane Forest in the surrounding area of the project. As a result, there is no direct impact by the activities of the project. The ESIA has also revealed that there is no Important Bird Area and known bird migratory route in the project area. Furthermore, the bird species are of least conservation concerns and there is no immediate threat to their long-term persistence.

A Critical Habitats assessment was conducted during the ESIA study. The study has revealed that there are no Critical Habitats triggered by this project. Two UNESCO Biosphere Reserves occur in the project area. These are Yayu Forest Coffee and Sheka Forest Biosphere Reserves. In both cases, the Metu – Masha 230 kV single circuit transmission line project crosses only the transition zones of these Biosphere Reserves. A transition zone is highly modified section (settlement and agriculture) of the Biosphere Reserves. There are tree species with ant nests and ESMP has been developed to mitigate this impact.

As a result of these issues, the ESIA has analyzed three alternative routes and have selected Alternate route 3. Although there are adverse impacts of flora, these impacts can be mitigated. ESMP has been developed for different receptors.

Physical conditions

The project affects certain physical features such as ambient air quality, noise level and soil. The impacts on air and noise level is temporary and is anticipated to be not significant. Excavation of tower foundations generates excess soil in the surrounding areas triggering soil erosion. Furthermore, access road construction could also result in soil erosion if slopy contours are not avoided. ESMP has been developed to mitigate the potential adverse impacts of the activities of the project.

Socio-economic conditions

The project results in a permanent loss of land to tower foundation and houses. The ESIA has recorded that a total of 133 houses (Tukuls and CIS) will be physically relocated since there are in 40 m corridor of the Metu – Masha 230 kV single circuit transmission line project. These houses are located in rural and urban Kebeles. In rural Kebeles, the PAPs have sufficient additional land to move their houses and build it in new locations outside the RoW. But this option is not available for urban PAPS such as those living in Kolo Korima of Metu town. They have 200 square meters of plot where they have their houses and cultivate garden crops as part of their household income. Some have also grown crop tree (*Eucalyptus*) in their area. The ESIA has established that the impact of the project on PAPs is not uniform and a Livelihood Restoration Plan has to be prepared to support these PAPs with no alternative to build a new house. The ESMP has forwarded recommendations, but details studies are required. Furthermore, the crop trees of the PAPs and shade coffee cultivation system falling inside the RoW will be removed. This results in reduced income from coffee since the shade trees should be removed from the RoW.

The operation phase of the project also induced health and safety risks due to exposures to Electromagnetic Fields (EMF). The IFC guidelines state that there is no empirical data to support due to transmission lines and equipment. On the other hand, the ICNIRP states that there are acute health risks to exposures of people to EMF. The ESIA recommends awareness creation for the communities with regard to health risks of the EMF emitted due to the operation of the Metu – Masha 230 kV single circuit transmission line project.

Generally, a Resettlement Action Plan (RAP) and Livelihood Restoration Plan (LRP) studies should be conducted for detailed asset inventory, compensation of lost assets and livelihood supports for PAPs, which are highly impacted by this project.

15.2. Conclusion and recommendation

Conclusion

- The project triggers biodiversity issues such as cutting indigenous trees inside the 40 m corridor of the RoW. It also restricts the planting of high trees inside this same area. But the impacts are mitigable and ESMP has been developed for environmental receptors receiving these impacts.
- Although there are Biosphere Reserves in the project area, the Metu – Masha 230 kV single circuit transmission line project crosses their transition zone, which are highly modified (agriculture and settlement). The ESIA study has revealed that there are no Critical Habitats that are triggered by this project. There are also National Priority Forest Areas lying on the RoW of the project. But these have been converted to agriculture and settlement long time ago.
- Some project activities trigger soil erosion but the impact can be mitigated. An ESMP has been develop.
- The socio-economic impacts of this project are significant. It triggers physical displacement of houses and cutting of crop trees. RAP and LRP studies should be conducted to mitigate these impacts.

Generally, the impacts of the project on bio-physical and socio-economic environments can be mitigated. The ESMP was also developed for these impacted receptors. Therefore, for the project to proceed the following conditions should be fulfilled. These are:

(1) all requirements of each ESMP are implemented in full;
(2) the ESMP is improved and adjusted to new emerging conditions which are not captured during the ESIA study; and
(3) Resettlement Action Plan and Livelihood Restoration Plan are conducted and implemented.

Recommendation

Therefore, the proposed project is environmentally and socially feasible to be implemented provided that all the requirements of the ESMP are implemented by the contractor and the project proponent (project owner, EEP). The regulatory bodies, i.e., EPA and Zonal and Woreda Office for Forests and Environmental Protection and other government bodies should participate in ensuring the implementation of all the proposed mitigation measures for the impacts of Metu – Masha 230 kV single circuit transmission line project.

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17. Annexures

17.1. Annex I: Environmental and Social Impact Assessment Team

The ESIA was prepared by IRIS Consult PLC (Ethiopia) under the supervision of intec- GOPA (Germany). The ESIA team comprised the following.

Name	Expertise
Prof. Sileshi Nemomissa	Team leader and Senior Environmentalist
Prof. Feyera Senbeta	Forester
Prof. Seyoum Mengistou	Zoologist
Dr. Endalew Addis	Senior sociologist
Mr. Girma Demissie	Socio-economist
Mrs Semira Berhanu	Gender Expert
Mr. Amanuel Kumsa	GIS Expert

The ESIA Report was reviewed by Kostas Batos of intec.

17.2. Annex II: Minutes of Consultations

A. Illubabor Zone

i. Ilubabor Zonal Administration

Form_B

Minutes of Meetings

Project: Metu – Masha Power Transmission Line

Subject: Stakeholders Consultation

Tick one: Zone (✓) Illubabur Woreda ( ) Kebele ( )

Date: 26/01/2014 E.C.
Time: 7:30 / 1:30 PM
Place of Meeting Zone: ኢሉባቦር Woreda: - Kebele: - Village: - Town: መቱ

Consultants team:

1. [illegible]
2. [illegible]
3. [illegible]

4. List of participants

Sr. No.	Name	Sex	Sector	Administrative responsibility	Telephone number	Signature
1	Mekonnen Bayisa	M	Zone Administr	Vice (depty) Admin.	0911-91-64-03	[signature]
2	Gemet Abera	M	Zone FEC	Head.	0913393932	[signature]
3	Girma Mekonnen	M	Road Authori	Head	0917274035	[signature]
4	Ifa Kebede	M	Construction Autorit	Expert	0913802605	[signature]

1 | Page

Haannoo ... Godina Iluu Abbaa Boor ...

የመብራት መስመር፡ ዝርጋታው፡ በሚያልፍባቸው መስመሮችና የመብራት ታወሮች ለሚተከሉባቸው፡ አካባቢዎች ንብረት፡ ይኖራል፡ እንጂ፡፡ ስለሆነም፡ ታወሮችን፡ ለመትከል፡ ዛፎች፡ ሊቆረጡና ይችላሉ ለመንጠር፡ ቅጅለት፡፡ ካርታን እንዚህን፡ ንብረት፡ ይህን በመጠበቅና በመንከባከብ አርሶአደሩ 50% ፡ የአካባቢው፡ የመንግስት፡ አስተዳደር፡ ይገም፡ 50% ገቢ፡ ስለሚያገኝ ቁሆን ተከፍሎ፡ ለማድረግ፡ በተቻለ መጠን፡ ጉዳቶን፡ ለመቀነስ፡ ጥረት ማድረግ፡ ካለበት፡ ግን፡ ተገቢው፡ ካሳ፡ ሊሰጥበት፡ እንደሚገባ፡ መስፈርት፡ ቁጥጥሩ፡ ይገባል::

የመብራት፡ ዲማር፡ በመስራት፡ የመጀመሪያው፡ ተጠቃሚዎች ሴቶችና ህፃናት፡ በመሆናቸው፡ ለፕሮጀክቱ፡ መሳካት፡ አስተዋጽኦ፡ ይኖራቸዋል፡ እናደርጋለን:: ካርታን፡ ማንኛውንም፡ ፕሮጀክት፡ ወደ ተግባር፡ ሊቀየር፡ የሚያስችለው አካባቢያችን ማህበረሰብ፡ ጉዳቶና ንብረት፡ ስለሚያደርስ፡ ጉዳቶን፡ ቀንሶ፡ ወደ፡ ተግባር፡ ለማስገባት፡ የክፍያዎችን፡ እንደመለስ፡ በለቀቁ፡ ቁጥም፡ ሆኖ፡ ፕሮጀክቱ፡ በሚገነባበትና በሚያልፍባቸው፡ አካባቢዎች እንዲሁም ወረዳ፡ የሚኖሩ፡ የአካባቢ፡ አካላት፡ በግብታችና በድጋፍቸው ተሳታፊ፡ በዲዛይን፡ መጠናት፡ አለበት፡ ብለናል::

በመጨረሻም ፕሮጀክት፡ በሚገነባበት፡ አካባቢዎች ያሉ፡ የማህበረሰብ፡ ከፋፍሎ ጋር፡ ንብረት፡ ያላቸው፡ የሚዘጋ፡ ውሳኔ፡ መደረግ፡ አለበት፡ ~~[illegible]~~፡ በማለት፡ ቁጥም፡ ለፕሮጀክት፡ የተለያዩ፡ ስለዚህ እንደሚወሰደው ካሁን በኋላ፡ ያልተለቀቁ፡ ቦታዎች፡ በመንግስት ውሳኔ ተከፍለው፡ በመተከል፡ አለመረጋጋት፡ ያለ፡ ተመራጭ፡ ካሳ፡ ለማግኘት፡ ህጋዊ ሁኔታ የሚሰራ፡ ለመጠጣጠር ተገቢውን፡ የካሳ፡ ክፍያ፡ ለሚያስፈልገው ይገባል፡ በዚህም በመሆኑ፡ መስራት፡ አስፈላጊውን፡ የካሳ፡ ክፍያ፡ እንዲያገኙ፡ ለማድረግ፡ ከፍያለ፡ አስተዋጽኦ፡ [illegible] ወደፊት፡ ተጠናቋል::

ከኤሌክትሪክ፡ ዘን፡ የኃይል ምንጮች፡ አካላት፡ ጋር ከመቱ-ማሻ፡ ለሚዘረጋው፡
የመብራት፡ መስመር ዝርጋታና የሚካሄድበት ጥበቃ ማንገት፡ ወቅቶች
አይርጋገጥ፡፡ በዚህም መሠረት፡ የዞኑ፡ ግብርና አካላት ለወረዳዎች
መረጃውና ግንዛቤው፡ እንዲሰጣቸው፡ ጠቅሰው፡ መብራት ያለገኙ የማህበረሰብ
ክፍሎች መብራት እንዲያገኙበትና መብራት፡ ያገኙትም፡ ጠንካራ፡ ሁሌን፡
ያልተቆራረጠ፡ አገልግሎት፡ ለማግኘት፡ የማህበረሰብ ፍላጎት፡ በመሆኑ
በምንችለው አቅም፡ እንደግፋለን፡ እንተባበራለን፡ እናደርጋለን፡ ብለዋል፡፡

ነገር ግን፡ አንዳንድ የንብረቶች፡ ለውጥ፡ ሲመጣ፡ የሚደርሰው፡ አካባቢያዊና
ማህበራዊ፡ ጉዳቶችና ችግሮች፡ በአግባቡ፡ መጠናት፡ አለባቸው፡ ብለዋል፡
ለምሳሌ የመንገድ ተቋማት፡ የሚለሙ፡ ደረጃዎችና የሚለሙ፡
መሬቶች፡ ቡና ከተለየም ደግሞ፡ በዞኑ፡ ውስጥ፡ ከሚኖረው፡ ህዝብ
87% አርሶ አደር ስለሆነ፡ ንብረት፡ የሚያገኘው/የሚገኘው፡
"cash crops" ተክሎችና ፍራፍሬዎች ስለሚገኙ፡ አይፈለገውም፡ ንብረት
ቤቶች፡ የካሳ ክፍያ ማግኘት፡ አለባቸው፡ ብለዋል፡፡

ከዚህም በተመለከተ፡ የገጠሩ፡ አርሶአደር ሠፈራ ከመሬት፡ መንገድ፡ በሚገኙ
ዛፎች ላይ፡ በሥራ ላይ፡ ቀድሞ፡ በመስቀል፡ የዐይር፡ ምርት፡ በማምረት፡
ተጠቃሚ፡ በመሆን፡ የመብራት፡ ተቋማት፡ ከተማ፡ ዘርፎችን ደግሞ፡
ከተማ፡ ለማሳደግ፡ ከግቡና ቀን፡ ይዞ መንገድ በአጠቃላይ፡ ፍጥነት ይህ
ዘርፎች፡ መቀረፍና ደግሞ፡ መሠረተ፡ ልማት፡ ያለበሽ፡ በዚህም፡ ሁኔታ፡
በዙ፡ በሥራ ላይ፡ ቀድሞ፡ ሊሆን፡ ያለቁበት፡ በተጨማሪ፡ መጠን፡ ገደቦች፡ ለመቀነስ
እንደገለጹት፡ ሁሉ፡ ንብረት፡ ማደርግ፡ ያደርጋል፡፡ ይህም፡ ሆኖ፡ ግን፡ የሚደረግ
ካሳ፡ ደግሞ፡ እንደገለጹት፡ የካሳ ክፍያ ማግኘት፡ ቀድሞ ተከፍሎ፡፡

3 | Page

5	Nosisa Lemma	M	Environmental protection	head	[illegible]	
6	Ayalew Zewdie	M	Education	vice	0917831157	
7	Zahara Amr[illegible]	F	Women & children	head	0963407333	
8	Tessema Etafo	M	Agri office	head	0928047007	
9						
10						

5. Objectives of the meetings

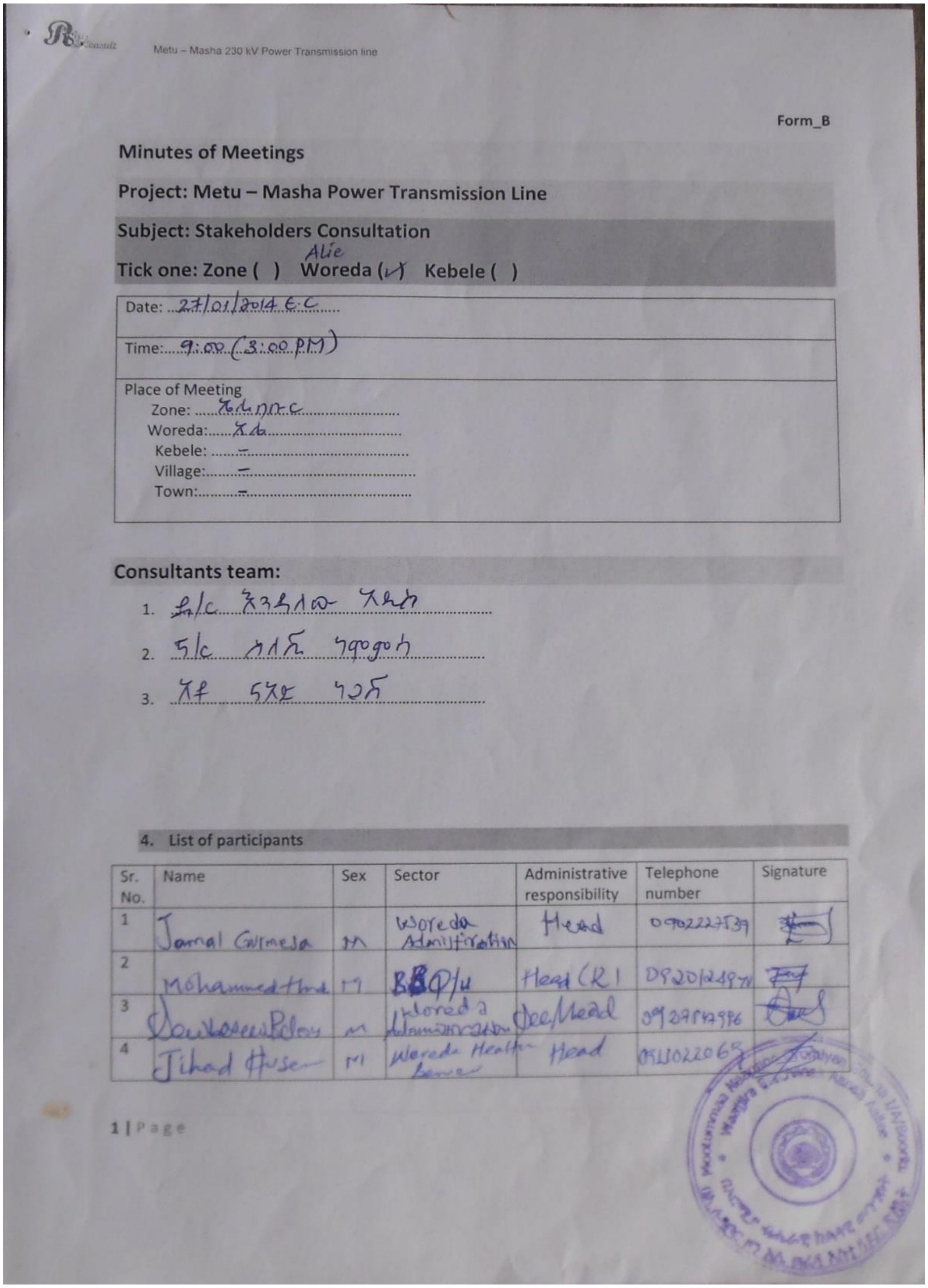
1. To explain the core objectives of the project for the stakeholders
2. To discuss the positive and adverse socio-economic impacts of the project with stakeholders
3. To grasp the perception of stakeholders about the project

6. Meeting Agenda

1. Introduction of the project by the Consultant (clear elaboration of the project activities)
2. Socio-economic and settlement context of the project area
3. Impacts of the project on socio-economic and settlement conditions
4. Perceptions of the participants about the impacts of the project
5. Benefits of the project

7. Discussions

ii. Ale Woreda



Metu – Masha 230 kV Power Transmission line

Form_B

Minutes of Meetings

Project: Metu – Masha Power Transmission Line

Subject: Stakeholders Consultation

Tick one: Zone ( ) Woreda (✓) Alie Kebele ( )

Date: 27/01/2014 E.C

Time: 9:00 (3:00 PM)

Place of Meeting

Zone: ኢሉባቦር

Woreda: አሌ

Kebele: -

Village: -

Town: -

Consultants team:

1. [illegible]
2. [illegible]
3. [illegible]

4. List of participants

Sr. No.	Name	Sex	Sector	Administrative responsibility	Telephone number	Signature
1	Jamal Gurmesa	M	Woreda Administration	Head	0902227539	[signature]
2	Mohammed Abd	M	BBQ/U	Head (R1	0920124970	[signature]
3	[illegible]	M	Woreda Administration	Dee/Head	0929849996	[signature]
4	Jihad Huse	M	Wereda Health Sector	Head	0911022069	[signature]

1 | Page

5	Teka Etayehu	M	Livestock	Head	0986544599	[signature]
6	Melaku Mulugeta	M	ECCA	Head	0911852081	[signature]
7	Teregn Degefe	M	Investment	Head	0919986482	[signature]
8	Asfaw Ayenew	M	Land use	Head	0919421721	[signature]
9	Akalu Sammy	M	Timira Biro	"	0910198480	[signature]
10						

5. Objectives of the meetings

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7. Discussions

[illegible]
[illegible]

ፕሮጀክቱን፡ እናመሰግናለን፡፡

የፕሮጀክቱ፡ መምጣት፡ ለአካባቢው፡ ማህበረሰብ፡ የተለያዩ፡ ጥቅሞችን፡
ይዞለት፡ ይመጣል፡ ብለን፡ እናምናለን፡፡ ምክንያቱም፡ ከተማ፡ ብቻ፡ ሳይሆን
የገጠሩ፡ ህብረተሰብም ተጠቃሚ፡ መሆን፡ አለበት፡ ብለናል፡፡ ለምሳሌ፡
ጤና፡ ከአፍ፡ ወረዳ፡ ሰር፡ የሚገኙ፡ ቀበሌዎች፡ መብራት፡ አላገኙም፡፡
ስለዚህም፡ የዚህ፡ መስመር፡ መዘርጋት፡ እነዚህ፡ ቀበሌዎችን፡ የመብራት
ተጠቃሚ፡ ለማድረግ፡ አስተዋፅኦ፡ ይኖረዋል፡ ብለናል፡፡ ከዚህ፡ በተጨማሪም
የወጣቶች፡ ማህበራት፡ ጠጠር፡ መገንባት ለወጣቶች፡ ከተማ፡ ቅርብ፡ የሆኑ፡
በጀልበር ዘን፡ ሰር የሚገኙ ወረዳዎችና ቀበሌዎች ከማህበራት፡
ጥበቃው፡ ተጠቃሚ ይሆናል፡ ብለን፡ እናስባለን፡ ብለናል፡፡

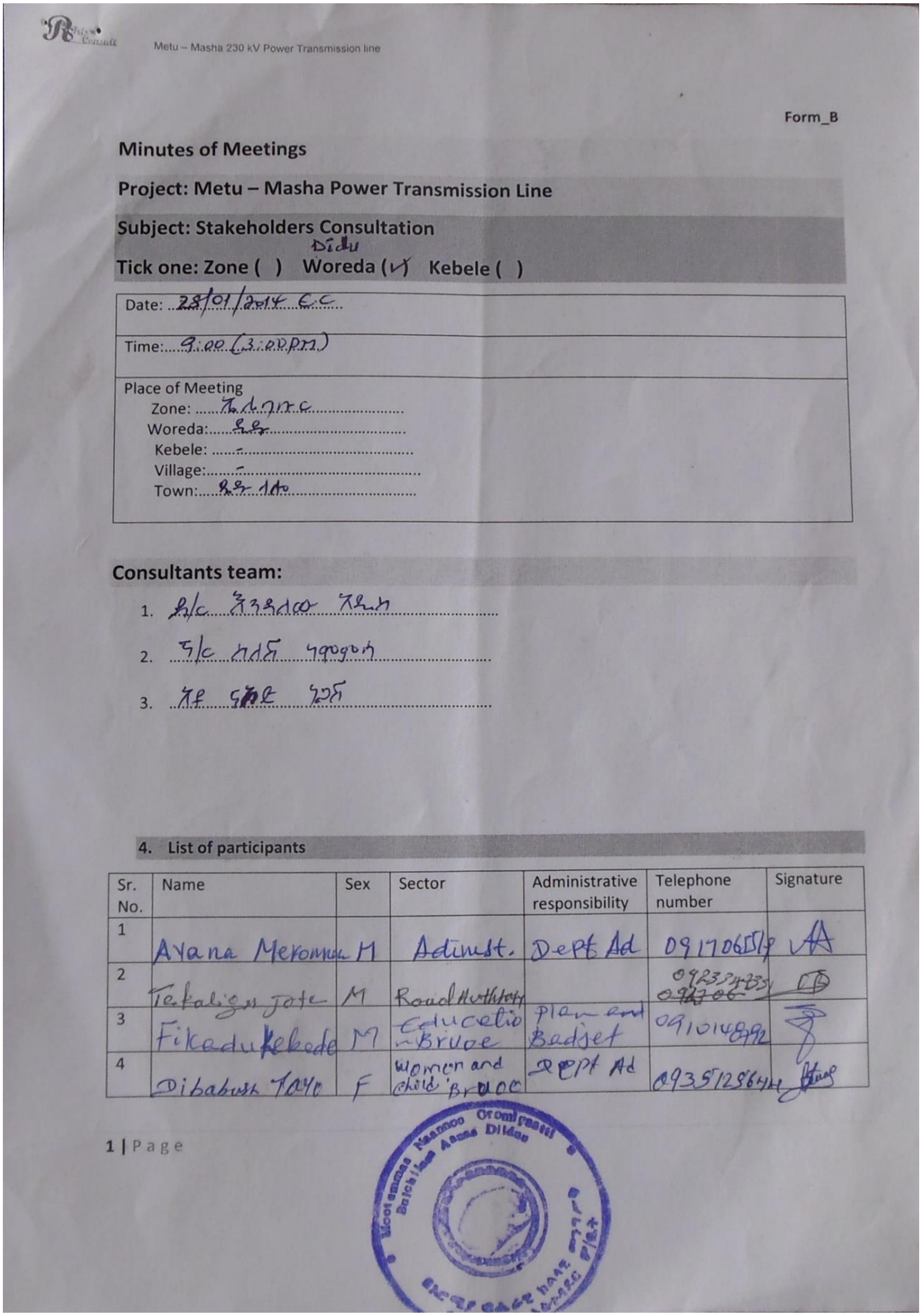
ስለሆነ፡ በዋና፡ ፕሮጀክቱ፡ የተለያዩ፡ አካባቢዎች ማህበራዊ፡ ጉዳዮች
ሊያስከትል፡ ይችላል፡፡ ለምሳሌ፡ ጤና፡ የመብራት፡ ታወር ለተከሉ
ከባቢ ቦታ 30 ሜትር በአጠቃላይ፡ 40 ሜትር ካምፓም ነው፡
ነው፡ መሆን፡ ያለበት፡ እነዚህ፡ ታወሮች በሚቆሙበት ቦታ፡ ላይ፡
ያሉ፡ ሰብሎች፡ የእርሻ ማሳዎች፡ ቋሚ ተክሎች (ቡና፡ ፍራፍሬ፡
ጥምዝ ሌሎችም)፡ ደኖችና ማሳዎች፡ ላይ፡ በአደጋ በተከለከሉ፡ ቦታዎችም
ዛፎች ማለትም በቀበሌ፡ ጎዳር፡ እንግዳ በመንገድ፡ ላይ፡
በገበያ፡ ቀበሌዎች፡ ላይ፡ ለገበያ፡ መዋቅራዊ፡ በሚያገለግሉ፡ ተክሎች
ላይ በጋር፡ እንዲሁም፡ ላይ፡ ጉዳት፡ ሊያደርስ፡ ይችላል፡፡ ስለዚህም፡
ከችሎ፡ መጠን፡ የጉዳት፡ መጠንን፡ መቀነስ፡ የሚቻልበትን መንገድ
በጥናት፡ ማረጋገጥና መተግበር፡ ያስፈልጋል፡ ብለናል፡፡

ስለዚህ ቀዬው፡ ጉዳይ፡ በፕሮጀክቱ፡ ጉዳት፡ ለሚደርስባቸው፡ ሰዎች
የሚያስፈልገው፡ ካሳ፡ ቀድሞ፡፡ እርግጥ፡ ነው፡ የካሳ፡ ክፍያው፡
በአቀፍ፡ ደንቡና መመሪያው፡ መሠረት፡ ሊከፈለን፡ ይገባል፡፡ ነገር ግን
የካሳ፡ ተመን፡ ሲሠራና ክፍያ፡ ሲፈፀም፡ ፍትሃዊ፡ ማድረግ፡ ያስፈልጋል
ብለዋል፡፡ ምክንያቱም፡ ካሁን፡ በፊት፡ በመንገድ፡ ማንኛውም፡ ቀበሌ፡
በመሠረተ፡ ፕሮጀክት፡ ተፈናቅለውና ካሳ፡ ያልተከፈላቸው፡ የተገኙ፡
ሠፈሮች፡ በካሳ ተኝ ሁኔታ፡ እየተጎዱ፡ እንደነበሩ፡ ድርሻ፡ ተገኝቷል፡
ካሳ፡ አልተከፈላቸውም፡፡ በመሆኑም፡ በፕሮጀክቱ፡ ምክንያት፡ በተለያዩ፡
መንገድ፡ ጉዳት፡ የሚደርስባቸው፡ ሰዎች፡ በተገቢው፡ መንገድ፡ ካሳው፡
ተተምኖ ሊከፈላቸው፡ ይገባል፡፡ ቀጥሎ፡ ሲሆን፡ ለፕሮጀክቱ፡ ድጋፍ፡ ያደርጋሉ፡፡
ቀጥሎ፡ ካሉት፡ ግን ከፕሮጀክቱ፡ ለቀ፡ የተለያዩ፡ ምክንያቶች፡ ለምሳሌ፡ ለአካባቢ
መሠረት ለቀበሌን፡ እንዲሁ፡ መብራትና ንብረቶችን፡ አሁን፡ አስር፡ ቀበሌ፡
የሚል፡ ተቃውሞ፡ ሊያነሱ፡ ይገባል፡ ብለዋል፡፡

ነገር፡ ግን፡ ካለፉ፡ የተነሱትን፡ ችግሮች ካጋጠምም ለመፍታት፡ ካለተቻለም፡ ለመቀነስ
ንብረት፡ የሆነ፡ የሚያበረክተው፡ ወቅት፡ መደረግ፡ አለበት፡ ብለዋል፡፡ ምክንያቱም
በማበረክቱ፡ በሚገኙ የመንግስትና ጉዳቶችን፡ በሚያደርጉ፡ ተገቢውንም፡
ካሳ፡ በመክፈል፡ ለፕሮጀክቱ፡ የሚሰጡት፡ ሠፈራ፡ እንዲደረግ፡ ማድረግ፡
ያስፈልጋል፡ ብለዋል፡፡

በመጨረሻም፡ ፕሮጀክቱን፡ ለመገንባት፡ የመንገድ፡ ችግር፡ ሳይሆን፡ የመንገድ፡
ችግር፡ በማያመጣ፡ መልኩ፡ አለበት፡ ብለዋል፡፡ ምክንያቱም፡ ለፕሮጀክቱ፡
የሚያስፈልጉ፡ ማቴሪያሎችን፡ ለማጓጓዝ ቀላል፡ ስለሆነ፡ ለመገንባት፡
ለመንቀሳቀስ፡ መንገድ፡ በጣም፡ አስቸጋሪ፡ ነው፡ በማለት፡ ውይይቱ፡
ተጠናቋል፡፡

iii. Didu Woreda



Metu – Masha 230 kV Power Transmission line

Form_B

Minutes of Meetings

Project: Metu – Masha Power Transmission Line

Subject: Stakeholders Consultation

Tick one: Zone ( ) Woreda (✓) Kebele ( ) Didu

Date: 28/01/2014 E.C

Time: 9:00 (3:00 PM)

Place of Meeting
Zone: ኢሉ አባቦር
Woreda: ዲዱ
Kebele: -
Village: -
Town: ዲዱ [illegible]

Consultants team:

1. [illegible]
2. [illegible]
3. [illegible]

4. List of participants

Sr. No.	Name	Sex	Sector	Administrative responsibility	Telephone number	Signature
1	Ayana Meromma	M	Adminst.	Dept Ad	0917065519	[signature]
2	Tekalign Jote	M	Road Authority		0923343335 / ~~092706~~	[signature]
3	Fikadu Kebede	M	Education Bruoe	Plan and Badjet	0910148892	[signature]
4	Dibabush Tayo	F	Women and child Bruoe	Dept Ad	0935125644	[signature]

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5	Habtamu Bezabih	M	Health	Plan & Budget	0922787931	
6	Zelalem Tadesse	M	Land Administration	Head	0913 96 22 50	
7	Abera Kebede	M	Agriculture	Team Leader	0917275335	
8	Tesfaye Eunera	M	Live Stock	Team Leader	0917113798	
9	Hailu Tafesa	M	Water office	Head	0910726154	
10						

5. Objectives of the meetings
1. To explain the core objectives of the project for the stakeholders
2. To discuss the positive and adverse socio-economic impacts of the project with stakeholders
3. To grasp the perception of stakeholders about the project

6. Meeting Agenda
1. Introduction of the project by the Consultant (clear elaboration of the project activities)
2. Socio-economic and settlement context of the project area
3. Impacts of the project on socio-economic and settlement conditions
4. Perceptions of the participants about the impacts of the project
5. Benefits of the project

7. Discussions
[illegible]

የተቀደውን፡ የመብራት፡ መስመር፡ ዝርጋታ፡ የሚካሄድበት፡ ሙሉ፡ ማንገት፡
ፕሮጀክት፡ በመጠኑም፡ ቢሆን፡ መሬታቸው፡ አለን፡፡ በዚህም፡ የሚኖሩ፡ ካሳቸውን
የአካባቢው፡ ነዋሪዎች፡ መብራት፡ በማግኘታቸው፡ ደስተኞች፡ ናቸው፡፡ ነገር
ግን፡ መብራቱ፡ ቀላል፡ ወይም፡ አብዛኛው፡ ሰፊ፡ እንደሆንም፡ ተጠቃሚ፡
የምንሆንበት፡ መንገድ፡ ቢመቻችልን፡ ሰላም፡ እንጠብቃለን፡ ብለዋል፡፡

በመቀጠልም፡ አንዱ፡ ፕሮጀክት፡ ሲመጣ፡ ንቅናቄም፡ ጉዳትም፡ ሊደርስ
ቀጥለው፡ ካሉ፡ በኋላ፡ ንብረት፡ ቀድሞ፡ መጠናቱም፡ ጉዳቱን፡ ለመቀነስ፡
ንቅናቄ፡ አለው፡፡ ነገር፡ ግን፡ እንደዚህ፡ አሁንም፡ ንብረት፡ ተጠንቶ፡
ሰፈሩ፡ ከቀየሩ፡ እንዲቀይር፡ የሚሆን፡ ከሆነ፡ አለን፡ ብለዋል፡፡ ከንቅናቄም
አንፃር፡ ከመልካሙ፡ የዚህ፡ ፕሮጀክት፡ መገጠሚያ፡ የተሰጠ፡ ንቅናቄን
ሊያሟላ፡ ቀጥሎ፡፡ ለምሳሌ፡ ያለ፡ የሚሆን፡ ወረዳ፡ ቀና፡ ካቶሚ፡
የመብራት፡ መስመር፡ ሲዘረጋለትም፡ መብራት፡ የሚተገበር፡ ለአገሪቱ
እንደ፡ ጊዜ፡ ነው፡፡ በዚህ፡ ጊዜ፡ የሚመጣው፡ መብራትም፡ ምንም፡
ሃብል፡ የለውም፡፡ እንዲሁም፡ ጊዜ፡ ደግሞ፡ ያለተመጠነ፡ ንቅል፡
አየመጣ፡ የሚል፡ መዳኒያ፡ ቤት፡ የአብያተክርስቲያን፡ መቃብሮችና፡ የተቀበሩት
መገልገያ፡ መሣሪያዎችን፡ ያረጋጋልበታል/ያለለካበታል፡፡ ካለፈም፡
ቀሪ፡ ፕሮጀክት፡ ከጠናቀቀ፡ በ57፡ ኪ.ሜ፡ ከሚርቀው፡ የመቱ፡
ማከፋፈያ፡ ጣቢያ፡ ቀጥሎ፡ በቀርከ፡ ርቀት፡ በ27፡ ኪ.ሜ፡ ለቀ
ከሚገነባው፡ የማ፡ ማከፋፈያ፡ ጣቢያ፡ ሀቀል፡ ያለውና፡ ንቅቱም
የማቀዋቀዣ፡ የአብያተክርስቲያን፡ መብራት፡ እናገኛለን፡ ብለው፡ አስተያየታቸውን፡፡
የተሻለ፡ ንቅል፡ በተገኘው፡ መንገድ፡ ከናገኝ፡ ለማገልገት፡ የሚያስፈልጋቸውን
ይህንም፡ ቀጥሎ፡ ማስረዳትብል፡፡ በዚህና፡ በሌሎችም፡ በወረዳው፡ ወሰን፡ የሚገኝ
የተለያዩ፡ የበለፀገች፡ አገር፡ ተጠቃሚ፡ ቀርበናል፡ ከዚህ፡ በተጨማሪም

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ፕሮጀክቱ፡ በሚሠሩበት፡ ጊዜ፡ ለአካባቢው፡ ወጣት፡ የሥራ፡ እድል፡ ቢፈጥሩ፡ ጥሩ፡ እናምናለን፡፡ እርሱ፡ እዚያም፡ ለነገ፡ ተስፋ፡ የሚያስገኝ፡ ጥቅም፡ መልካም፡ ነው፡ ብለዋል፡፡

ለሌላ፡ ከዚሁ፡ ደግሞ፡ ቀሁ፡ ፕሮጀክቱ፡ በህብረተሰቡ፡ ላይ፡ ጉዳት፡ ያስከትላል፡፡ እኛም፡ ህብረተሰቡን፡ ቅንጅል፡ ካለን፡ ቦታ፡ ቀድሞ፡ እንለምን፡፡ ነገር፡ ግን፡ ከፕሮጀክቱ፡ ጉዳት፡ የሚደርስባቸው፡ ሰዎች፡ ተገቢውን፡ ካሳ፡ ማግኘት፡ አለባቸው፡ ነው፡ የምንለው፡፡ ለምሳሌ ወረዳው፡ በማገ፡ ወቅም፡ ከዚን፡ የተሰራ፡ ነው፡፡ የህብረተሰቡ፡ ህይወትም ከዚህ፡ መንገድ፡ ላይ፡ የተመሰረተ፡ በመሆኑ፡ ለዚህ፡ ፕሮጀክት፡ ያደርጋል፡ ከዚህም፡ ቀጥሎም፡፡ ሠራተኞም፡ ከዚህ፡ በፊት፡ ዲዛይን፡ ሲሰራ ከእርስ እዚያ፡ ማሳ፡ እንደርስ፡ ተደርጎ፡ ለመንገዱ፡ ላይ፡ እንዲያደርጉ ተደርጎ፡ ነበር፡ ነገር፡ ግን፡ በመንገዱ፡ ስቀዉን፡ የእርስ እዚያ ማሳ በሚበዛበት፡ አካባቢ፡ እንዲያደርጉ፡ ተደርጎ፡ ቦታ፡ የተሰራ፡ ነው፡ ብለዋል፡፡ ቀሁ፡ ከተደረገ፡ በኋላም፡ ተወሰኑ፡ ለማቀም፡ አቤቱ አቤቱ፡ መንገዱን፡ ወቅም፡ ደንን፡ የሚነካ፡ ከሆነ፡ በደን፡ ውስጥ የተለያዩ፡ ሪጅኖ፡ ዕፅዋት፡ ያለበት፡ ዛፎችና፡ እንደ ቡና፡ ከርቤ፡ ማርና ንግድ፡ የሚሰራበት፡ ቆላ፡ ተክሎች፡ ይለሙበታል፡ እርሱ፡ እዚያ ተገቢውን፡ ካሳ፡ በወቅቱ፡ ማግኘት፡ አለበት፡ ብለዋል፡፡ ከዚህ በተመሳሳይም፡ የማስፋ፡ መስመር፡ ለእኛን በገጠር፡ ቀበሌ፡ ከካተማ፡ የሚነካ፡ ከሆነ፡ የእርሻ፡ ማሳዎችንና የእንስሳት፡ የግጦሽ የሚነካ፡ ከሆነ፡ ተገቢውን፡ ካሳ፡ ማግኘት፡ አለባቸው፡ ነገር፡ ግን፡ የካሳ፡ አፈፃፀም፡ አካሄድ፡ ላይ፡ ከዚ፡ ቅሬታዎች፡ ስለሚነሱ፡ አስፈላጊውን፡ ማሟላት፡ በሚደረግ፡ በወቅቱ፡ ተገቢውን፡ ካሳ፡ ቢከፈል፡ ለፕሮጀክቱም ስኬታማነት፡ [illegible] አለው፡ በማለት፡ ወቅቱ፡ [illegible]፡፡

iv. Metu Woreda

Metu – Masha 230 kV Power Transmission line

Form_B

Minutes of Meetings

Project: Metu – Masha Power Transmission Line

Subject: Stakeholders Consultation

Tick one: Zone ( ) Woreda (✓) Kebele ( ) Metu

Date: 27/01/2014 E.C

Time: 8:30 AM (2:30)

Place of Meeting
Zone: ኢሉባቦር
Woreda: መቱ
Kebele: -
Village: -
Town: መቱ

Consultants team:

1. [illegible]
2. [illegible]
3. [illegible]

4. List of participants

Sr. No.	Name	Sex	Sector	Administrative responsibility	Telephone number	Signature
1	Tekaligu Abara	M	Wored Admi	Woreda W.H. Admi	0925950547	[illegible]
2	Mudasir Tadese	M	Vice head office of agriculture	Metu Woreda Agriculture deputy	0919132137	[illegible]
3	Dereje Mekonnen	M	Vice head office of Agriculture	Agricultu re	0942364319	[illegible]
4	Fadesa Seressa	M	Water & energy	leader	0923068022	[illegible]

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5	Alemayehu Teferi	M	Woreda Road Authority	head office	0913427654	[signature]
6						
7	Netsanet Emiru	M	Mettu Education Bureau	Head office	091337047[illegible]	[signature]
8	Kenesa Aliye	M	Mettu Wareda Landa Admin	Head Office	0912169961	[signature]
9	Demelash Rundassa	M	Mettu invas. office	Head Office	0984889043	[signature]
10	Adise Gudeta	F	Mettu wor/Femloffice	Head Office	0917416757	[signature]
	Getachew Abdisa	M	Mettu wor Climate chang.	"	0910819917	[signature]

5. Objectives of the meetings

1. To explain the core objectives of the project for the stakeholders
2. To discuss the positive and adverse socio-economic impacts of the project with stakeholders
3. To grasp the perception of stakeholders about the project

6. Meeting Agenda

1. Introduction of the project by the Consultant (clear elaboration of the project activities)
2. Socio-economic and settlement context of the project area
3. Impacts of the project on socio-economic and settlement conditions
4. Perceptions of the participants about the impacts of the project
5. Benefits of the project

7. Discussions

በመቱ ወረዳ ደ/መቱ በተካሄደው የባለድርሻ አካላት ውይይት
ከመቱ-ማሻ የሚገነባው [illegible] [illegible] [illegible]

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Mootummaa Naannoo Oromiyaatti Caffee Bulchiinsa Aanaa Mattuu

ዝርጋታ ፕሮጀክት: ማኅበራዊ: ጥናት: ማኅበራዊ ልማትና ፖሊሲ:
ማኅበራዊ ጥናት: ግንባታ ኮርፖሬሽን: ኢትዮጵያ: በሚከተለው: ጥናት
ዘገባ: በመጀመሪያ: ሃገር: ፖሊሲና: ፖሊ ማኅበራዊ: ጥናት: ለውጭ
ወቅቱ: ማኅበረሰብ: ቁጠርሳለተል: ሃላ: ወቅታ: እንደሆ:
ለማኅ: ጉተማ: ማኅበራዊ: ጥናት: በመንገድ: ሃላ:
ጋር: ለማደጃዝ: ጉቻ: ሃል: ፖሊሲ: ጉንቴ: እንታተ:
ሃለወደቦች: እንደሆ: ለማደጃዝ: ጉቻ: ጎቂወን: ፕሮጀክት:
ሃተማ: ፖሊማኅበራዊ: ጥናቱም: መኅኛያ: ወቅቱ: ማኅበራዊ:
ቁጠርሳለተል: ፖሊሲ: ማኅበራዊ: ተጎጂ ተቸሳለ::

ኮንትራክተ: መቋመጫ: በመጀት: ወረዳ: ሠር: ደተ: ቦንጦር
ቀበሌዎችን: ፖሮጀክተ: ተጠቃሚ: ደርጋል: ብለን: እናጎላለን::
ሃገር: ግን: ጉእናንተ: በሌተ: በወጀት: ወረዳ: ጎር: በሚገኙ
ቀበሌ: ውስጥ: ነለየተቃጩ ሂደው: ጉዚህ: ኮርፖሬሽን: ጋር: ሰላማኙ
ቁሀን: ጀቁን: እናቆቋቋም: ሥራ: ሠርተቸል: ወቅቱ: መረጃ:
ሠጠጎቸል:: በመሆኑም: ወደ ወረዳው: እየደወሉ
በጀሳል: እየመጡ: መሬታቸን: ለወሰደብን: ሃላ: እኛተ:
አሌተ: ፖሚሰቀርቡ: ሠዎች: ሠላሳጎሩ: አንጋቢ: መፊጎ
መጎጠት: አለቻለንም: ሃገር: አሁን: ግን: በወረዳው:
ይህተ ሠር: ፖሚገኙ: ኮንትራክተ: ጋር: ግንኙነት: ይፈቸን:
ነለደርሶ: አሳለተ: ሠጠጎቸሁ: ጎለወደይችሁን: ጉዳዩን: በማስከተተን
እንዳተፈለን: እገደግፋለንም: ለሚመለከተቸው: የአሳታፍው:
ጎሳሌዎችም: ተገቢውን: ጥቆማ: እንሰጣለን: ብለዋል::

በፕሮጀክቱ፡ ምክንያት፡ ለሚፈናቀሉ ሁለቱ፣ ንብረታቸው፡ ለሚገባቸው
ክፍያ የካሣ፡ ክፍያ፡ ቀመጠል፡ ከለን፡ እናምናለን፡ በማለት፡
የካሣ፡ ክፍያውም፡ በፍጥነት በመመለሱ፡ መሬት፡ ቀሪውም
ካለ፡ በኋላ፡ የካሣ፡ ተመን፡ ሲሰራ፡ ንንግድ፡ ማህበረሰብ፡
የሚሆኑ፡ ነገሮች፡ እና፡ በማለት፡ ለምክር፡ ያሳል፡
ባለቀበሌዎች፣ ሁለቱ፣ እቀኖች፡ ናቸው፡ ማለት፡ አርሶ
ከኢንቨስ፡ የተሰራ፡ ነገር፡ ያለቸው፡ ሠራተኛ፡ ሊኖር
አለመኖሩ፡ ሁሉም፡ ህዝብ፡ ናቸው፡ ከአቀባ፡፡ ነገር፡ ግን፡ የካሣ
ግምት፡ ሲሰራ፡ እንዳይሆን፡ ነው፡ ከወረዳ፡ ደግ፡ የካሣ፡ ተመን፡
የካሣዎች፡ እባክን፡ ተሳታፊ፡ እንድትሆኑ፡ ወይ፡ የሚል፡ ንግድ፡ እንሰማለን
እና፡ በሚገባ፡ የሚመለከታቸውን፡ ሁሉ፡ እንዲያደርጉ፡ ማለት
ማለት፡ በዚህ፡ መንገድ፡ ነው፡ የካሣ፡ ተመኑ፡ የሚሰራው፡
የሚል፡ መልስ፡ ከእነዚህ፡ ተሳታፊዎች፡ ተቀብለናል፡፡

በመጨረሻም፡ በወረዳ፡ ደረጃ፡ የባለድርሻ፡ አካላት፡
ስብሰባችሁ፣ እንደዚህ ያለ ሀሳብ፡ ፕሮጀክቱ፡ ለሚገነባው
አካባቢዎች፡ ለፋ፡ ሃሳባችሁ፣ ንብረት፡ የሆነ፡ የተሠበሰበ፡
ወቅት፡ ማህበረሰብ፡ አለባችሁ፡ የሚል፡ ማንኛውም፡ በመሠረት
ወቅት፡ ተመስግኗል፡፡

v. Metu Town

Form_B

Minutes of Meetings

Project: Metu – Masha Power Transmission Line

Subject: Stakeholders Consultation

Tick one: Zone ( ) Woreda ( ) Kebele ( ) (Metu town)

Date: 26/01/2014

Time: 10:00 /4:00PM

Place of Meeting
Zone: ኢሉባቦር
Woreda: መቱ
Kebele: –
Village: –
Town: መቱ

Consultants team:

1. ዶ/ር እንዳለው ገዴሳ
2. ነ/ር ሀለፎ ነጋሞሳ
3. አቶ ናጄ ነጋሽ

Mootummaa Naannoo Oromiyaa Godina I/A/Boorsatti Bulchiinsa Magaalaa Mattuu

4. List of participants

Sr. No.	Name	Sex	Sector	Administrative responsibility	Telephone number	Signature
1	Berhanu Jembere	M	Mayor Office	Mayor	0913768834	[signature]
2	Sieshi Tasew	〃	Agri. office	Expert	0913300667	[signature]
3	Kedro Yasin	〃	Municipality	Vice Mayor	0917110548	[signature]
4	Tigist Jima	F	Investiment		0919143993	[signature]

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	Name	sex	sector	Administrative Responsibility	Telephon	Signature
5	Musa Mekuria	M	Health Office	Head	0913891881	
6	Getachew Asele	M	Mayor office	Head	0910164148	
7	Isahaz Sheriff	M	Water Supply	Manger	0936009151	
8	Mafin Teshome	M	Land Admin	Representative	0946259329	
9						
10						

5. Objectives of the meetings

1. To explain the core objectives of the project for the stakeholders
2. To discuss the positive and adverse socio-economic impacts of the project with stakeholders
3. To grasp the perception of stakeholders about the project

6. Meeting Agenda

1. Introduction of the project by the Consultant (clear elaboration of the project activities)
2. Socio-economic and settlement context of the project area
3. Impacts of the project on socio-economic and settlement conditions
4. Perceptions of the participants about the impacts of the project
5. Benefits of the project

7. Discussions

የመቱ-ማሻ የኤሌክትሪክ መስመር ዝርጋታና የማከፋፈያ ጣቢያ፡
ፕሮጀክቶችን፡ በተመለከተ፡ ከመቱ፡ ከተማ እንተዳደር፡ የባለድርሻ፡
አካላት፡ ጋር፡ ውይይት፡ ተደርጓል። በውይይቱ፡ ላይ፡ የተነሱ፡
አብላጫዎቹ፡ ፕሮጀክቶች፡ እንደሚያስፈልጉ፡ በመግለፅ፡ ለተግባራዊነቱ፡
አስፈላጊውን፡ ሁሉ፡ ድጋፍ እንደሚያደርጉ፡ ቃል፡ ገብተዋል።

እንዲሁም፡ ሃገሪቱ፡ እየተከተለች ያለችውን የልማት፡ ፕሮጀክት፡
እንዲቀላጠፍና ለአርሶ አደሩ ... እንዲገባ፡ ነው፡
የምንፈልገው፡ ለማለት፡ ከዚህ፡ ጋር፡ በተያያዘም፡ የመቱ 'substation'
/ማከፋፈያ፡ ጣቢያን ማስፋፋት ወሳኝ ነው፡ የማከፋፈያ ጣቢያ
መስፋት፡ የማሻሻል፡ የመቱን፡ ከተማ፡ የመብራት፡ ችግር፡ ከመቅረፉም
በተጨማሪ፡ ...፡ በበለጠ፡ እንዲበለፅግ፡ ...
...፡ ተገቢ፡ ለመቋቋምና ለማጠናከር፡ ቁርጠኛ ነን።

ቀጥሎ፡ በእንዲሁ፡ እንደ፡ ከመቱ፡ ማከፋፈያ፡ ጣቢያ፡ ተነሳ፡ ከመቱ
ከተማ፡ እስከ ... ድረስ፡ በተለይ፡ ሁሉንም፡ ከተማውን፡ የሚመለከት
...፡ ለማከፋፈያ፡ ጣቢያው፡ ዝግጅት፡ ቦታን፡ በመስመር
ዝርጋታው፡ የሚፈናቀሉ፡ ወገኖች፡ የሚገባቸው፡ ካሳ፡ የከተማ
አስተዳደሩ፡ በህግ፡ በመመሪያው፡ መሰረት፡ አስፈላጊውን፡ ሁሉ
ለማድረግ፡ ዝግጁ፡ ነው። ከዚህ፡ ጋር፡ ተያይዞም፡ በተለይ፡ የከተማው
ሰፋ፡ አስተዳደር፡ የመሬት፡ አስተዳደርና የኢንቨስትመንት፡ ጽ/ቤቶች
ዝግጁ እንደሆኑ፡ ገልጿል፡ በአቋም::

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Naannoo Oromiyaa
Bulchiinsa Magaalaa Mattuu

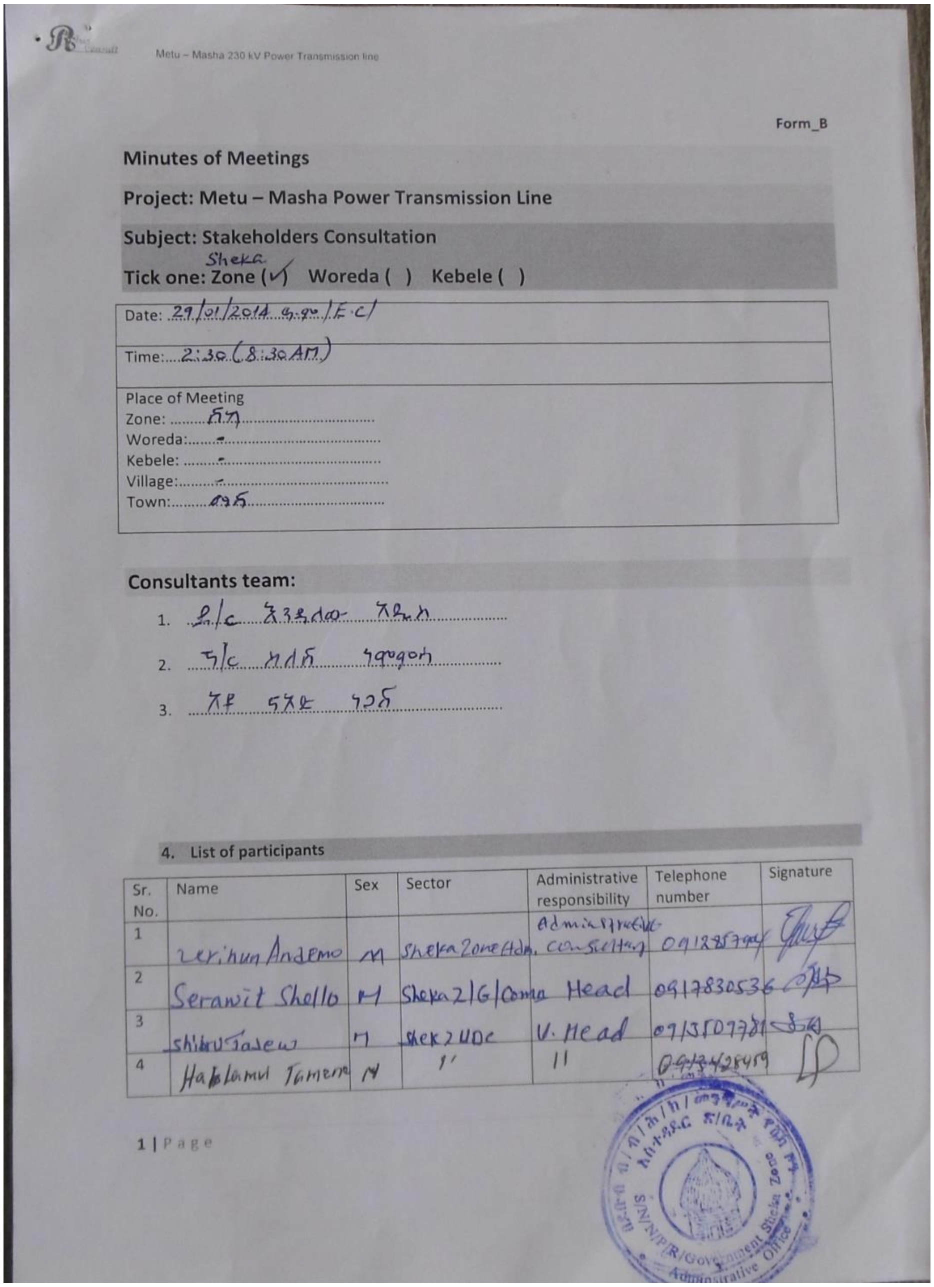
ፕሮጀክቱ፡ ምንም፡ ጉዳት፡ የለውም፡ ማለት፡ አይቻልም፡፡ ነገር፡ግን፡
እንደማንኛውም፡ አዲስ፡ ፕሮጀክት፡ አካባቢያዊና ማህበራዊ፡
ተፅዕኖ፡ ሊኖሩት፡ ይችላል፡፡ ለመሆኑም፡ እነዚህ፡ ተፅዕኖዎች፡ በደንብ
መጠናት፡ አለባቸው፡፡ በተለይም፡ ደግሞ፡ ፕሮጀክቱ፡ በአካባቢው፡
ዘላቂ፡ ገቢ፡ አርሶአደሮች መሬት፡ ቡና፡ ሻይ፡ በእርሻ ማሳ ላይ ያሉ
አትክልቶች፡ 'cash crops' ላይ፡ ጉዳት፡ የሚያስከትል፡ ከሆነ፡
ንብረቱ፡ በጊዜው፡ ተመጣጣኝ፡ በሆነ፡ በመመለስ፡ መፍትሄ፡ ካለ፡
ሊከፈላቸው፡ ይገባል፡ ብለዋል፡፡

ካሳው፡ ከመሰጠቱም፡ ፕሮጀክቱ፡ በሚጀመርበት፡ ወቅት፡ ከነዋሪዎቹ፡
ጋር፡ ውይይት/ምክክር ተደርጎ፡ 20 ሜትር ገደማ ቁመት፡ ከአጠቃላይ፡
40 ሜትር ስፋት፡ ነው መሆን፡ አለበት፡ ስለሚሉ፡ የኤሌክትሪክ፡ ሰው፡
መሞከር፡ ስራ፡ ወደፊት መሆን፡ ላይ በመሆን፡ ወቅቱ በተለያየ፡
ሊገባ፡ ይችላል፡፡ ከዚህ፡ ጋርም፡ በእርሻ በደንብ መሬት
እንዳለበት፡ ካሳ፡ ተከፍሎ፡ የአካባቢ፡ አርሶአደሮችም፡ ምንም፡
የሆነ፡ መሬት፡ በቂ፡ አይደለም፡ ለተፈናቃዮች፡ ወጪ፡ ቀውጥል፡፡

በመጨረሻም፡ ካሳው፡ በፊት፡ ከአካባቢው፡ ውጭ፡ በተገኘ፡ የአንድነት፡
ጋራ/ምክክር ምክንያት፡ በተመለከተ፡ የአካባቢው፡ ለአካባቢው፡
ተመራጭ፡ ሰዎች፡ ለማሻሻል እንደሚቻል፡ የሚሆን፡ አደጋ/ችግር፡
በመከሰት፡ ፕሮጀክቶች፡ ወደፊት፡ ለሰዎች ስራ፡ ለሴቶች፡ ለወጣቶች
እንዲሆኑ፡ እንደሚቀርብ፡ ጉዳዩ፡ ማድረግ፡ ተገቢ፡ ነው፡ ለማለት፡
ውሳኔ፡ ተመልሷል፡፡

B. Skeka Zone

i. Sheka Zonal Administration



Metu – Masha 230 kV Power Transmission line

Form_B

Minutes of Meetings

Project: Metu – Masha Power Transmission Line

Subject: Stakeholders Consultation

Tick one: Zone (✓) Sheka Woreda ( ) Kebele ( )

Date: 29/01/2014 ዓ.ም /E.C/

Time: 2:30 (8:30 AM)

Place of Meeting
Zone: ሸካ
Woreda: -
Kebele: -
Village: -
Town: ማሻ

Consultants team:

1. [illegible]
2. [illegible]
3. [illegible]

4. List of participants

Sr. No.	Name	Sex	Sector	Administrative responsibility	Telephone number	Signature
1	Zerihun Andemo	M	Sheka Zone Adm.	Administrative consultant	0912857994	[signature]
2	Serawit Shello	M	Sheka Z/G/Comm	Head	0917830536	[signature]
3	Shibru Tasew	M	Sheka ZUDC	V. Head	0913507781	[signature]
4	Hablamu Tamene	M	"	"	0913428459	[signature]

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5	Elias Garefo	M	Sheka Zone Agriculture	V.head	0924811658 0914942821	
6	Wondimagegn Abuye	M	SH/Zone/Urban d/Consn dept	deputy head	0912333061	
7	GIZAW Atto	M	Sheka Zone Environment and forest Head		0917830451	
8	Zekarias Gezahegn	M	Sheka Zone Urb dev't & Con	deputy head	0911127686	
9	Muluseta Adnan	M	Sheka Zone govt communication Affairs Dep't	deputy head	0911256471	
10						
11	Tigistkebede	F	Sheka Zone deut head	deputy head	0913316922	
12	Debritu Dachito	F	Sheka Zone Cult	V. head	0988556728	
13	Kahane Gemeda	>>	Sheka Zone Housing Dvlpmen	head	0934289867	

5. Objectives of the meetings

1. To explain the core objectives of the project for the stakeholders
2. To discuss the positive and adverse socio-economic impacts of the project with stakeholders
3. To grasp the perception of stakeholders about the project

6. Meeting Agenda

1. Introduction of the project by the Consultant (clear elaboration of the project activities)
2. Socio-economic and settlement context of the project area
3. Impacts of the project on socio-economic and settlement conditions
4. Perceptions of the participants about the impacts of the project
5. Benefits of the project

7. Discussions

እየተጠበቅን፡ ስለሆነ፡ በመዘግየቱ፡ አሁን፡ የግምባታ፡ የ[illegible]ለግ፡ ህዳሴ፡ እንዲጠናቀቅልን
ለጋት፡ ለቁ፡ ጎን፡፡

የሸካ ዞን፡ አንዳንድ አካባቢ ወቅም አልጋውካል፡ በዚ፡ የሁቀ ስለሆነ፡ በመሠረት፡
ለባን፡ የተገደ፡ ገዉ፡፡ በመሆንም የመበራት፡ መሠረት፡ ለባን፡ መግምት፡ ለዘር
ካፋትና የሆነ፡ ማሠበሰቢያ አካባቢዎች፡ ጠቀሜታ፡ አለው፡፡ ለምሳሌ፡
በመብራት፡ እንጀራ፡ ምጣድ፡ ዳቦ፡ በማብሰል፡ ቁመሳመሳል፡ ቤቶች፡
በማገዶ፡ እንጨት፡ ምክን፡ በሚደበደቡት፡ ጊዜ ለእሳት ለአቃን፡ ከብቶች፡
ቀጠሮዎች፡ የአካባቢው፡ ነዋሪዎች፡ በወረዳ፡ እንጀራ፡ ቀሠቀሜታ፡ ተግባራዊ፡
ንግድ ሥራ ፍልጋ፡ ማንነት፡ አለብኝም፡ እናቶች በሜዳ ተወልደው፡ መውለጃ
አለብኝም፡ ለዚህ በእንተርፕራይዝ፡ ተደራሽ፡ የሆነ አገልግሎት ማግኘት፡
አለብኝም፡፡ ነገር፡ ግን፡ መብራት፡ ቢገባ፡ እነዚህና ሌሎች ችግሮችም
ይፈታሉ፡፡ ስለሆነም፡ የመብራት፡ መግባት፡ በዚ፡ ጥቅሞች፡ አሉት፡፡

በሌላ በኩል ደግሞ፡ የመብራት፡ መስመሩ፡ በሚዘረጋበት፡ ጊዜ፡ የአርሶአደሩ
ተወሮች በሚቆረጡበት፡ በቤት የሚነሳበት፡ ማሳዎች፡ በሚወድሙበት ቤት፡
የሚገኙ፡ ንብረቶች ቤት፡ ሃብትና ንብረት ቁጥር ይጎዳል፡፡ ካዚህ፡ በተጨማሪም
ንብረት፡ ይን በአካባቢው፡ ስለሚገኙ ንግድንት በሚያልፍበት፡ አካባቢዎች
የሚገኙ ጉዳዮች፡ ዛፎችና፡ ተወሮች በሚተከሉበት 20 ሜትር በ20 ሜትር
በእጠቃላይ፡ 400 ሜትር ዝቅጅር በደን፡ ተሸፍኗ፡ የነበረ፡ ቦታ፡ ይጎዳል፡፡
ስለሆነም፡ በንብረት፡ ምክንያት፡ የተጎዳ ወገን፡ ተገቢውን፡
ካሣ፡ ማግኘት፡ አለበት፡፡ የካሣ ግምቱ ተመንም በገበያዎች
መሠረትና በፍትሐዊ፡ በአካባቢ፡ የካሣ፡ አዋጅ መሠረት በግልፅ፡
ተወሮች መከፈል፡ አለበት፡፡ ህብረተሰብም፡ በካሣ ክፍያው የተገመተውን

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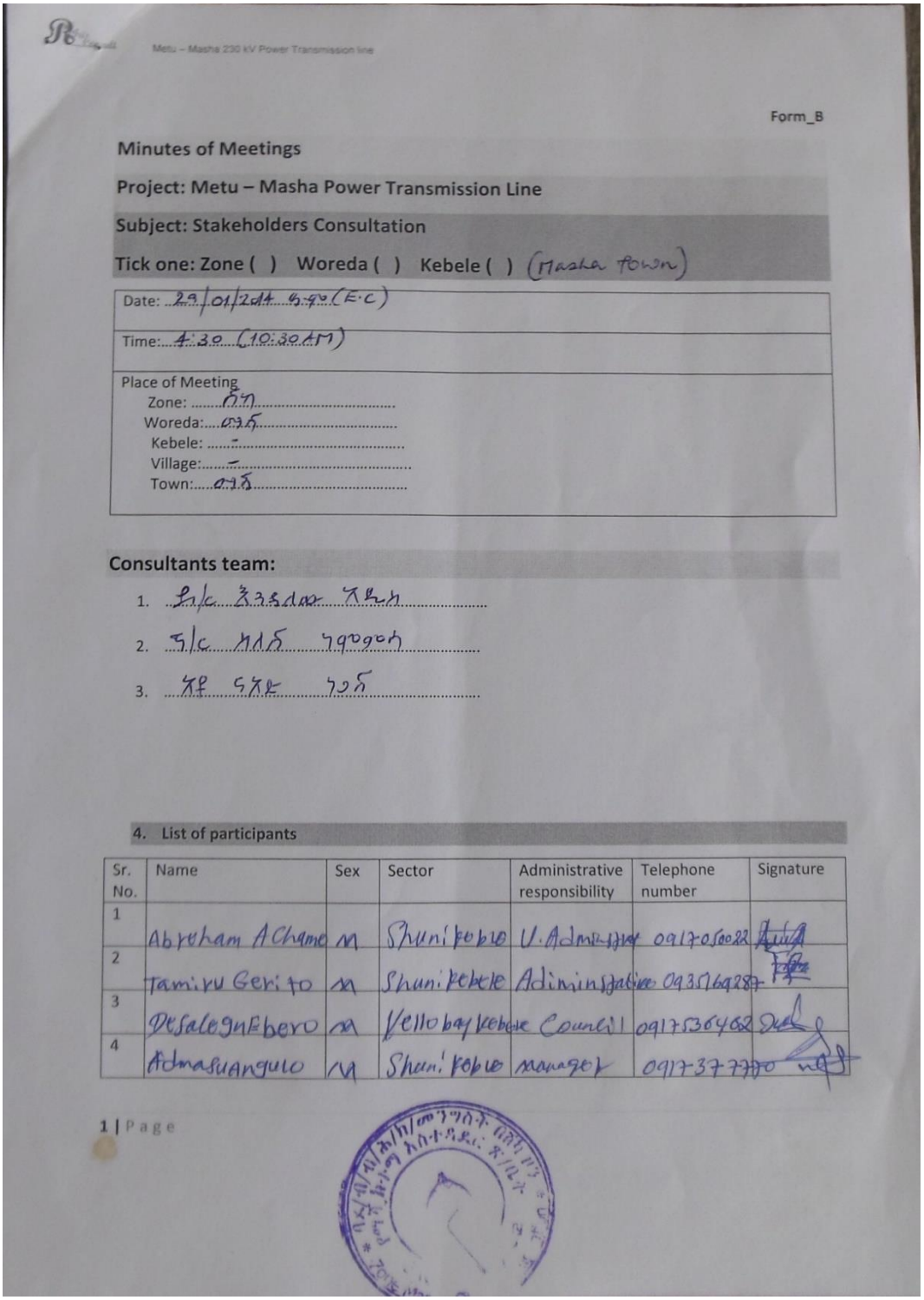
ክፍያ፡ ካሳ መለኪያው፡ እንደ፡ በመቀበል፡ በፍትሃዊ፡ ሁኔታና ንብረቶን
በማንኛ፡ ለፕሮጀክት፡ ሥራ መፋጠን፡ እንዲፈጸሙን፡ ሁሉ፡ ትብብር
ማድረግ፡ አለብን፡፡ በተለይ፡ ደረጃ፡ የሚገኙ፡ የዞኑ አመራር፡
እንደገና፡ ሂሳብ ሬተን ባን፡ በማስተባበር፡ የዞኑ ወረዳን፡ ሁኔታና
ንብረቶች፡ በደረጃ እንዲሰሙ፡ በማድረግና የካሳ፡ ክፍያውም በመሆኑና
በተገቢው፡ መንገድ መክፈልን፡ በመከታተል፡ ለፕሮጀክት፡ ትግበራ
የበኩላቸውን፡ ሚና፡ መወጣት፡ አለባቸው፡ ብለዋል፡፡

በመጨረሻም፡ በስብሰባ፡ እንደ፡ በተለይ፡ በፕሮጀክት፡ ምክንያት፡
ካሳ የሚከፈላቸው፡ ካሳቸው፡ ለሚፈናቀሉ፡ ለልማት ተነሺዎች፡
የስብሰባ፡ ተሳታፊዎች፡ ምክክር፡ በተ፡ እዚህ ጋ፡ መስማማት፡ አለብን፡
በማለት፡ ውይይቱ፡ ተጠናቋል፡፡

ii. Masha town



Metu – Masha 230 kV Power Transmission line

Form_B

Minutes of Meetings

Project: Metu – Masha Power Transmission Line

Subject: Stakeholders Consultation

Tick one: Zone ( ) Woreda ( ) Kebele ( ) (Masha Town)

Date: 29/01/2014 G.C (E.C)

Time: 4:30 (10:30 AM)

Place of Meeting
Zone: ....
Woreda: ....
Kebele: -
Village: -
Town: ....

Consultants team:

1. ....
2. ....
3. ....

4. List of participants

Sr. No.	Name	Sex	Sector	Administrative responsibility	Telephone number	Signature
1	Abreham Achamo	M	Shuni Kebele	V. Administration	0917050022	
2	Tamiru Geriso	M	Shuni Kebele	Administration	0935164287	
3	Desalegn Ebero	M	Yello bay Kebele	Council	0917535468	
4	Admasu Angulo	M	Shuni Kebele	manager	0917377770	

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Metu – Masha 230 kV Power Transmission line

5	Tekalegn Shaverda	M	Yellow bay kebele	Manager	0917310857	[signature]
6	Yirgalem Simo	M	Yellobay kebele	Administrator	0923070605	[signature]
7	Kifle Machito	M	Masha town Admin. Council	Admin. Council	0916504226	[signature]
8						
9						
10						

5. Objectives of the meetings

1. To explain the core objectives of the project for the stakeholders
2. To discuss the positive and adverse socio-economic impacts of the project with stakeholders
3. To grasp the perception of stakeholders about the project

6. Meeting Agenda

1. Introduction of the project by the Consultant (clear elaboration of the project activities)
2. Socio-economic and settlement context of the project area
3. Impacts of the project on socio-economic and settlement conditions
4. Perceptions of the participants about the impacts of the project
5. Benefits of the project

7. Discussions

አሁን- ግን፡ የሚዘረጋው፡ [illegible]
[illegible]

2 | Page

በዚህ፡ እየተከናወነ፡ ያለው፡ ፕሮጀክት፡ ነው።

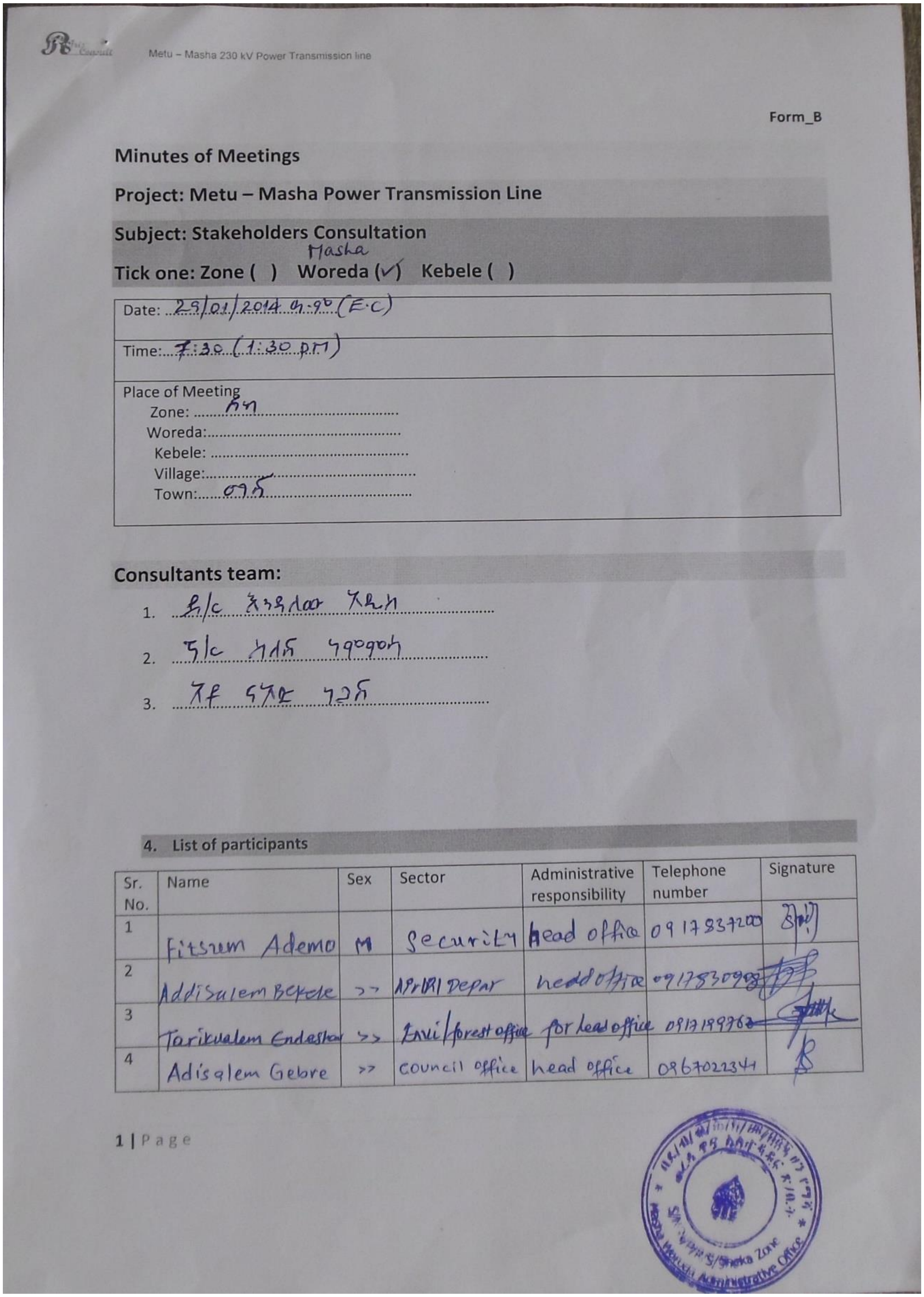
ስለዚህ፡ በሌላ፡ ስለሙት፡ የሚካሄደው፡ ጥናት፡ የተሰራ፡ የኤሌክትሪክ፡
መስመር፡ ለማለፍ፡ ስለተሰራ፡ በጊዜም፡ የማለፍ፡ ስለተሰራ፡ መስመር፡
የለውም፡ ስጋት፡ ቅሬታ፡፡ ምክንያቱም፡ መስመሩ፡ የሚያልፍ፡
በአካባቢ፡ አንድ፡ ሁለት፡ ቤት፡ ብቻ፡ ነው፡ ከዚህም፡ ለተወሰኑ
ሰዎች፡ ነው፡፡ ከእነዚህ፡ ሰዎች፡ የሚመለከተው፡ መስመር፡
ካሳ፡ ይሰጣቸዋል፡ እንደገና፡ ለሌላ፡ ለመንቀሳቀስ፡ ቀድሞ
የሰራነው፡ እምነታችን፡ እንደሚከፈልም፡፡ የሚተዳደር፡ ...
ነው፡ ሰዎችን፡ በፊት፡ እናውቃለን፡፡ ቀድሞ፡ የነበሩ፡ ለተለያዩ፡ ለማኅበራዊ
ስራም፡ እያደረገ፡ የቆየው፡ መስመር፡ ከለመዱት፡ ከማለፍ፡ ስለሆነ
ይለውጥ፡ የማይነካ፡ እንደማያደርግ፡ እንዲሁም፡ ከሚገባ፡
ይገባል፡ ነው፡፡ ከዚህም፡ የተሻለ፡ ለመረጋገጥ፡ ይሰጣል፡ መብራት
ግን፡ ለማንገጫገጭ፡ የተሰጣቸው፡ ከሆነ፡ በአማራ፡ በአካባቢው፡ ለማንኛውም
ተገቢውን፡ እናቀርባለን፡ ከሆነ፡ እየወሰደ፡ ነው፡ ሰዎችም፡ ምክር፡
ለማስጠበቅ፡ ሙሉ፡ ለሙሉ፡ የማይገድ፡ እንደሆነ፡ እንዲሁም፡
እንደሚሰጥበት፡ ቀርቦም፡ ለተለያዩ፡ በአካባቢ፡ ይደረጋል፡፡ ስለዚህም
የመብራቱ፡ የመስመር፡ ስጋት፡ መሆኑን፡ ዘርዝሮ፡ የማይ፡
የሚካሄደው፡ ጥናት፡ ማንኛውም፡ ዝርዝር፡ ገዢ፡ የሆነ፡ ንብረቶችን፡
ለሚመለከተው፡ ለሚመለከተው፡ ዘርፍ፡ ለማሳወቅ፡ አርሶአደሩ፡
ይመለከታል፡ ስለዚህ፡ እናምናለን፡ በደንብ፡፡

ነገር፡ ግን፡ ምንም፡ እንኳ፡ በልማት፡ ሁሉም፡ የሚጠቅም፡
ቢሆንም፡ ተጠቃሚ፡ ከሆነም፡ የሚካሄደው፡ ጥናቱ፡ በማንገላታት

የከተማው፣ ክፍለና ከተማ፡ በሚወጣው፡ ወጪም ወደ ከተማ በሚገባው
የመስመር፡ ዝርጋታ ምክንያት፡ በአካባቢው፡ ቤቶቻቸው፡ የሚፈርስባቸው
ሃብት፡ ንብረታቸው፡ የሚነካባቸው፡ ሰዎች፡ ቅድሚያ፡፡ እንዲሁ፡ ሰዎችም
ሁሉንም፡ ወገን፡ ያሳተፈ፡ የካሣ፡ ግመታና ክፍያ፡ ካሣው፡ በሚገባው
በፕሮጀክት፡ ምክንያት፡ ጉዳት፡ ለሚደርስባቸው፡ የህብረተሰብ፡
ክፍሎች/የሚገኙ፡ ከተማ፡ ነዋሪዎች፡ ከሚመለከተው፡ ክፍል፡ ተገቢውን፡
ካሣ፡ እንዲያገኙ፡ ክትትል፡ እናደርጋለን፡ ብለዋል፡፡

በመጨረሻም፡ በአካባቢያችን፡ የመንገድ፡ ልማት፡ እየተካሄደ፡
ነው፡ ነገር፡ ግን፡ ካሣ፡ ክፍያ፡ ጋር፡ ተያይዞ፡ የተፈጠሩ፡
ችግሮች፡ ሥጋቱ፡ እንደዚህ፡ ዓይነት፡ ችግሮች፡ በመስመሩ፡
ፕሮጀክት፡ ምክንያት፡ ጉዳት፡ ለሚደርስባቸውና ካሣ፡ ለሚከፈላቸው
ወገኖች፡ ለቀ፡ እንዲቀርብላቸው፡ ግምታዊና ተመኑ በንፅፅር፡
እንዲወሰን፡ በወቅቱም፡ ካሣ፡ እንዲከፈል፡ የሰጡትን፡
ጥረት፡ እናደርጋለን፡ ካለ፡ በኋላ፡ የከተማ፡ አስተዳደሩም
ለልማቱ፡ ተሳታፊዎች፡ ተገቢውን፡ ምላሽ፡ አዘጋጅቶ፡ ለተሳታፊዎች፡
ያስረክባል፡ ብለዋል፡፡ በዚህም መሠረት፡ በፕሮጀክት፡ ምክንያት፡
የሚነሡ፡ ሥጋቶችም፡ በግለሰቦችና በአካባቢው፡ ነዋሪዎች፡
በጋራ፡ የተገመተውን፡ የካሣ፡ ክፍያ፡ በመቀበል፡ በተዋ፡
መልቀቅና፡ ለተለመለን፡ ዓላማ፡ እንደወል፡ መደረግ፡
አለባቸው፡ በማለት፡ ውይይቱ፡ ተጠናቋል፡፡

iii. Masha Woreda



Metu – Masha 230 kV Power Transmission line

Form_B

Minutes of Meetings

Project: Metu – Masha Power Transmission Line

Subject: Stakeholders Consultation

Tick one: Zone ( ) Woreda (✓) Kebele ( ) Masha

Date: 25/01/2014 ዓ.ም (E.C)

Time: 7:30 (1:30 pm)

Place of Meeting
Zone: ሸካ
Woreda:
Kebele:
Village:
Town: ማሻ

Consultants team:

1. ዶ/ር [illegible]
2. ዶ/ር [illegible]
3. [illegible]

4. List of participants

Sr. No.	Name	Sex	Sector	Administrative responsibility	Telephone number	Signature
1	Fitsum Ademo	M	Security	head office	0917837200	[signature]
2	Addisalem Bekele	>>	Agri/RI Depar	head office	0917830908	[signature]
3	Tarikualem Endeshaw	>>	Envi/forest office	for head office	0917199763	[signature]
4	Adisalem Gebre	>>	council office	head office	0967022341	[signature]

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5	Mekonnen Gerita	M	woreda admit	Vice head	0912222301	[signature]
6	Tamene Kebede	M	Worda Agri	vice tees	0921705778	[signature]
7	Aster Andemo	F	woreda Co.1	Vice head	0917830712	[signature]
8						
9						
10						

5. Objectives of the meetings

1. To explain the core objectives of the project for the stakeholders
2. To discuss the positive and adverse socio-economic impacts of the project with stakeholders
3. To grasp the perception of stakeholders about the project

6. Meeting Agenda

1. Introduction of the project by the Consultant (clear elaboration of the project activities)
2. Socio-economic and settlement context of the project area
3. Impacts of the project on socio-economic and settlement conditions
4. Perceptions of the participants about the impacts of the project
5. Benefits of the project

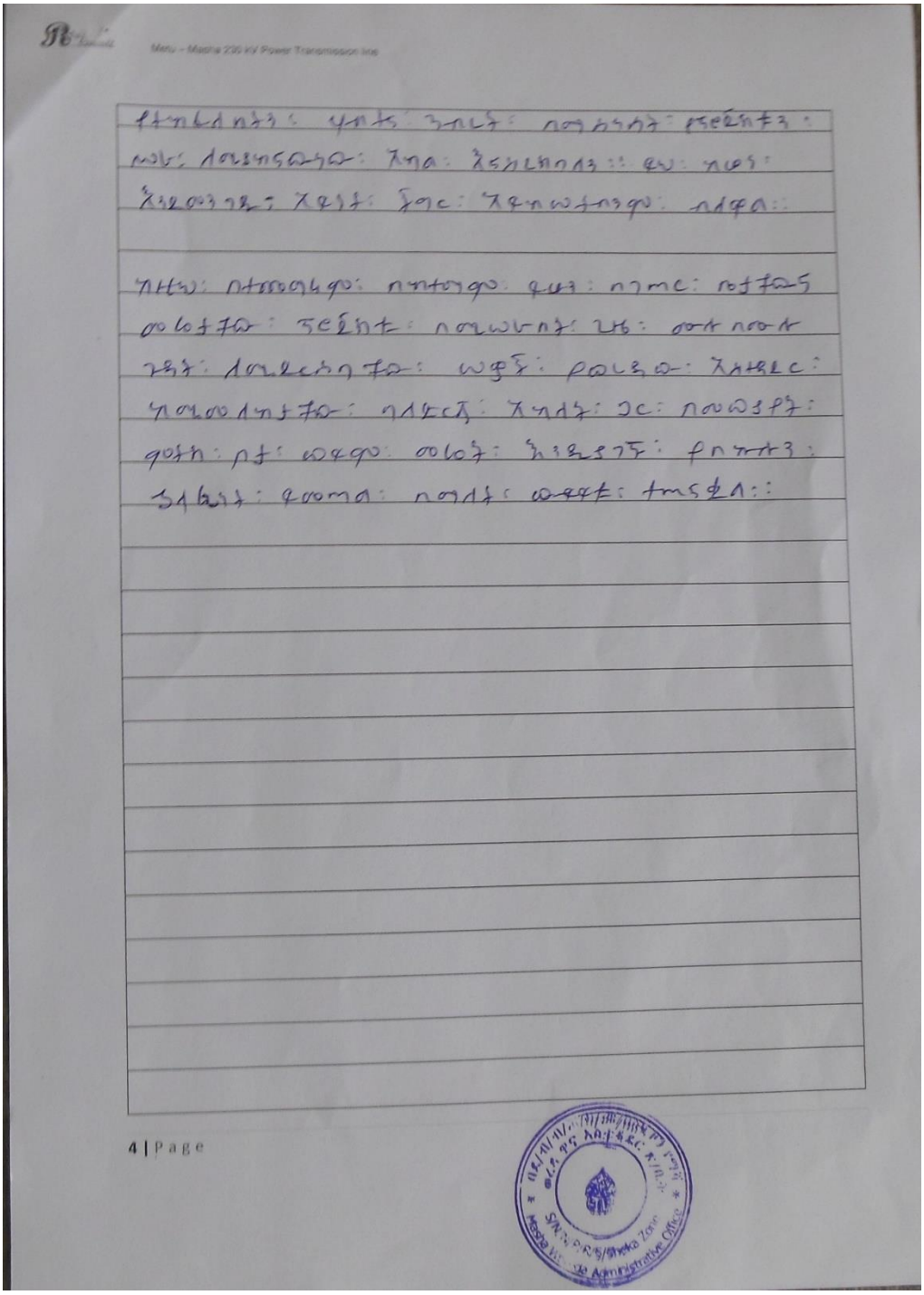
7. Discussions

ካመቱ- ግን፡ ለመስሪያ፡ የተቀየረውን፡ የመስመር፡ ዝርጋታና
በመንገዶች፡ ላይ፡ ያለውን፡ የግል፡ ግንባታዎች፡ ማንሳ፡

ኖሮአችን፡ በደንብ፡ እናውቃለን፡ እየተከታተልንም፡ ነው።

መስመሩ፡ ለሀገርም፡ ነገር፡ ወሳኝ፡ ሥለሆነ፡ ለህብረተሰብም
ቁሆን፡ ለገጠሬ፡ ለቀበሌ፡ ነዋሪዎቻችንም፡ ቁሆን፡ ለመሰረተልማቶች፡
በጣም፡ አስፈላጊ፡ ነው። በመሆኑም፡ ለውጤቱ፡ የሥራ
እድል፡ ቀልጣፋ፡ ተጠቃሚዎችም፡ ትምህርትቤቶች፡ በተገነባው፡
መንገድ፡ ጤናጣ/ቀጠና፡ ወፍጮዎችም፡ ለሙያ፡ ተቋማት፡
ተገንበዋል፡ እንዲሁም፡ በማሟላት፡ ቀውበረት፡ ሰፊም፡
የሚገኙ፡ እንስሳት፡ በመጠቀም፡ ምንጊዜ፡ በሚደርስባቸው፡
ጊዜ፡ የሚደርስባቸውን፡ የመኖ፡ እጥረት፡ መጠቀሚያ፡ ወቅም፡
መቀነስ፡ ቁፋሎ፡ ከባድ።

ስለዚህ፡ በጣም፡ ደግሞ፡ የመስመሩ፡ ኖሮአቹ፡ በሚሠሩበት፡
ጊዜ፡ የሚያመጡ፡ የሚፈጥሩ፡ ሥጋት፡ ቀጥሎ፡ እያሳየሁም፡
ደግሞ፡ የተለያዩ፡ የተፈጥሮ፡ ደኖች፡ የተገነባ፡ ዘርፍ፡ የአርሶ
መሬቶች/ማሳዎችና፡ ሰብሎችም፡ ጉዳት፡ ሊደርስባቸው፡ ይችላል።
ለእንስሳ፡ ግጦሽ፡ ተገቢው፡ ካሳ፡ መከፈል፡ አለበት።
ሠራተኞም፡ የወረዳው፡ አስተዳደር፡ ከፍተኛ፡ ይለቀቃሉ፡
ውሃዎች፡ በዝናብ፡ በማፋሰሻ፡ ማለፊያ፡ ከፍታ፡ ተቋማት፡
ሁሉ፡ የካሳ፡ ክፍያ/ግመት፡ እንዲሠራ፡ ይደረጋል። ምንቀልም
ከፍተኛም፡ እንዲፈጠር፡ ኖሮኣችንም፡ የሰው፡ ወደ፡ ሠራ
እንዲገባ፡ የሰራተኞችን፡ እናደርጋለን። ካሳውም፡ በደንብ
ለመመለስ፡ መሠረት፡ እንዲከናወን፡ ክትትል፡ እናደርጋለን፡
ካሳ፡ በጊዜው፡ ቀንና፡ ሰዓት፡ ሠርተን፡ ካሳ፡



17.3. Annex III: List of plant species of the project area

S/N	Species name	Family	Habit	IUCN Category	Population Trend	Remark
1	*Abutilon longicuspe* Hoehst. ex A. Rich.	Malvaceae	Shrub	Not assessed		Indigenous
2	*Acacia abyssinica* Hochst. ex Benth.	Fabaceae	Tree	Not assessed		Indigenous
3	*Acanthus eminens* C.B.Cl	Acanthaceae	Shrub	Not assessed		Indigenous
4	*Acanthus polystachyus* Delile.	Acanthaceae	Shrub	Not assessed		Indigenous
5	*Aframomum corrorima* (Braun) Jansen	Zingiberaceae	Herb	LC	Unknown	Indigenous
6	*Albizia gummifera* (J. F. Gmel.) C.A.Sm.	Fabaceae	Tree	LC	Unknown	Indigenous
7	*Albizia schimperiana* Oliv.	Fabaceae	Tree	LC	Stable	Indigenous
8	*Allophylus abyssinicus* (Hochst.) Radlk.	Sapindaceae	Tree	Not assessed		Indigenous
9	*Amorphophallus abyssinicus* (A. Rich.) N.E. Br.	Araceae	Herb	Not assessed		Indigenous
10	*Anthocleista schweinfurthii* Gilg	Loganiaceae	Tree	LC	Stable	Indigenous
11	*Apodytes dimidiata* E. Mey. ex Am.	Icacinaceae	Tree	LC	Decreasing	Indigenous
12	*Asplenium aethiopicum* (Burm. F.) Becherer	Aspleniaceae	Fern	Not assessed		
13	*Asplenium sandersonii* Hook	Aspleniaceae	Fern	Not assessed		Indigenous
14	*Bersama abyssinica* Fresen.	Melianthaceae	Tree/ Shrub	LC	Stable	Indigenous
15	*Bidens biternata* (Lour.) Merr. & Sherff	Asteraceae	Herb	Not assessed		Indigenous
16	*Bidens pilosa* L.	Asteraceae	Herb	Not assessed		Indigenous
17	*Bridelia micrantha (Hochst.)Baill.*	Euphorbiaceae	Tree	Not assessed		Indigenous
18	*Buddleja polystachya* Fresen.	Loganiaceae	Tree	Not assessed		Indigenous
19	*Caesalpinia decapetala* (Roth)Alston	Fabaceae	Shrub	Not assessed		Indigenous
20	*Catha edulis (*Vahl) Forssk. ex Endl.	Celastraceae	Shrub	Not assessed		Indigenous
21	*Celtis africana* Buerm.f.	Ulmaceae	Tree	Not assessed		Indigenous
22	*Clausena anisata* (Willd). Benth.	Rutaceae	Shrub	Not assessed		Indigenous
23	*Clerodendrum myricoides* (Hochst.) Vatke	Lamiaceae	Shrub	Not assessed		Indigenous
24	*Coffea arabica* L.	Rubiaceae	Shrub	EN	Decreasing	Endemic
25	*Colocasia esculenta* (L.) Schott	Araceae	Herb	LC	Unknown	Indigenous
26	*Combretum paniculatum* Vent.	Combretaceae	Climber	Not assessed		Indigenous

S/N	Species name	Family	Habit	IUCN Category	Population Trend	Remark
27	*Cordia africana* Lam.	Boraginaceae	Tree	LC	Stable	Indigenous
28	Crotalaria+C12:H116 incana L.	Fabaceae	Herb	Not assessed		Indigenous
29	*Croton macrostachyus* Del.	Euphorbiaceae	Tree	LC	Stable	Indigenous
30	*Cucumis dipsaceus* Ehrenb. ex Spach	Cucurbitaceae	Herb	Not assessed		Indigenous
31	*Cupressus lustanica* Mill.	Cupressaceae	Tree	Not assessed		Exotic
32	*Cyathea manniana* Hook.	Cyatheaceae	Tree/ Shrub	LC	Stable	Indigenous
33	*Cyperus sesquiflorus* (Torr.) Mattf. & KUk.	Cyperaceae	Herb	Not assessed		Indigenous
34	*Dalbergia lactea* Vatke	Fabaceae	Shrub	Not assessed		Indigenous
35	*Datura stramonium* L.	Solanaceae	Herb	Not assessed		Indigenous
36	*Discopodium penninervium* Hochst.	Solanaceae	Shrub	Not assessed		Indigenous
37	*Dracaena afromontana* Mildbr.	Dracaenaceae	Shrub	LC	Stable	Indigenous
38	*Dracaena steudneri* Engler	Dracaenaceae	Tree	LC	Stable	Indigenous
39	*Ehretia cymosa* Thonn.	Boraginaceae	Tree	LC	Decreasing	Indigenous
40	*Ekebergia capensis* Sparrm.	Meliaceae	Tree	LC	Stable	Indigenous
41	*Ensete ventricosum* (Welw.) Cheesman	Musaceae	Herb	LC	Stable	Endemic
42	*Erythrina brucei* Schweinf.	Fabaceae	Tree	LC	Stable	Endemic
45	*Euphorbia ampliphylla* Pax	Euphorbiaceae	Tree	Not assessed		Indigenous
47	*Euphorbia schimperiana* Scheele	Euphorbiaceae	Shrub	Not assessed		
48	*Euphorbia trucalli* L.	Euphorbiaceae	Shrub	Not assessed		Indigenous
49	*Ficus exasperata* Vahl.	Moraceae	Tree	LC	Stable	Indigenous
50	*Ficus sur* Forssk.	Moraceae	Tree	LC	Stable	Indigenous
51	*Ficus thonningii* Blume	Moraceae	Tree	LC	Stable	Indigenous
52	*Ficus vasta* Forssk.	Moraceae	Tree	LC	Stable	Indigenous
53	*Flacourtia indica* (Burm.f.) Merr	Flacourtaceae	Shrub	Not assessed		Indigenous
54	*Galiniera saxifraga* (Hochst.) Bridson	Rubiaceae	Shrub	LC	Stable	Indigenous
55	*Gravillea robusta* A.Cunn.ex R.Br	Proteaceae	Tree	Not assessed		Exotic
56	*Guizotia schimperi* Sch. Bip. ex Walp.	Asteraceae	Herb	Not assessed		Indigenous
57	*Hallea rubrostipulata* (K. Schum.) J.-F. Leroy	Rubiaceae	Tree	LC	Stable	Indigenous

S/N	Species name	Family	Habit	IUCN Category	Population Trend	Remark
58	*Helinus mystacinus* (Ait.) E. Mey. ex Steud.	Rhamnaceae	Climber	Not assessed		Indigenous
59	*Ilex mitis* (L.) Radlk.	Aquifoliaceae	Tree	LC	Decreasing	Indigenous
60	*Impatiens hochstetteri* Warb.	Balsaminaceae	Herb	Not assessed		Indigenous
61	*Lantana camara* L.	Verbenaceae	Shrub	Not assessed		Exotic
62	*Lobelia giberroa* Hemsl.	Lobeliaceae	Tree	Not assessed		Indigenous
63	*Macaranga capensis* (Baill.) Benth.	Euphorbiaceae	Tree	LC	Stable	Indigenous
64	*Maesa lanceolata* Forssk.	Myrsinaceae	Tree/Shrub	LC	Stable	Indigenous
65	*Mangifera indica* L.	Anacardiaceae	Tree	Not assessed		Fruit crop
66	*Maytenus gracilipes* (Welw. ex Oliv.) Exell	Celastraceae	Shrub	Not assessed		Indigenous
67	*Millettia ferruginea* (Hochst.) Bak.	Fabaceae	Tree	LC	Stable	Endemic
68	*Momordica foetida* Schumach.	Cucurbitaceae	herb	Not assessed		Indigenous
69	*Musa paradisiaca* L.	Musaceae	Herb	Not assessed		Fruit crop
70	*Ocimum lamiifolium* Hochst. ex. Benth.	Lamiaceae	Shrub	Not assessed		Indigenous
71	*Ocimum urticifolium* Roth.	Lamiaceae	Shrub	Not assessed		Indigenous
72	*Ocotea kenyensis*	Lauraceae	Tree	VU	Unknown	Indigenous
	Olea capensis L. ssp. macrocarpa (C. H. Wright) Verdc.	Oleaceae	Tree	LC	Stable	Indigenous
73	*Olea welwitschii* (Knobl.) Gilg & Schellenb.	Oleaceae	Tree	Not assessed		Indigenous
74	*Pavetta abyssicica* Fresen.	Rubiaceae	Shrub	Not assessed		Indigenous
75	*Pavonia urens* Cav.	Malvaceae	Shrub	Not assessed		Indigenous
77	*Piper capense* L.f.	Piperaceae	Herb	LC	Stable	Indigenous
78	*Platostoma rotundifolium* (Briq.) A.J. Paton	Lamiaceae	herb	Not assessed		Indigenous
79	*Plectranthus punctatus* (L.f.) L'H'er.	Lamiaceae	Herb	Not assessed		Indigenous
80	*Polyscias fulva* (Hiern) Harms	Araliaceae	Tree	LC	Stable	Indigenous
81	*Pouteria adolfi-friederici* (Engl.) Baehn	Sapotaceae	Tree	LC	Stable	Indigenous
82	*Prunus africana* (Hook.f.) Kalkm.	Rosaceae	Tree	VU	Unspecified	Indigenous
84	*Psychotria orophila* Petit	Rubiaceae	Tree	Not assessed		Indigenous
85	*Pycnostachys abyssinica* Fresen.	Lamiaceae	Herb	Not assessed		Endemic
86	*Rhamnus prinoides* L'Herit.	Rhamnaceae	Shrub	Not assessed		Indigenous

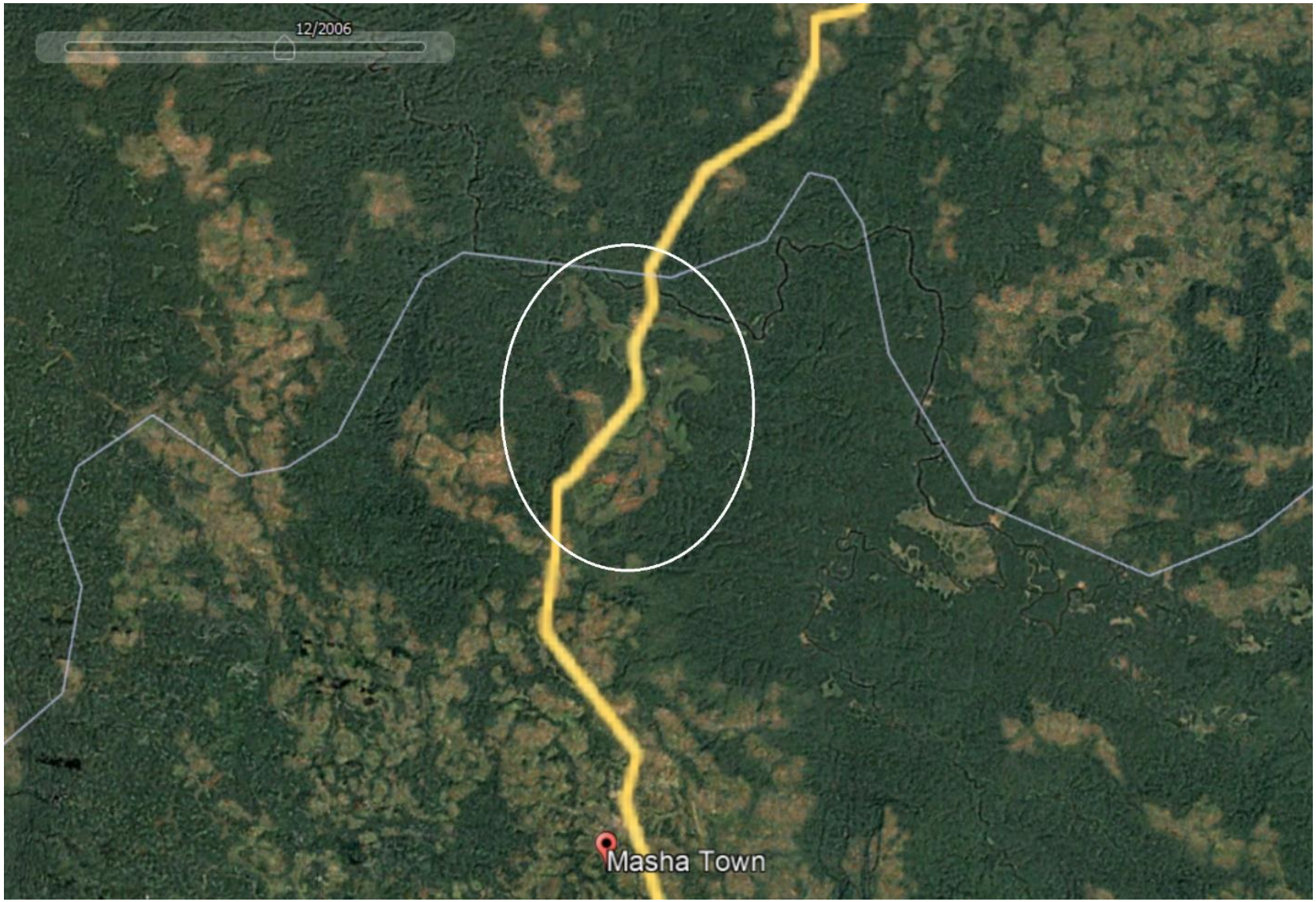
S/N	Species name	Family	Habit	IUCN Category	Population Trend	Remark
87	R*hus quartiniana* A.Rich	Anacardiaceae	Tree	Not assessed		
88	*Ricinus communis* L.	Euphorbiaceae	Shrub	Not assessed		Indigenous
89	*Rubia cordifolia* L.	Rubiaceae	Herb	Not assessed		Indigenous
90	*Rubus apetalus* Poir.	Rosaceae	Shrub	Not assessed		Indigenous
91	*Rubus steudneri* Schweinf.	Rosaceae	Shrub	Not assessed		Indigenous
92	*Rumex abyssinicus* Jacq.	Polygonaceae	Herb	Not assessed		Indigenous
93	*Rumex nervosus* Vahl.	Polygonaceae	Shrub	Not assessed		Indigenous
94	*Rytigynia neglecta* (Hiern) Robyn	Rubiaceae	Shrub	Not assessed		Indigenous
95	*Sapium ellipticum* (Krauss) Pax.	Euphorbiaceae	Tree	Not assessed		Indigenous
96	*Satureja paradoxa* (Vatke) Engl. ex Seybold	Lamiaceae	Herb	Not assessed		Endemic
97	*Schefflera abyssinica* (Hochst. ex A. Rich.) Harms	Araliaceae	Tree	Not assessed		Indigenous
98	*Schefflera volkensii* (Engl.) Harms	Araliaceae	Tree	Not assessed		Indigenous
99	*Senna didymobotrya* (Fresen.) Irwin & Barneby	Fabaceae	Shrub	Not assessed		Exotic
100	*Senna petersiana* (Bolle)Lock	Fabaceae	Shrub	Not assessed		Indigenous
101	*Sida ternata* L.	Malvaceae	Shrub	Not assessed		Indigenous
102	*Spathoda nilotica* Seem.	Bignoniaceae	Tree	Not assessed		Exotic
103	*Syzygium guineense* (Willd.) DC.	Myrtaceae	Tree	LC	Stable	Indigenous
104	*Tagetes minuta* L.	Asteraceae	Herb	Not assessed		Indigenous
105	*Thalictrum rhynchocarpum* Dill. & A.Rich.	Ranunculaceae	Herb	Not assessed		Indigenous
106	*Thea sinensis* L.	Theaceae	Shrub	Not assessed		Tea plant
107	*Thunbergia alata* Boj. ex Sims	Convolvulaceae	Herb	Not assessed		Indigenous
108	*Trema orientalis* (L.) Bl.	Ulmaceae	Tree	LC	Unknown	Indigenous
109	*Trichilia dregeana* Sond.	Meliaceae	Tree	LC	Stable	Indigenous
110	*Typha latifolia* L	Typhaceae	Herb	Not assessed		Indigenous
111	*Urera hypselodendron* (A.Rich,) Wedd.	Urticaceae	Liana	Not assessed		Indigenous
112	*Vernonia amygdalina* Del.	Asteraceae	Shrub/ Tree	Not assessed		Indigenous
113	*Vernonia auriculifera* Hiern.	Asteraceae	Shrub	Not assessed		Indigenous
114	*Vernonia myriantha* Hook.f	Asteraceae	Shrub	Not assessed		Indigenous

S/N	Species name	Family	Habit	IUCN Category	Population Trend	Remark
116	*Vernonia rueppellii* Sch. Bip. ex Walp.	Asteraceae	Shrub	Not assessed		Indigenous

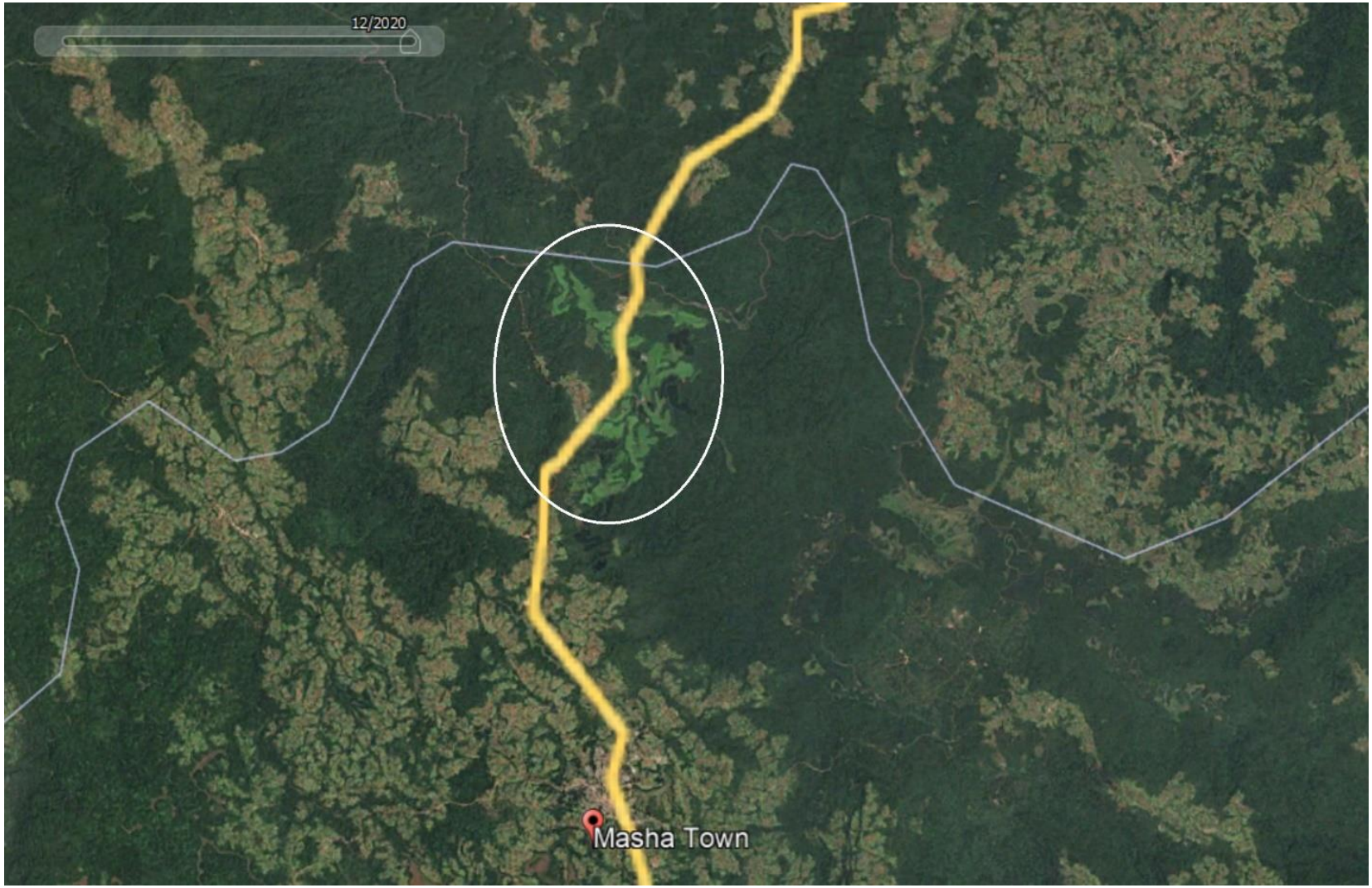
17.4. Annex IV: Factor driving Cumulative impact Assessment: Forest Cover change between 1984 – 2020:

Forest condition in 1984 before the large-scale investment (cf. the circled area)

Forest Condition in 1996 (cf. clearing for large scale investment)



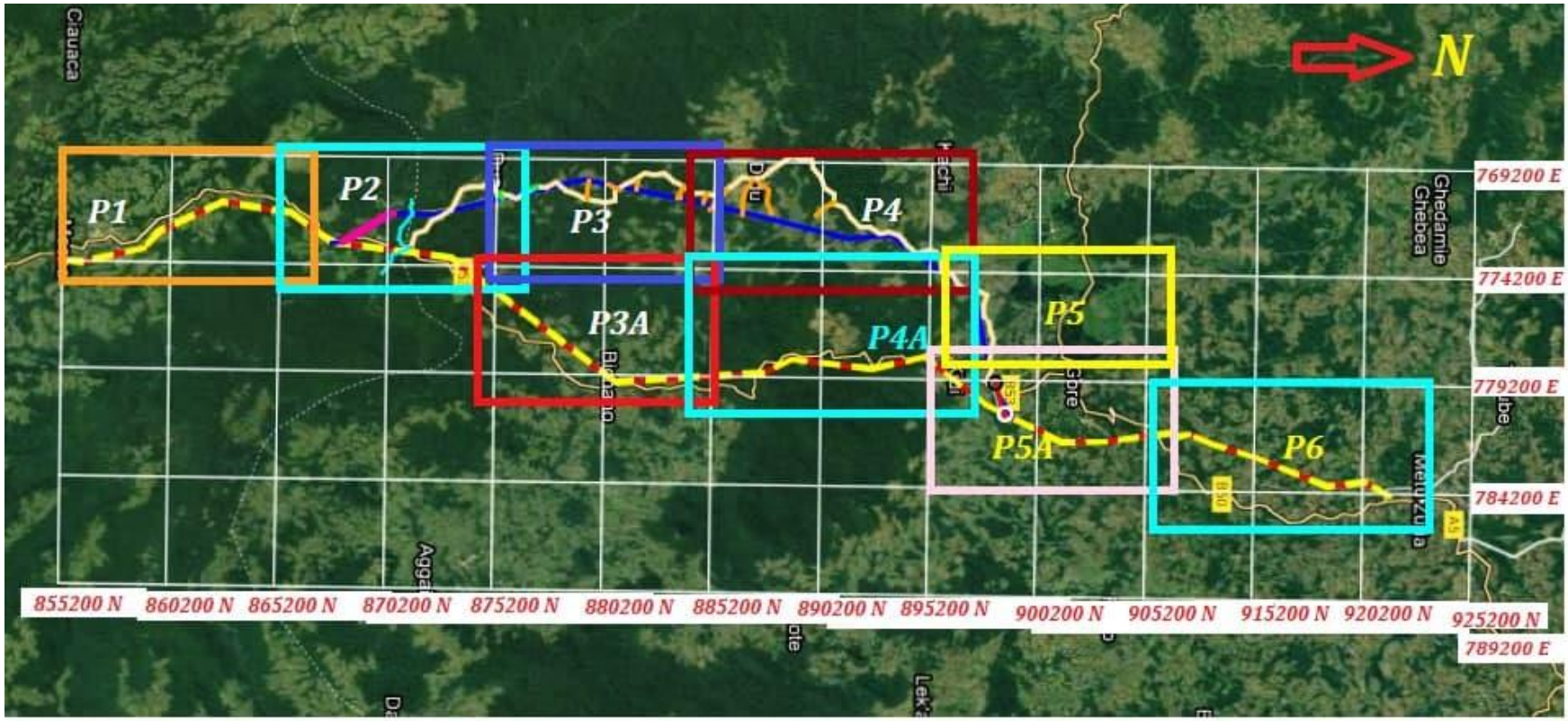
Forest condition in 2006 (cf expanding clearing for large scale investment



Forest condition in 2020 (cf. expanded forest clearing)

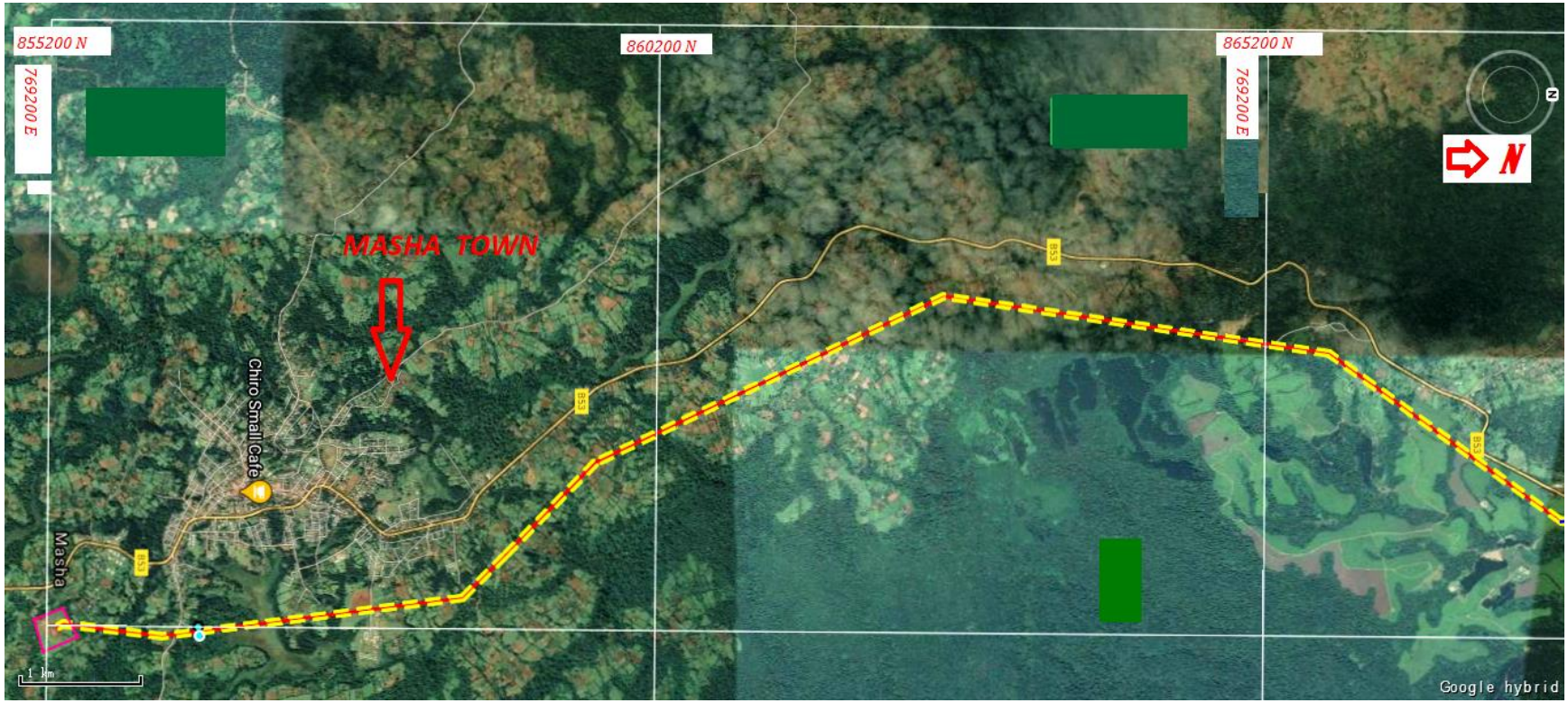
17.5. Annex V: Details of alternative routes of the Metu – Masha 230 kV OHTL

i. The whole area

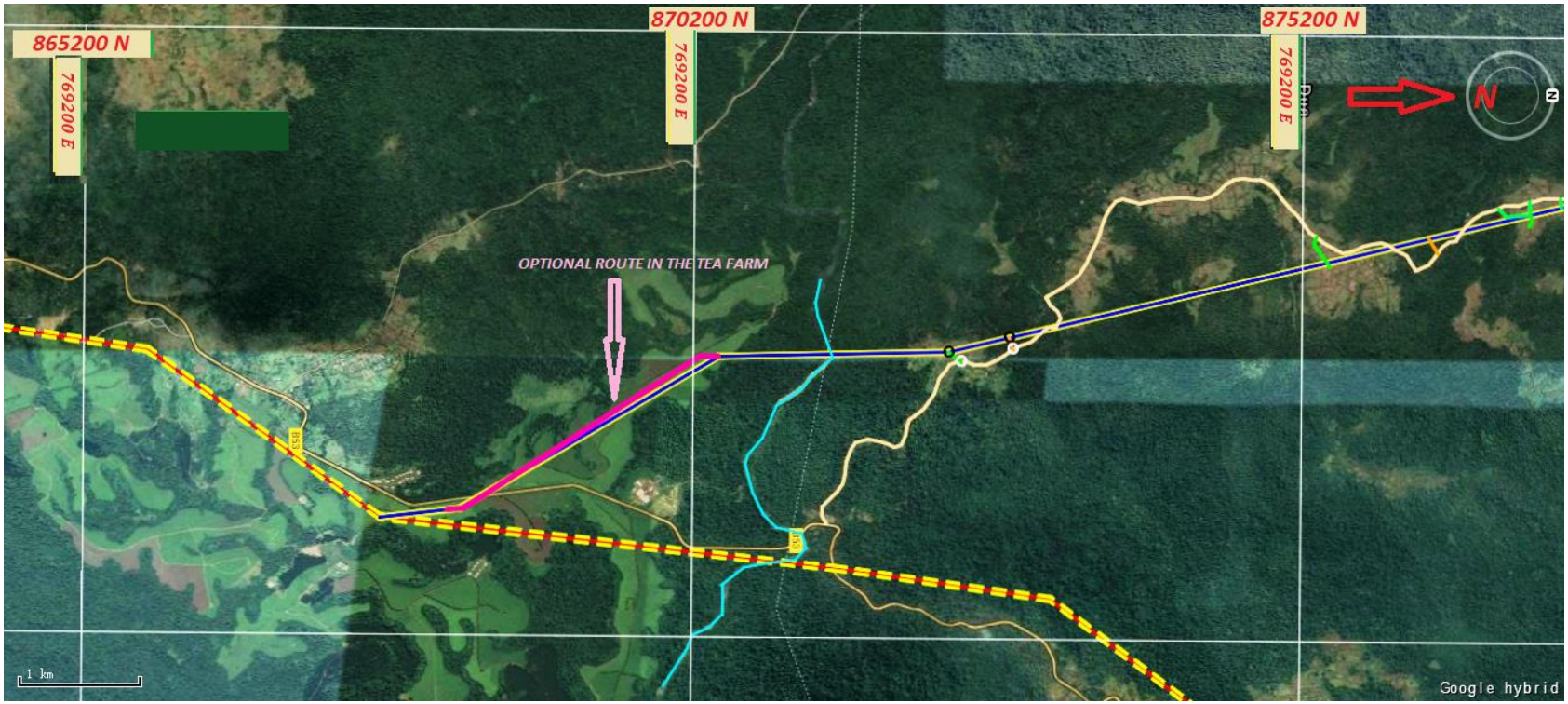


ii. Parts

P I


855200 N
860200 N
865200 N
769200 E
769200 E
MASHA TOWN
Chiro Small Cafe
Masha
N
1 km
Google hybrid

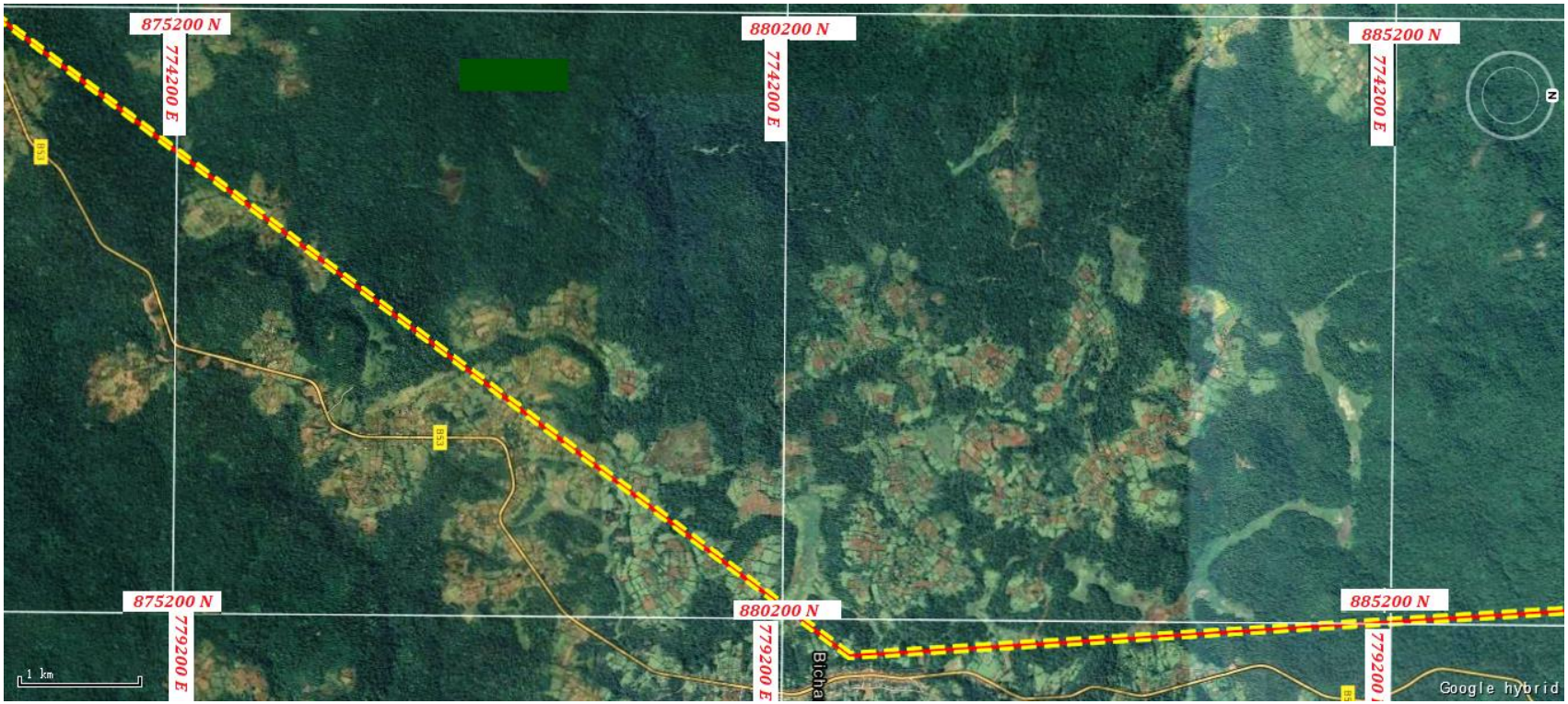
P2


865200 N
870200 N
875200 N
769200 E
769200 E
769200 E
OPTIONAL ROUTE IN THE TEA FARM
N
1 km
Google hybrid

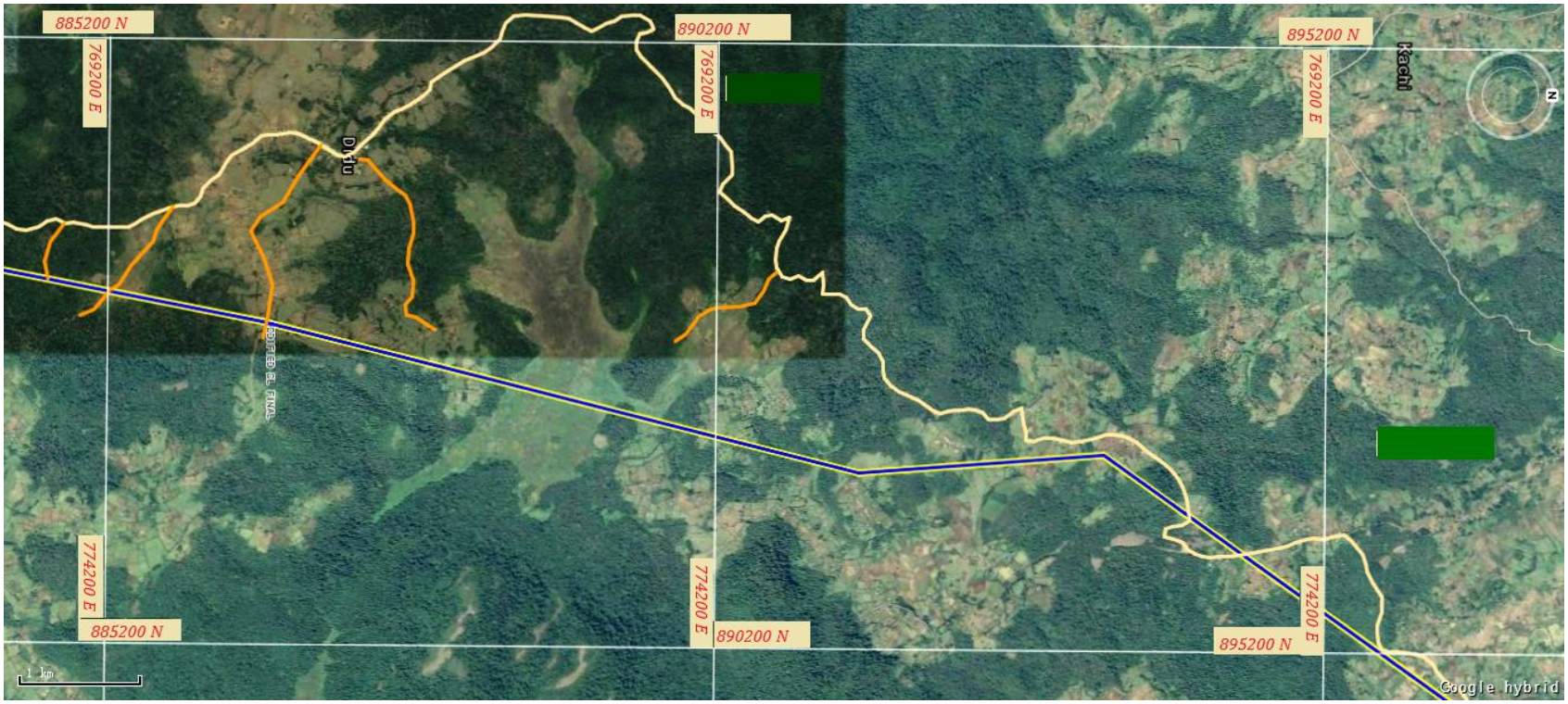
P3


875200 N
880200 N
885200 N
769200 E
769200 E
Dura
N
1 km
Google hybrid

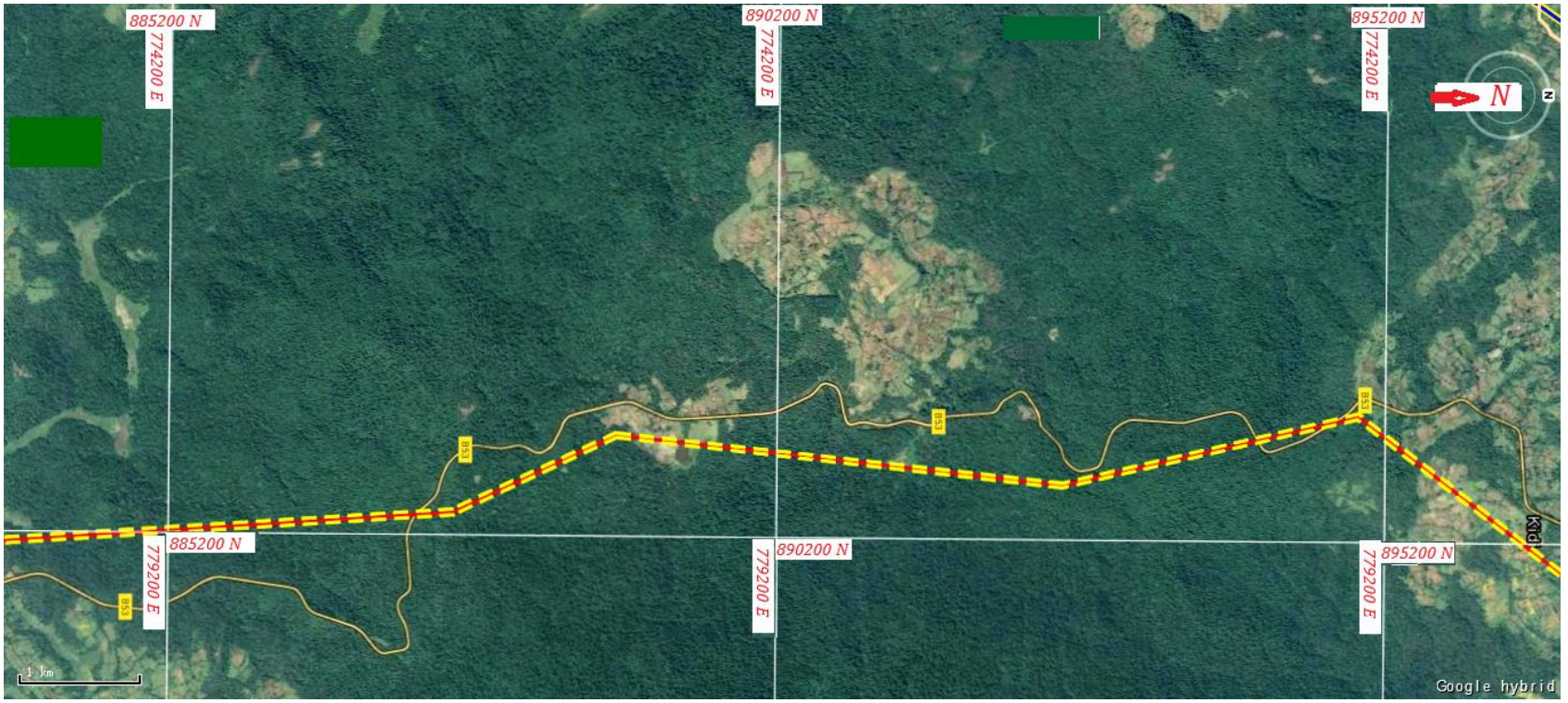
P3A


875200 N
774200 E
880200 N
774200 E
885200 N
774200 E
875200 N
779200 E
880200 N
779200 E
885200 N
779200 E
1 km
Google hybrid

P4


885200 N
890200 N
895200 N
769200 E
769200 E
769200 E
774200 E
774200 E
774200 E
885200 N
890200 N
895200 N
Dirfu
Kachi
Google hybrid

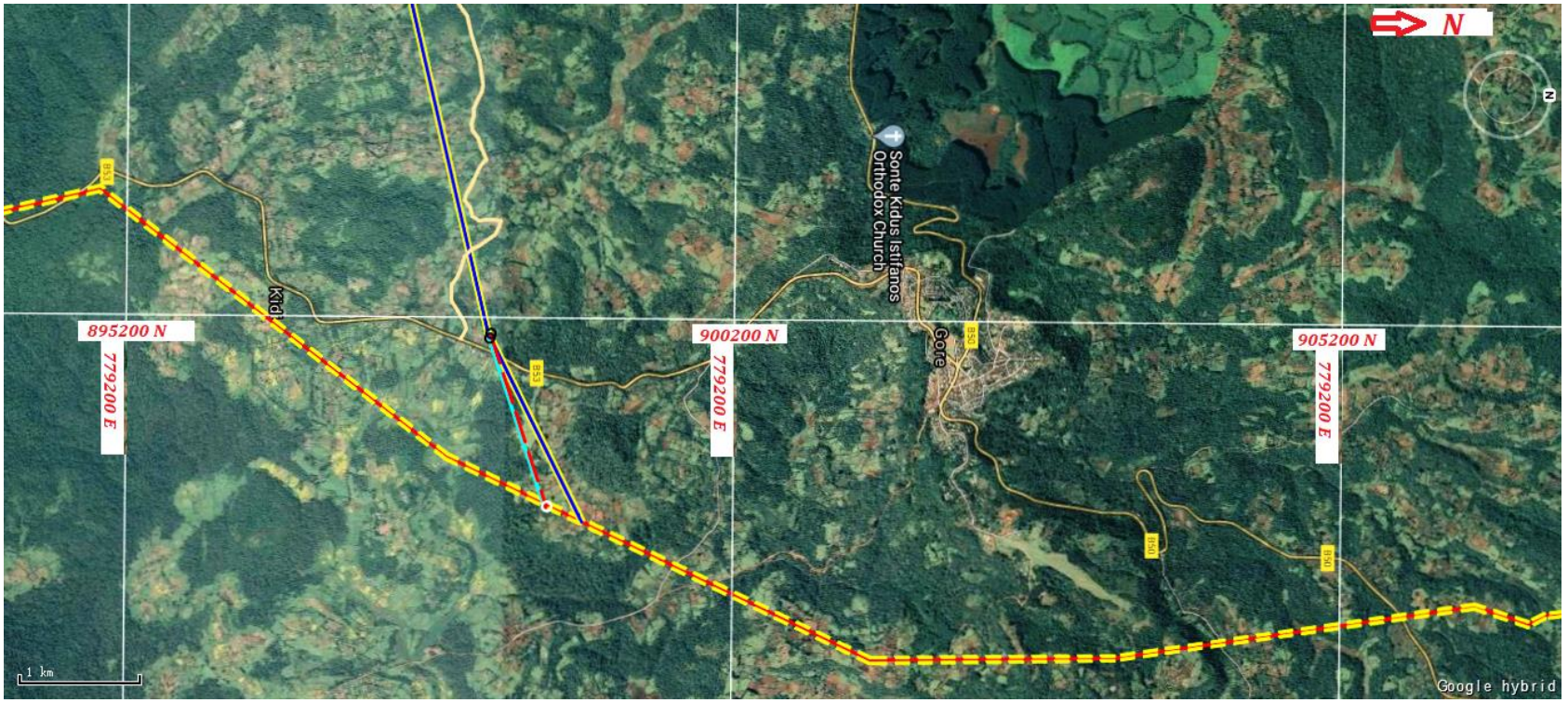
P4A


885200 N
774200 E
890200 N
774200 E
895200 N
774200 E
N
885200 N
779200 E
890200 N
779200 E
895200 N
779200 E
B53
1 km
Google hybrid

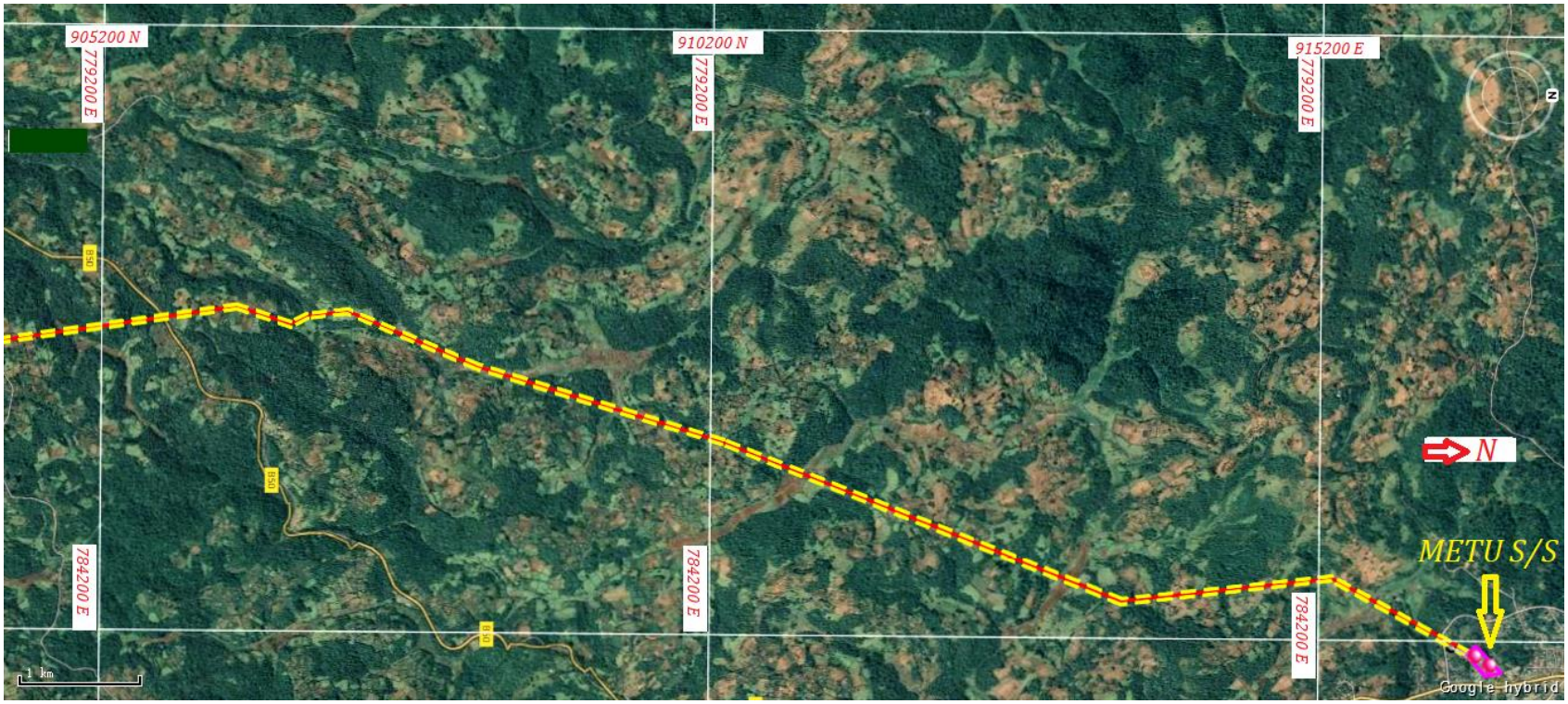
P5


895200 N
774200 E
895200 N
774200 E
895200 N
774200 E
N
Sonte Kidus Istifanos Orthodox Church
779200 E
895200 N
779200 E
895200 N
779200 E
895200 N
1 km
Google hybrid

P5A


N
Sonte Kidus Istifanos Orthodox Church
Gore
895200 N
900200 N
905200 N
779200 E
779200 E
779200 E
1 km
Google hybrid

P6


905200 N
910200 N
915200 E
779200 E
779200 E
779200 E
784200 E
784200 E
784200 E
N
METU S/S
1 km
Google hybrid

17.6. Annex VI: Details of Critical Habitats Assessment

Critical habitats are areas that contain features that are vital for conservation of species. These are habitats of conservation concern and require targeted management and conservation. The IFC Performance Standard 6 define critical habitats as "Habitat is defined as a terrestrial, freshwater, or marine geographical unit or airway that supports assemblages of living organisms and their interactions with the non-living environment." These habitats are of high biodiversity value22 and meet the one or more of the following criteria23. These criteria are:

vi. *Criterion 1:* Critically endangered (CR) and/or Endangered (EN) species

vii. *Criterion 2:* Endemic or restricted-range species

viii. *Criterion 3:* Migratory or congregatory species

ix. *Criterion 4*: Highly threatened and/or unique ecosystem

x. *Criterion 5:* Key evolutionary processes

Where the project falls inside IUCN's Protected Areas Categories 1a, 1b and II, IFC guidance note 6 (Biodiversity Conservation and Sustainable Natural Resources Management, G9 stipulates that a Biodiversity Management Plan to be prepared. A critical habitats assessment will be carried out in such case. The project area falls under IUCN's Protected Areas Category VI (protected area with sustainable use of natural resources). Category VI protected areas24:

- Conserve ecosystems and habitats together with associated cultural values and traditional natural resources management system;

22 *http://www.ifc.org/wps/wcm/connect/115482804a0255db96fbffd1a5d13d27/ PS_English_2012_Full-Document.pdf?MOD=AJPERES*

23 *http://www.ifc.org/wps/wcm/connect/a359a380498007e9a1b7f3336b93d75f/ Updated_GN6-2012.pdf?MOD=AJPERES*

24 https://www.iucn.org/theme/protected-areas/about/protected-areas-categories/category-vi-protected-area-sustainable-use-natural-resources

- Large with most area in natural conditions and etc.

The primary objective of Category VI is o protect natural ecosystems and use natural resources sustainably, when conservation and sustainable use can be mutually beneficial.

G10 of the IFC guidance note 6 also mentioned provisions for Key Biodiversity Areas (KBA) including Important Bird Areas.

Fifty-Five biodiversity features have been assessed for critical habitats under IFC Performance Standard 6 (Table Annex VI).

Table Annex VI. Critical habitats Assessment

Species features and status (global and regional)	Population trend	Distribution	Assessment
Criterion 1: Critically Endangered / Endangered Species (The species included in the assessment consist of the strictly protected species			
a. Areas that support globally important concentrations of an IUCN Red-listed EN or CR species (≥ 0.5% of the global population AND ≥ 5 reproductive unitsGN16 of a CR or EN species).			
b. Areas that support globally important concentrations of an IUCN Red-listed Vulnerable (VU) species, the loss of which would result in the change of the IUCN Red List status to EN or CR and meet the thresholds in GN72(a).			
c. As appropriate, areas containing important concentrations of a nationally or regionally listed EN or CR species			
The project area crosses cultivated areas for most of its length. These cultivated areas have been developed over a couple of years of deforestation of National Forest Priority Areas, e.g., Gebre Dima. It also crosses a small portion of the transition zone of the Yayu UNESCO Biosphere Reserve. Just shortly before crossing the Baro River and shortly after that, a small part of the project area (about 700 m) crosses the transition Zone[25] of the Sheka Forest UNESCO Biosphere Reserve. There are endemic plants and fauna in the project area. But they are all widely distributed in Ethiopia and across Africa. As a result, the project area cannot be considered critical to their long-term persistence. Furthermore, the project crosses cultivated areas, which are already highly disturbed over years. On the other hand, some plant species, e.g., *Prunus africana*, were assessed as vulnerable and the project adversely affect some individuals of these species. There are no important Bird Areas and intact forests adversely affected by the project.			

[25] The Transition Zone of a Biosphere Reserve, Sheka Forest in this case, is area with human settlements and farming activities. In this study, tree species in the Transition Zone are common across the study area and have no conservation concerns. These are scattered trees of *Albizia gummifera*, *Pouteria adolfi-friderici* and etc.

Species features and status (global and regional)	Population trend	Distribution	Assessment
Flora			
Prunus africana	The population status of this species is unspecified, VU	It occurs in different parts of Ethiopia and several African countries; Ethiopia, Angola, Benin, Botswana, Burkina Faso, Cameroon, Chad, Comoros, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Mali, Mauritania, Mozambique, Namibia, Niger, Nigeria, Sao Tome & Principe, Senegal, Sierra Leone, South Africa, Tanzania, Togo, Uganda	• This is a widely distributed species occurring throughout Ethiopia and in Africa. • This species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1.
Afromomum corrorima	Population status unknown, LC	It is extensively distributed in the southwestern parts of Ethiopia: Keffa, Illubabor, Sidamo and Wollega floristic regions of Ethiopia): Sudan, Uganda, Tanzania	• Widely distributed in Ethiopia and Eastern Africa. • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1.
Albizia gummifera	Population status unknown, LC	It is widely distributed in Ethiopia, Nigeria, Kenya, Zimbabwe, Mozambique, Madagascar	• Widely distributed in Ethiopia and Africa. • The species is not concentrated in the project area

Species features and status (global and regional)	Population trend	Distribution	Assessment
			• The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1.
Albizia schimperiana	Population status is stable, LC	It is widely distributed in Ethiopia, DRC, Sudan, Zimbabwe, Mozambique	• Widely distributed in Ethiopia and Africa. • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1.
Anthocleista schweinfurthii	Population status is stable, LC	It is widely distributed in Ethiopia, Nigeria, Tanzania, Zimbabwe, Angola	• Widely distributed in Ethiopia and Africa. • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1.
Apodytes dimidiata	Population status decreasing, LC	It is widely distributed in Ethiopia, Sudan, Kenya, Tanzania, Uganda, Central Africa, Angola, South Africa and Australia	• Widely distributed in Ethiopia and Africa. • The species is not concentrated in the project area

Species features and status (global and regional)	Population trend	Distribution	Assessment
			• The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1.
Bersama abyssinica	Population status stable, LC	It is widely distributed in Ethiopia, Guinea Bissau, most of West Africa, Eritrea, Angola, Zambia, Zimbia, Zimbabwe, Mozambique	• Widely distributed in Ethiopia and Africa. • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1.
Cordia africana	Population status stable, LC	It is widely distributed in Ethiopia, Guinea, Eritrea, Kenya, Angola, Zimbabwe, Mozambique, South Africa	• Widely distributed in Ethiopia and Africa. • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1.
Croton macrostachyus	Population status stable, LC	It is widely distributed in Ethiopia and throughout Africa	• Widely distributed in Ethiopia and Eastern Africa.

Species features and status (global and regional)	Population trend	Distribution	Assessment
			• The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1.
Cyathea manniana	Population status stable, LC	It is widely distributed in southwestern Ethiopia, Malawi, Mozambique, Zimbabwe, DRC, Cameroun, Gunea Bissaou	• Widely distributed in Ethiopia and Africa. • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1.
Dracaena afromontana	Population status stable, LC	It is widely distributed in Ethiopia, Kenya, Uganda, Tanzania, DRC, Rwanda, Burundi, Malawi	• Widely distributed in Ethiopia and Africa. • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1.

Species features and status (global and regional)	Population trend	Distribution	Assessment
Dracaena steudneri	Population status stable, LC	Ethiopia, Kenya, Uganda, Burundi, Sudan, Malawi, DRC, Zimbabwe, Mozambique, Rwanda	• Widely distributed in Ethiopia and Africa. • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1.
Ehretia cymosa	Population trend decreasing, LC	Ethiopia, Cameroun, Zimbabwe, Tanzania, Nigeris, Yemen, Soudi Arabia, Madagascar, Comoros, Central African Republic	• Widely distributed in Ethiopia, Africa and Asia • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1.
Ensete ventricosum	Population status stable, LC	Ethiopia, Kenya, Uganda, Tanzania, Mozambique, South Africa, DRC	• Widely distributed in Ethiopia and Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population

Species features and status (global and regional)	Population trend	Distribution	Assessment
			• Not triggering Criterion 1.
Ekebergia capensis	Population status stable, LC	Ethiopia, Eritrea, Botswana, South Africa, Senegal	• Widely distributed in Ethiopia and Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1.
Erythrina brucei	Population status stable, LC	Endemic to Ethiopia	• Widely distributed in Ethiopia • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1.
Ficus exasperata	Population status stable, LC	Ethiopia, Senegal, Djibouti, Mozambique, Angola, Yemen, India, Sri Lanka	• Widely distributed in Ethiopia, Africa and Asia • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is

Species features and status (global and regional)	Population trend	Distribution	Assessment
			unlikely to support >0.05% of the global population • Not triggering Criterion 1.
Ficus sur	Population status stable, LC	Ethiopia, widespread in tropical Africa, west to Senegal, Cape Verde Islands, South Africa	• Widely distributed in Ethiopia and Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Ficus thonningii	Population status stable, LC	Widespread in Ethiopia and tropical Africa, West to Senegal, Zambia	• Widely distributed in Ethiopia and Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Ficus vasta	Population status stable, LC	Widespread in Ethiopia, Kenya, Sudan, Somalia, Tanzania and Yemen	• Widely distributed in Ethiopia, Africa and Yemen • The species is not concentrated in the project area

Species features and status (global and regional)	Population trend	Distribution	Assessment
			• The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Galiniera saxifraga	Population status stable, LC	Widespread in Ethiopia, Sudan, Kenya, Tanzania, Uganda, Burundi, Rwanda, Zambia, DRC	• Widely distributed in Ethiopia and Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Hallea rubrostipulata	Population status stable, LC	Ethiopia, Tanzania, Rwanda, Malawi, Burundi, DRC, Uganda	•
Ilex mitis	Population trend decreasing, LC	Ethiopia, Kenya, Eritrea, Sierra Leone, South Africa, Lesotho	• Widely distributed in Ethiopia and Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1

Species features and status (global and regional)	Population trend	Distribution	Assessment
Macaranga capensis	Population status stable, LC	Ethiopia, Sudan, Zimbabwe, Mozambique, South Africa	• Widely distributed in Ethiopia and Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Maesa lanceolata	Population stable, LC	Ethiopia, Cameroun, DRC, South Africa, Mozambique, tropical Africa, Arabia	• Widely distributed in Ethiopia, Africa and Asia • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Ocotea kenyensis	Population status unknown, VU	Ethiopia, Kenya, DRC, Rwanda, Uganda, Tanzania, Zimbabwe, Mozambique, South Africa	• Widely distributed in Ethiopia and Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population

Species features and status (global and regional)	Population trend	Distribution	Assessment
			• Not triggering Criterion 1
Olea capensis L. ssp. macrocarpa	Population status stable, LC	Ethiopia, Burundi, Cameroon, South Africa, Comoros, Guinea, Gulf of Guinea Is., Ivory Coast, Kenya, Liberia, Madagascar, Malawi, Nigeria, Rwanda, Sierra Leone, Somalia, Sudan, Swaziland, Tanzania, Uganda, DRC	• Widely distributed in Ethiopia and Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Piper capense	Population status stable, LC	Ethiopia, Guinea, Angola, Mozambique, South Africa	• Widely distributed in Ethiopia and Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Polyscias fulva	Population status stable, LC	Ethiopia and Kenya, Angola, Zimbabwe and Mozambique, Guinea	• Widely distributed in Ethiopia and Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population

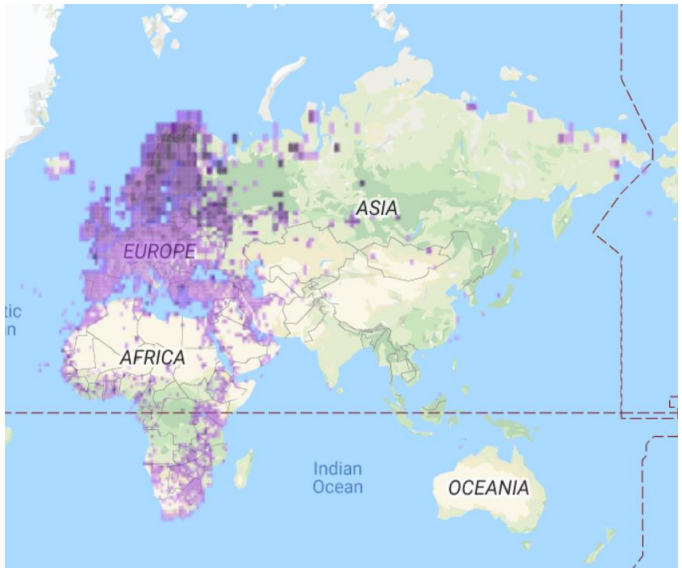
Species features and status (global and regional)	Population trend	Distribution	Assessment
			• Not triggering Criterion 1
Pouteria adolfi-friederici	Population status stable, LC	Ethiopia, DRC, Sudan, Zimbabwe	• Widely distributed in Ethiopia and Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Syzygium guineense	Population status stable, LC	Ethiopia, Somalia, Senegal, Namibia, Botswana, South Africa	• Widely distributed in Ethiopia and Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Trichilia dregeana	Population status stable, LC	Ethiopia, Tanzania, Guinea, Cameroun, Côte d'Ivoire, Cameroon, in Congo, DRC, Angola, South Africa	• Widely distributed in Ethiopia and Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population

Species features and status (global and regional)	Population trend	Distribution	Assessment
			• Not triggering Criterion 1
Trema orientalis	Population status unknown, LC		• Widely distributed in Ethiopia and Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Birds			
Silvery-cheeked hornbill	Population trend decreasing, LC	Ethiopia, Kenya, Tanzania, Uganda, Malawi, Mozambique, Zimbabwe	• Widely distributed in Ethiopia and Eastern and southeastern Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Crowned hornbill	Population trend decreasing, LC	Ethiopia, Kenya, Tanzania, Uganda, Malawi, Mozambique, Zimbabwe, South Africa, Angola, Namibia, DRC	• Widely distributed in Ethiopia and Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is

Species features and status (global and regional)	Population trend	Distribution	Assessment
			unlikely to support >0.05% of the global population • Not triggering Criterion 1
African olive-pigeon	Population trend decreasing, LC	Ethiopia, Kenya, Uganda, Tanzania, DRC, Mozambique, Zimbabwe, South Africa, Botswana, Arabia	• Widely distributed in Ethiopia and Eastern and southeastern Africa and Arabia • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
African Dusky flycatcher	Population trend decreasing, LC	Ethiopia, Kenya, Tanzania, Uganda, DRC, Zambia, Zimbabwe, Mozambique, South Africa	• Widely distributed in Ethiopia and Eastern and southeastern Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Abyssinian slaty flycatcher	Population trend decreasing, LC	Ethiopia, Eritrea	• Widely distributed in Ethiopia and Eritrea • The species is not concentrated in the project area

Species features and status (global and regional)	Population trend	Distribution	Assessment
			• The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Rouget's rail	Population trend decreasing, NT	Ethiopia and Eritrea	• Widely distributed in Ethiopia and Eritrea • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Scaly francolin	Population trend decreasing, LC	Ethiopia, Kenya, Tanzania, Uganda, Rwanda, Burundi, Malawi, DRC, Angola, Equatorial Guinea, Gabon Cameroun, Central African Republic, Nigeria	• Widely distributed in Ethiopia and Eritrea • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Abyssinian woodpecker	Population trend decreasing, LC	Ethiopia, Eritrea, Kenya	• Widely distributed in Ethiopia, Eritrea and Kenya

Species features and status (global and regional)	Population trend	Distribution	Assessment
			• The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Western Black-headed batis	Population trend decreasing, LC	Ethiopia, Kenya, Uganda, Rwanda, Burundi, Somalia, DRC, Central African Republic, Gabon, Eritrea, Cameroun	• Widely distributed in Ethiopia and tropical Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Sharpe's starling	Population trend decreasing, LC	Ethiopia, Kenya, Uganda, Tanzania, Rwanda, Burundi	• Widely distributed in Ethiopia and East and central Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population

Species features and status (global and regional)	Population trend	Distribution	Assessment
			• Not triggering Criterion 1
Willow warbler	Population trend decreasing, LC	Widely distributed  (source: https://ebird.org/species/wlwwar)	• Widely distributed in Ethiopia and East and central Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
African hill babbler	Population trend decreasing, LC	Ethiopia, Kenya, Tanzania, DRC, Zambia, Mozambique, Angola	• Widely distributed in Ethiopia and tropical africa Abyssinian ground-thrush • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is

Species features and status (global and regional)	Population trend	Distribution	Assessment
			unlikely to support >0.05% of the global population • Not triggering Criterion 1
Abyssinian ground-thrush	Population trend decreasing, LC	Ethiopia, Kenya, Tanzania, Uganda, Rwanda, Burundi	• Widely distributed in Ethiopia, East and Central Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Amphibians			
Clarke's Banana Frog	Population status unknown, EN	Endemic	• Widely distributed in Ethiopia • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Common reed Frog	Population trend unknown, LC	Ethiopia, Kenya, Uganda, Tanzania, DRC, Burundi, Rwanda, Sudan, Central African Republic	• Widely distributed in Ethiopia and tropical Africa

Species features and status (global and regional)	Population trend	Distribution	Assessment
			• The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Dime Forest Frog	Population status stable, LC	Endemic	• Widely distributed in Ethiopia • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Speckle-lipped Mabuya	Population status stable, LC	Ethiopia, Sudan, Kenya, Uganda, Tanzania, Mozambique, Malawi, DRC, Rwanda, Burundi, Gabon, Cameroon, Central African Republic, Ivory Coast, Guinea Conakry, Nogeria, Ghana	• Widely distributed in Ethiopia and tropical Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1

Species features and status (global and regional)	Population trend	Distribution	Assessment
Striped Skink	Population status unknown	Ethiopia, Kenya, Tanzania, Malawi, Mozambique, Zambia, Angola, Namibia, DRC, Rwanda, Burundi	• Widely distributed in Ethiopia and tropical Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Five-lined Skink	Population status stable, LC	Ethiopia, Sudan, Egypt, Kenya, Uganda, Chad, Nigeria, Mali, Cameroon	• Widely distributed in Ethiopia and tropical Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Whalberg's snake-eyed skink	Population stauts unknown, LC	Ethiopia, Somalia, Kenya, Tanzania, DRC, Zambia, South Africa	• Widely distributed in Ethiopia and tropical Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is

Species features and status (global and regional)	Population trend	Distribution	Assessment
			unlikely to support >0.05% of the global population • Not triggering Criterion 1
Bearded Ethiopian Montane Chameleon	Population status stable, LC	endemic	• Widely distributed in Ethiopia • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1
Smooth Chameleon	Population status stable, LC	Ethiopia, Kenya, Tanzania, Uganda, Burundi, Rwanda, DRC, Cantal African Republic, Cameroon, Sudan, Chad, Nigeria	• Widely distributed in Ethiopia and tropical Africa • The species is not concentrated in the project area • The geographic distribution of the specie is of a large extent and thus, landscape is unlikely to support >0.05% of the global population • Not triggering Criterion 1

17.7. Annex VII. Checklist for collection of secondary data

Secondary data collection Form

Project: Metu – Masha 230 kV single circuit Transmission Line project

Secondary data

Date: ……
Time:……
Source of secondary data Zone:…… Woreda: ……

Details of secondary data

Tick (√)	Description
	Socio-economic report for the last two years
	Report of Agricultural activities (cereal production, livestock and businesses)
	Information on other active projects in the area
	Report on schools
	Report on health facilities
	Reports of road infrastructure
	Report on household income strategies
	Report on the physical topography of the areas
	Any other secondary information (specifiy):